Romantic conflict, coping motives, and addictive behaviours during the COVID-19 pandemic

by

Amanda E. F. Hagen

Submitted in partial fulfilment of the requirements
for the degree of Doctor of Philosophy

at

Dalhousie University
Halifax, NS
August 2024

Dalhousie University is located in Mi'kma'ki,
the ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

Copyright © Amanda E. F. Hagen, 2024

DEDICATION

To my parents — for all the apples that didn’t fall far from the tree.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

The COVID-19 pandemic and public health measures resulted in enormous disruption. Substantial evidence has found that this period was associated with worsened anxiety and depression symptoms, exacerbation of addictive behaviours and associated problems, and hostile romantic conflict behaviours amongst those more vulnerable to these challenges. Addictive behaviours and hostile romantic conflict are strongly associated; less research has examined conflict as a predictor of addictive behaviours. Coping motives provide a possible explanation for this link across various addictive behaviours. This mediational model has been established in one study on alcohol-related problems. However, this has not been tested in other addictive behaviours or with a measure of distress. Lastly, the pandemic may be a time of heightened partner influence. Through four studies, this dissertation sought to examine hostile romantic conflict as a predictor of addictive behaviours and associated problems via distress and coping motives respectively, largely using dyadic models to examine partner influence. In Study 1, $N = 348$ couples who used alcohol were recruited (Wave 1). Results showed support for the mediational model and partner influence. In Study 2, $N = 206$ partnered gamblers were recruited between pandemic waves. Results supported the serial mediation model predicting gambling problems. Study 3 examined cannabis and alcohol use during Wave 2 of the pandemic and used an emotional disorder symptoms measure in $N = 493$ couples. Study 3 found support for the serial mediational model, as well as partner effects for cannabis but not alcohol. Study 4 extended Study 3 by examining substance-related problems (SRP). The serial mediation model predicted a large amount of variance in SRP; more partner effects were detected than in Study 3 in the same sample. Several gender differences were found across studies. Trends suggest conflict may be riskier for addictive behaviours for women, but that men may be more at risk to respond to their partner's conflict-associated distress with engagement in addictive behaviours. Overall, this dissertation supports the proposed serial mediation model. Additionally, couples appear to influence each other's addictive behaviours partially via coping motives. Findings contribute to our understanding of the public health impacts of the COVID-19 pandemic.

LIST OF ABBREVIATIONS AND SYMBOLS USED

α	Cronbach's alpha
APIM	Actor Partner Interdependence Model
AUD	Alcohol use disorder
β	Beta-value
BAMM	Brief Alcohol Motives Measure
BCAMM	Brief Cannabis Motives Measure
CCSA	Canadian Centre on Substance Use and Addiction
CI	Confidence interval
CIHI	Canadian Institute for Health Information
COVID-19	Coronavirus disease of 2019
CUD	Cannabis use disorder
DASS	Depression, Anxiety, Stress Scale
DMQ-R	Drinking Motives Questionnaire – Revised
DSM-5	Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition
DTC	Drinking to cope
EDS	Emotional disorder symptoms
GAD-7	Generalized Anxiety Disorder – 7
GMQ-R	Gambling Motives Questionnaire – Revised
H1/H2/H3…	Hypothesis 1/Hypothesis 2/Hypothesis 3…
IPV/IPA	Intimate partner violence/intimate partner aggression
M	Mean
N/n	Sample size/subsample size
p	*p*-value
PG	Problem gambling
PGSI	Problem Gambling Severity Index
PHQ-9	Patient Health Questionnaire – 9
PHQ-ADS	Patient Health Questionnaire – Anxiety and Depression Scale
PSRBS	Partner-Specific Rejecting Behaviours Scale
r	Pearson's correlation
SAMHSA	Substance Abuse and Metal Health Services Administration
SD	Standard deviation
SE	Standard error
SES	Socio-economic status
SPSS	Statistical Packages for the Social Sciences
SRP	Substance-related problems
WHO	World Health Organization

ACKNOWLEDGEMENTS

I would like to hold the following dialectically. I am the author of this dissertation, allowing it to fulfill the requirements of the degree I will hold. Upon defense, I expect to feel pride for the achievement, and people will congratulate me for it. And, just like every individual accomplishment we celebrate and corresponding individual we venerate for it, this dissertation simply would not exist at all without a collective: the love and hard work of so many other people whose names will not make the title page of this document or of the degree it will confer; those who will not be congratulated for its completion, but who are still worthy of celebration and pride. This dissertation is for all of us, and this acknowledgements section is for you.

First and foremost, I would like to thank Dr. Sherry Stewart, my dedicated supervisor: for her diligent removal of 'u's from 'behaviour' for submission to American journals (possibly thousands of times), for her unnervingly quick yet thorough feedback (she got mine and a peer's dissertations reviewed in one week, *and* apologized for the delay), and for her knack for finding special issues to submit to. Most of all, I would like to thank her for her unwavering quiet support through the ups and downs of this degree. She always had my back and has been extremely consistent in her commitment to getting the job done. I know that no PhD would be possible without the supervisor, but I feel especially lucky for Sherry's expertise, understated kindness, flexibility, and attention to detail (all while managing a seemingly inhuman number of tasks). Sherry has mastered the balance of her competing priorities as a supervisor: teaching her students, helping them get a lot done and done rigorously, and getting them through the hurdles and out the door on time. She also gives her students a huge amount of autonomy to pursue their own interests, something I greatly respect. She allowed me to achieve my dreams. Thank you for it all.

A big thank you also goes out to my committee members, Drs. Natalie Rosen, Sean Barrett, and Simon Sherry for their support, guidance, and thoughtful feedback. To Sean: your contributions to the Department of Psychology & Neuroscience and to all your students will be remembered fondly and the department will not be the same in your absence. You were also the first professor to welcome me to the department in late August of 2018, describing this program as the classic "choose your own adventure." From then until our last committee meeting, your passion for research and learning has left a lasting impact. Having attended all three committee member's courses, research

talks, and received their feedback, I have been consistently impressed by their thoughtfulness and knowledge and benefited from their willingness to push students. I would also like to thank my collaborators, Dr. Lindsey Rodriguez and Dr. Clayton Neighbors for their impressive kindness and impressive statistical knowledge.

Being a graduate student is a bit like a coming-of-age novel for researcher development, and I feel immensely grateful for all the adults (mentors) around me on this adventure who shaped my education. So, this is also a thank you to the faculty in the department, all of whom played a role, with a special thank you to my course instructors, as well as to my comprehensive project supervisors: Dr. Igor Yakovenko and Dr. Alissa Pencer. Lastly, a special thank you to Dr. Sean MacKinnon for his generosity in consulting and more broadly, for carrying the analytical integrity of the Psychology & Neuroscience department.

I would like to thank my clinical supervisors, who each took extensive time and thoughtfulness to invest in my training and who have helped shaped me into the clinician I have become (and will be continually becoming): Dr. Alissa Pencer, Dr. Shannon Johnston, Dr. Nikki Ali, Dr. Andrew Starzomski, Dr. Brad Kelln, Dr. Igor Yakovenko, Dr. Jamie Farquhar, Dr. Natalie Stratton, Dr. Vincent, Dr. Jackie Huberman, Dr. Alim Awadia (and the rest of the Connections team: Cassandra and Maeve), Heather Arsenault (and the rest of the DBT team: Brad, Jessica, Jennifer, Miranda, Sam, Alisa, and Sarah), Dr. Jamie Collins, Dr. Barbara Pavlova, Dr. Marie-Eve Couture, and Dr. Tiffany Shepherd. Nothing made me feel more like I was on the right path than the cumulative hundreds of hours of supervision provided by these talented psychologists and other professionals.

I would also like to thank those that aided in my academic journey before graduate school. Dr. Mary Olmstead, for taking me on for my first baby research project, and her graduate students, Amanda Maracle, Rachel Small-Crevier, and Madison Mahoney for their mentorship. I cannot thank enough the CPD lab: Dr. Chris Bowie, Melissa Milanovic, Tanya Tran, Tammy Vanrooy, Stephanie Woolridge, Mike Best, and Chelsea Wood-Ross. My time there was foundational. I was given both the autonomy as well as the patience and mentorship to foster my development as a researcher, and this allowed me to step into my next role as doctoral student with ease and confidence. Dr. Bowie consistently modelled and fostered curiosity, and never wasted any time on unnecessary characters in an email. He was clearly motivated by all the right things, and I feel immensely lucky to have been a part of that kind of research environment at such an early stage.

This work would not have been possible without all the people who generously volunteered their time to participate in research and all the patients who have been willing to have a trainee psychologist at the vulnerable time of seeking treatment. This work is from you and for you.

There is a long list of people who played a role in my educational journey who may not even be aware of their impact. Thank you to Mr. Taylor, my Grade 12 English teacher, for fanning the existential spark that helped me realize that I probably would not be fully satisfied pursuing "hard" sciences only. Though I will not list them all, I am grateful for all the public educators along the way who gave me the space, support, and challenge to thrive as a learner and who did not let the system constrain my curiosity. Additionally, I would like to thank Keiran Way-Brackenbury for challenging my behaviourism, for always believing in me, and for the popsicles. A thank you is owed to Nicole MacKenzie, Linsey Rosenberg, & Ana Jemcov for the camaraderie through the first few years of this degree and to Margaux Ross and Ben Callaghan for their hospitality. I would like to thank Garrett Mallery for reading my Honour's thesis and for being so supportive of my move to Halifax. Thank you to Morgan for the experiential learning I didn't even have to ask for, and to Charles for reminding me of the importance of including cannabis – a late-ish-stage decision and major contribution to the current dissertation. Thank you to Anne, the admissions administrator at Queen's who accepted my faxed transcript at the eleventh hour, so I didn't lose my spot to enrol in the fall of 2014 for my BSc. In terms of the inert and/or very distal, I would like to thank Kicking Horse Coffee and my moka pot, Seven Bays, Monica for the standing desk extender, EndNote, fruit snacks, and Howard Shore.

Forever thank you to my hiking partner, Jake Pickering, for letting me pause on hikes to draw diagrams in the snow, amongst other kindnesses, whilst providing the best and deeply necessary breaks from academia. Looking forward to whatever trails we end up together on next. Additionally, I would like to thank Karan Chowdhry, Sara Bartel, Meghan Rossi, Tib Mahu, Jess Gibson, Chris de Graaf, Christiane Whitehouse, and Sarah Peverill for adding good company and adventure to my grad school years.

I am grateful to Dr. Adam Ghali for his patience and thoughtfulness in my angsty and lengthy decision-making process about whether to pursue this degree. And everyone else who lent an ear and some advice during this time: Nicholas Geringer, Kirsten Wilson, Lilian Laferrière, Evan & Francis Hagen, Neil & Nora Hagen, Elspeth Yates, Mike Best, Melissa Milanovic, Andrew Lauzon, Robyn Lepa, Rob Thomas, Thomas

Murphy, all members of the Goad House, and probably many others. And after a painstakingly drawn-out process, I would also like to thank the guy at the Adirondack's hostel who boldly imparted his unsolicited wisdom that I really should think about it before committing to such a long program. Amongst those who played a role they may not be aware of, perhaps the most important is Nick Pearce, for encouraging me to explore my curiosity in psychology and the possibility of changing my major, and later, to email the Psychology Undergraduate Coordinator at Queen's to see if there were any additional spots in PSYC 100 for the summer term. Those dorm room conversations were like the falling of small stones that started an avalanche.

I wouldn't be who I am without my family. I am grateful to have been born into a family of highly educated women: my Grandma Odette trailblazed the footsteps for me to follow in, receiving her PhD in 1966 – a time when just 10% of doctorates were women – making me the seventh Dr. Hagen in three generations (but only the second doctorate).

I would like to thank my big brothers, Evan and Francis, for their sense of humour, for making sure I never took myself too seriously, for helping me deduce what a sandwich is (and is not), and for all the games of Age of Empires. In particular, I am grateful to Evan for coming home from university with stories about the Milgram studies and Standford Prison Experiment, sparking my initial curiosity in the science of psychology. I am the luckiest little sister to have grown up with big brothers like you both, and I am so happy we are still friends through all these years. We are all grown up now from the days of playing run-around-the-wall and making apple studio in the backyard, but some things never change: I still and will forever follow you around, test your patience, and look up to you.

I cannot thank my parents enough, in part for instilling such a strong sense of gratitude in me that this is undoubtedly the most garrulous section of a very long document. Second only to gratitude, my parents *always* fostered curiosity, learning, a sense of wonder, and guided discovery – values I hold dearly today, and which are integral to the process of science. From encouraging my love of reading (letting me fill my suitcase with books to go on vacation) to not letting unscientific claims fly (setting up a single-blind randomized controlled taste test at my claims about the different taste of leftover soup), I was given incredible leeway (and at times, actively pushed) to learn, expand my mind, and most of all, to *see what happens*. I can now appreciate the restraint it would take as parents to allow these things (e.g., turning the stairs into a mattress slide,

changing schools, etc.) to play out. Thank you for the autonomy and support in nurturing my curiosity.

Thank you to my dad for being the biggest supporter of my formal education since day one – literally. You drove me to school on my first day of Kindergarten, and since, have listened to me practice presentations (diligently with a notepad and pen) and carefully edited essays and papers for the last twenty-two years. You also gave me one of the greatest gifts, which is my love of running (and miscellaneous outdoor cardio, particularly first thing in the morning). Some credit must also be given to your commitment to instilling the Hagen work ethic in us, incessantly repeating "work before play"… I cannot say I always adhered to this particular refrain, but it probably did something to make getting a PhD easier. Thank you to my mom for modelling and encouraging balance, ensuring I ended up not only highly educated, but also a whole person outside of academia; perhaps even one who occasionally dances along the way. Thank you to both of you for giving me the audacity to believe that I could do something with my life that I found both intellectually stimulating and deeply meaningful and then all the emotional, cognitive, and financial resources to do it. For this, I consider myself amongst the very luckiest.

Thank you, thank you, thank you to all the top beans: Victoria Patterson, Jasmine Aziz, Lydia Muyingo, Emma Drudge, Ashley Halleran, Toni Spinella, Elspeth Yates, Lilian Laferrière, Tessa Rootenberg, Jake Pickering, Alex McCallum, Sadie Cunningham, Rob Thomas, Jason Isaacs, Katelyn Ward, Karin Kantarovich, and Moragh Jang. You are all the kind of people to jump up and down in my kitchen with me in celebration or sit patiently and listen for hours in the moments of doubt or heartbreak. Though I could not possibly outline all of the reasons why, I would like to name some highlights: Emma's balance of chaos to my order and intuition to my book learning, Lydia's sunflower-like-qualities, Victoria's consistent intensive care bear, Toni's vulnerability and authenticity, Elspeth's arm-flapping breakfast-potatoes steadiness in my life, Lil's combination of incisiveness and support, Jazzy's quiet courage and extensive thoughtfulness, Tessa's 13/10 chats, Jason's tendency to go down a rabbit hole with me about any topic—even when we disagree, Rob's generosity of spirit, Sadie's humour and principles, Alex's gentleness and love of cooking, Ash's loyalty to her friends and just generally being of best kind, Kate's groundedness and straightforwardness, Karin's ability to ask the best questions, and Moragh's inclusivity and enthusiasm in all that she does. Thank you for the years of adventures, chats, debriefs, support, patience, honesty, insight, laughter, and for putting up with my bad jokes. I wish I could have written a

dissertation on how great my friends are, footnotes and appendices included. My life is infinitely richer with all of you in it.

Thank you to all of the people who have been there for the last year of the writing push: Colin McCormick for our Wednesday night CHEB church service, my Halifax co-residents at Seven Bays, Alex McCallum, Rob Thomas, and Sadie Cunningham as well as Moragh Jang, Charlie Aelick, Candance Kimball, Tato' Crisanto, Isaac Frescia, and the rest of the queer climbing crew for getting me out climbing and for patiently listening to me talk about little else besides my dissertation progress. Special shoutout to Victoria Patterson, Lydia Muyingo, and Jasmine Aziz for the many, many hours on Gathertown and for upholding the mantra of "don't suffer alone". I would like to thank my NSH coresidents, Kayla Mooney, Katelyn Ward, Karin Kantarovich, Rhonda Stopyn, and Lindsey Nadon for the kinship and kindness through this last year. I am grateful to Ash & Marty for the installation of Friday morning walks through this last year, and Kate, Amanda, & Nala for the writing retreat with the winter wonderland walks.

On some level, I believe that I can only be as good as of the best bits of the people around me. Despite taking 2,596 words to do so, I still feel that I do not have enough to properly do justice to how much I owe to them. I have learned so much (almost everything I know, in fact) from those written here. You make doing the hard parts of life both easier and worth it. I think that is ultimately why I fell (with extensive forethought) into this field: it always has been and always will be about the people.

Note. Artist is Nathan W. Pyle.

CHAPTER 1. Introduction

This dissertation examines romantic conflict as a predictor of addictive behaviours mediated by negative affect and coping motives during the COVID-19 pandemic in romantically involved individuals and couples. This dissertation includes four publication-style manuscripts which address this primary research question. The first study investigated romantic conflict as a predictor of alcohol use mediated via coping motives in a sample of couples who reported on their experiences during lockdown in April 2020, allowing for the examination of partner influence. The second study recruited partnered gamblers and examined a serial mediation pathway from enacted conflict behaviours to gambling problems via negative affect and coping motives reporting on July 2021. The third and fourth studies again examined couples and couples' conflict, this time using the serial mediation model from Study 2, predicting alcohol and cannabis use (Study 3) and substance-related problems (Study 4) during the period of January-February 2021. Prior to presenting these four studies, relevant theory and literature about addictive behaviours, romantic conflict, and coping motives are reviewed. Then, the four studies are presented. Finally, the four studies are followed by an integrated discussion that links the studies to each other and the existing literature base. Theoretical and clinical implications are examined; limitations of the dissertation and future directions are discussed.

COVID-19

COVID-19 (or SARS-CoV-2) is a viral infectious disease that was declared a pandemic by the World Health Organization (WHO) in March, 2020 (WHO, 2020). That month, most jurisdictions in North America put in place stay-at-home or shelter-in-place

orders to slow the spread of COVID-19 through the population. These measures, often referred to as "lockdown" measures, first occurred and occurred in their strictest form in March 2020 (Wave 1) in Canada and around the world. Subsequent waves of viral spread resulted in similar measures, such as in December 2020 – February 2021 (Wave 2), April – June 2021 (Wave 3), August – October 2021 (Wave 4), and January 2022 (Wave 5 – Omicron wave). Across Canada, these measures were widespread in what they covered, affecting almost all aspects of life (e.g., distancing rules, gathering limits, business capacity limits or closures [such as restaurants for take-out only; non-essential store closures], school closures/move to at-home learning, household "bubbles", masking policies, self-isolation for cases and close contacts, restrictions of visits to hospitals and long-term care homes, and travel restrictions). These varied measures, tracked by the Canadian Institute for Health Information (CIHI), were not synchronized across jurisdictions – though their implementation and ebbs and flows did tend to follow general trends across the country (CIHI, 2022).

While these measures have been shown to be effective in reducing the spread of COVID-19 and preventing subsequent deaths (Arbel & Pliskin, 2022; Ghosal et al., 2020; Qi et al., 2020), many have attempted to weigh the life-saving effects of lockdown measures against the numerous consequences to health, access to healthcare services, psychological well-being, the economy, and education (Allen, 2021; Meyerowitz-Katz et al., 2021). The deleterious effects of lockdown are wide-ranging and increasingly well-documented, from food insecurity to children's learning development (Allen, 2021; Cortes-Albornoz et al., 2023; Wolfson & Leung, 2020). The literature on the effect of COVID-19 and the impact of lockdown measures on three areas of interest, will be

examined below: (1) anxiety and depressive symptoms (emotional disorder symptoms), (2) addictive behaviours and associated problems, (3) romantic relationship functioning and couples' conflict.

COVID-19 and Emotional Disorders

The research on the impact of the COVID-19 pandemic on anxiety and depressive disorders is extensive and will be briefly reviewed. Several meta-analyses have shown an increase in the symptoms of depression and anxiety during the pandemic across the globe, age ranges, and time period in the pandemic examined (e.g., Deng et al., 2021; Leung et al., 2022; Racine et al., 2021; Santabarbara et al., 2021). One of these meta-analyses examined several significant variables associated with symptoms of depression and anxiety, which included couples' conflict/IPV and substance use, discussed further below (Leung et al., 2022). Overall, studies are consistent in finding that the prevalence of anxiety and depressive symptoms dramatically increased during the pandemic, with estimates ranging from 2-7 times higher than pre-pandemic estimates (Ettman et al., 2020; Khubchandani et al., 2021). Additionally, these findings were replicated in Canada (Dozois, 2021).

COVID-19 and Addictive Behaviours

In addition to increases in anxiety and depressive symptoms, the mental health impacts of the pandemic also extended to addictive behaviours and associated problems (i.e., negative consequences of addictive behaviour). However, the results are more mixed.

A meta-analysis found that alcohol use overall slightly decreased, but it increased for those with pre-existing heavy drinking and/or alcohol-related problems (Kilian et al.,

2022). In contrast, a systematic review found mixed findings on alcohol use with a trend towards overall increasing – some studies reported slight decreases, many reported a slight increase, and several studies reported on subgroups, i.e., proportion of participants who increased/decreased/did not change their use level (Roberts et al., 2021). It appears that alcohol use trends became increasingly divergent in the pandemic: those that used relatively little decreased their use, while heavy drinkers were more likely to increase their use (Patrick et al., 2022). Similarly, those with pre-pandemic alcohol-related problems were more likely to increase their use during the pandemic (Baptist Mohseni et al., 2022).

Two reviews also discussed predictors of increased alcohol use with the most robust evidence (Roberts et al., 2021; Sallie et al., 2020). Those with emotional disorder symptoms increased their alcohol use during the first wave of the COVID-19 pandemic compared to those without symptoms; overall, younger adults were more likely to increase their drinking; however, older adults showed a stronger effect of emotional disorder symptoms predicting increases in use (Capasso et al., 2021). Consistent with this pattern, evidence suggests an increase in coping motivated alcohol use during the COVID-19 pandemic (Baptist Mohseni et al., 2022; Patrick et al., 2022; Wardell et al., 2020b).

Other substance use showed a clearer trend of increasing during the pandemic; overall mental health factors were most strongly associated with increased use of any substance of the variables examined, which included physical health, solitude, and demographic factors (Roberts et al., 2021). However, when examining cannabis specifically, a pattern similar to alcohol emerged: there was mixed evidence of direction

of change with a trend towards finding an increase in cannabis use, and those with pre-pandemic heavy or more frequent use were more likely to increase their use (Chong et al., 2022). One study found the most robust increase was in spring 2020 when lockdown measures were most stringent; however, the period of this study unfortunately ended just before the beginning of Wave 2, so changes across and between waves could not be examined (Brenneke et al., 2022). Another study that examined the first two lockdowns found increases in cannabis in both time periods (Sznitman, 2022). Increases in cannabis use during lockdown were associated with anxiety symptoms, depressive symptoms, and alcohol use (Mezaache et al., 2022).

Further, one study that showed an increase in cannabis use overall also found that coping motives (using to alleviate unpleasant internal states) increased, but expansion motives (using to alter awareness) predicted worsening cannabis use disorder (CUD) during lockdown, not coping motives (Cousijn et al., 2021). Boredom, depression, and anxiety were commonly reported as contributing factors to increases in cannabis use during the pandemic – boredom may explain the aforementioned finding regarding expansion motives (Chong et al., 2022).

However, most of the other published evidence indicates positive associations between coping motives and cannabis problems, or demonstrated a link between emotional disorder symptoms (i.e., symptoms of anxiety and depression; EDS) and cannabis problems mediated via coping motives during the pandemic (Dunaief et al., 2023; Lewis & Sznitman, 2022; McCabe et al., 2023; Sznitman, 2022; Vedelago et al., 2022).

Solitary conditions may lead to increases in unpleasant emotions, such as loneliness or sadness. Indeed, solitary substance use and solitary gambling have been shown to be riskier than using substances and gambling with others for related problems both pre- and peri-pandemic (Baptist Mohseni et al., 2022; Bristow et al., 2018; Corbin et al., 2020; Keough et al., 2015; Okey et al., 2022; van der Pol et al., 2013; Waddell et al., 2022; Wardell et al., 2020b). Solitary addictive behaviours may partially explain pandemic effects on increased problems for at-risk users, as social users may have decreased their use and/or shifted to more solitary behaviour.

During lockdowns, a scoping review found that gambling behaviour decreased overall, but increased for problem gamblers (Brodeur et al., 2021). Increases in *frequency* for problem gamblers were less consistent in the literature than increases in overall gambling *expenditure* (Gainsbury et al., 2020). Factors associated with increased gambling frequency, exacerbated gambling problems, or increased expenditure during gambling included higher distress, more severe anxiety and depression, reporting gambling to cope, more financial difficulties during the pandemic, more use of online gambling, and more severe gambling problems pre-pandemic (Gainsbury et al., 2020; Price, 2022). Additionally, those who experienced continued problem gambling into the first wave of the pandemic experienced worse anxiety and depression compared to non-problem gamblers and non-gamblers (Sharman et al., 2021).

One study helped explain this discrepancy between those who decreased versus increased gambling, and found that a subset of gamblers did not gamble online before the pandemic but migrated to online gambling; migraters had higher levels of program gambling and lower income than non-migrators (Xuereb et al., 2021). Other jurisdictions

have noted an increase in online gambling during the pandemic and that those who transitioned to online gambling were at higher risk of gambling-related harm (Jenkinson et al., 2020; Machado et al., 2021). These findings suggest that while the overall picture of gambling during the pandemic may look promising, and indeed many gamblers experienced benefits from lockdown and the closure of gambling venues, a subset of gamblers experienced worsening problem gambling during the pandemic and this subset is likely a particularly vulnerable group (Jenkinson et al., 2020).

In summary, the pandemic, and lockdown periods were associated with increased engagement in and problems associated with addictive behaviours, such as alcohol, cannabis, and gambling at least for some at-risk groups. Across addictive behaviours, overall trends are mixed, but those with pre-pandemic heavier or problematic use were more likely to continue to experience heavy or problematic use or to experience an exacerbation of the same. Furthermore, addictive behaviours during the pandemic were associated with emotional disorder symptoms (i.e., anxiety and depressive symptoms), and there is some preliminary evidence that coping motives may partially explain this association.

COVID-19 and Relationship Functioning

Natural disasters and economic crises are associated with increased risk of intimate partner violence (IPV), which also predicts further emotional disorder symptoms (First et al., 2022; Harville et al., 2011; Schneider et al., 2016). The findings in this literature are stark—one study from California for the 2007 financial crisis demonstrated a three-fold increase in IPV-related emergency department visits pre- to post-recession (Medel-Herrero et al., 2020). Theory and research prior to the COVID-19 pandemic

would predict increases in hostile conflict behaviour, which was warned about at the outset of lockdown (Jarnecke & Flanagan, 2020; Pietromonaco & Overall, 2021). Indeed, the COVID-19 pandemic was no exception: global meta-analyses showed increases in IPV frequency and severity compared to pre-pandemic norms, including in the United States (Gosangi et al., 2021; Kifle et al., 2024; Piquero et al., 2021). Qualitative research has evidenced ways in which conflict behaviours in IPV are exacerbated by pandemic-related factors, e.g., fewer access to other supports, virus-related justifications for controlling one's partners behaviour, disruption of mental health care services (Lyons & Brewer, 2022).

While IPV is the extreme of conflict behaviours, including the conflict behaviours examined in this dissertation, (see review of definitions and subtypes of romantic conflict and IPV below), overall, there was an increase in romantic conflict related to the pandemic, which was further associated with other relationship variables, such as reduced intimacy (Luetke et al., 2020). This was also found to be true for same-sex couples (Li & Samp, 2021). Some evidence suggests that women experienced more relationship-related distress during the pandemic than men (Schokkenbroek et al., 2021). A longitudinal study during lockdown found that unhelpful conflict behaviours increased during lockdown, even amongst those with higher pre-pandemic relationship functioning (Lee et al., 2022). Additionally, increases in unhelpful conflict was associated with anxiety, depression, and alcohol use (Lee et al., 2022).

Some contrary evidence exists, however, to suggest that lockdown may have been facilitative of couple's satisfaction (Galdiolo et al., 2022). Notably, the Galdiolo et al. (2022) study took place in Belgium; reports from North America suggest that overall

aggressive conflict increased, and that these increases were associated with variables that may have been more prevalent in North America during the pandemic, such as unemployment and loss of health insurance (Langhinrichsen-Rohling et al., 2022). Other studies describe mixed findings: one study in the United Kingdom found about a third of couples each experienced improved relationship quality, deteriorating quality, or stable quality (Vowels et al., 2021). For instance, those who experienced more COVID-19 related stressors experienced higher rates of worsening of relationship quality and greater conflict (Balzarini et al., 2020; Luetke et al., 2020). Another lockdown study showed that individuals who used both alcohol and cannabis (both in general and simultaneous use) were at increased risk of intimate partner aggression (IPA) perpetration (psychological and physical) compared to those who used substances less (Stappenbeck et al., 2023); and that COVID-19 stress and heavy drinking predicted IPV (Parrott et al., 2022).

Thus, the findings on conflict and relationship satisfaction mirror that of the pandemic on addictive behaviours in that the pandemic did not act as a "great equalizer," but rather a polarizer – those that were more vulnerable (e.g., lower socioeconomic status (SES), more COVID-19 stressors, higher risk for serious infection) experienced more adverse outcomes, while others experienced possible benefits from lockdown (Biddle et al., 2020; Carrese-Chacra et al., 2023; Sachser et al., 2021; Turliuc & Candel, 2021; Walsh & Stephenson, 2021; Weber et al., 2021). Findings from the literature on dyadic coping suggests that dyadic interactions within couples, such as conflict, may be an important variable to differentiate those who experienced more adverse effects of the pandemic from those who did not.

Addictive Behaviours

Addiction is notoriously tricky to define. Most definitions include central components such as loss of control of a behaviour, continued behaviour despite significant harm, and often include physiological adaptation to a substance or behaviour leading to tolerance and/or withdrawal (West & Brown, 2013). Some definitions are limited to psychotropic substances; however, there is strong evidence to suggest it is appropriate to include non-substance behaviours in definitions of addiction, such as gambling, internet use, and video games (West & Brown, 2013). Indeed, gambling disorder was included in the *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* and internet gaming disorder was included in the chapter of conditions for further study (American Psychiatric Association, 2013).

Within this dissertation, "addictive behaviours" is used as an umbrella term to describe the use of a range of substances with addiction potential (i.e., alcohol, cannabis, stimulants such as cocaine and amphetamines, sedatives, tranquilizers, opioids, hallucinogens) or engagement in potentially behaviourally addicting activities (i.e., gambling, internet gaming). Addictive behaviour exists on a wide continuum from non-problem behaviour to increasing problems associated with the behaviour through to diagnosable disordered addictive behaviours, e.g. substance use disorders, gambling disorder. It is important to note that many addictive behaviours are engaged in without associated problems, so while the two constructs (use vs. problems) are positively correlated, they are treated separately in this dissertation. The remainder of the dissertation will focus on three specific addictive behaviours and their associated problems: alcohol and cannabis (the two most commonly used substances after tobacco)

and gambling (the most well-studied non-substance addictive behaviour, and the only one recognized in the DSM-5 at present).

Descriptions and Epidemiology

Alcohol

Alcohol, or alcoholic beverages, refer to drinks containing the drug ethanol, which is produced from fermented plant products (CCSA, 2019). Acute alcohol intoxication results in, at smaller doses, euphoria and decreased inhibition, followed by loss of motor coordination, memory loss, nausea, vomiting, at increasing doses, and at higher doses, alcohol can cause loss of consciousness and death (CCSA, 2019).

Alcohol is the most common drug used by Canadians, with about 80% of adults over fifteen reporting past year use; while prevalence rates of use are highest in young adults, most (75%) of adults aged 65+ still report past year use (CCSA, 2019). For Canadians aged 12 or older, one in five report heavy episodic drinking (5 or more drinks per occasion for men; 4 or more drinks per occasion for women) at least monthly in the prior twelve months (CCSA, 2019). Alcohol use disorder (AUD) has lifetime and 12-month prevalence rates of 29% and 14%, respectively (Grant et al., 2015). Additionally, comorbidity with emotional disorders predicts AUD relapse (Sliedrecht et al., 2019). Rates of use, heavy drinking, and AUD are reliably higher in men compared to women (CCSA, 2019; Grant et al., 2015); however, there is some evidence that the gender gap in alcohol use and alcohol-related harms may be closing with successive birth cohorts (CCSA, 2019; Slade et al., 2016).

Youth who consume alcohol report initiation of alcohol use at a mean age of 13.4 years old and mean initiation of risky alcohol use at 14.5 years old; trends indicate an

increase in mean age of initiation of use and risky use over time (CCSA, 2019). Average age of onset of alcohol use disorder is 26 years old, with decreasing age of onset associated with more severe AUD (Grant et al., 2015). Alcohol use and alcohol use disorder tend to decrease in prevalence with age through adulthood (Grant et al., 2012a; Tucker et al., 2020). Unfortunately, alcohol use disorder often takes a chronic course. Latency between onset of AUD to treatment seeking is typically very long, with some estimates suggesting mean latency of 14-23 years depending on severity, with less severe AUD and fewer comorbidities predicting longer latency (Chapman et al., 2015). The reason for this latency has not been definitively studied, though is believed to be related to stigma (Tucker et al., 2020; Witkiewitz et al., 2014).

Gambling

Gambling encompasses a range of recreational behaviours involving betting something of financial value in games of chance; these include lotteries, sports betting, poker, casino table games, and electronic gaming machines. In a minority of individuals who gamble, problem gambling can develop, in which individuals continue to gamble despite severe negative consequences. Types of gambling are often differentiated by method of access, e.g., a land-based venue such as a casino, or internet-based gambling. Gambling types are also differentiated by degree of strategy involved. Lottery or raffle tickets or instant lottery tickets are the most commonly used types of gambling, with over half of Canadians buying a lottery ticket in the previous 12 months (Rotterman & Gilmour, 2022). Electronic gambling machines, poker, casino games, and bingo are the most common methods of gambling for regular gamblers (Binde et al., 2017). Casino, bingo, and sports betting were the most strongly associated with gambling problems

(Afifi et al., 2010c; Binde et al., 2017; Mazar et al., 2020). Additionally, gamblers who engaged in multiple forms of gambling experienced higher rates of problem gambling, although rates of problem gambling among those who only engage in one form are still notable (Binde et al., 2017; Mazar et al., 2020; Ronzitti et al., 2016). However, an older study found that any differences in problems related to various types of gambling became non-significant when controlling for degree of gambling involvement (LaPlante et al., 2011). Other evidence suggests that gambling type does matter, but not as much as overall level of gambling involvement (Afifi et al., 2013; Gooding & Williams, 2023).

Gambling behaviour is relatively common, with about two thirds of Canadian adults engaged in one or more type of gambling in 2018 (Williams et al., 2021). About 2% of adult Canadians experience past-year problem gambling (Calado & Griffiths, 2016). There has been an increase in internet gambling in last two decades, including the emergence of internet-only gamblers (Gainsbury et al., 2015; Pallesen et al., 2021). Internet gambling poses unique risks, such as degree of availability, ease of payment, and more disruption of sleep and eating patterns (Gainsbury et al., 2014a). Overall, prevalence rates are typically reported as higher in men than women. However, a review found this may be this may be confounded with other gambling characteristics, such as type of gambling activity: overall, men and women with problem gambling are probably more similar than they are different despite some reliable differences, such as telescoping, in which women progress faster from onset of gambling behaviour to gambling disorder than men (Grant et al., 2012b; Merkouris et al., 2016). Similar to substance use disorders (SUDs), while the course of illness is often chronic and

persistent, those with problem gambling often (for about one third) experience natural recovery (Slutske, 2006).

Cannabis

Cannabis contains two main active compounds: THC, which is psychoactive, and CBD, which is largely considered to be not psychoactive. Effects of cannabis intoxication include euphoria, relaxation, changes in perception, distortion of time, impaired motor functioning, and increased appetite (CCSA, 2020). Cannabis products vary greatly in terms of their concentration and ratios of THC and CBD, as well as routes of administration, e.g., oils, capsules, edible products, beverages, smoking, and vaping, being the most common (CCSA, 2020). In 2018, Canada legalized the use of cannabis products for recreational purposes (CCSA, 2020).

Cannabis is the third most used substance after alcohol and tobacco, with 12-month prevalence rates around 15% for cannabis use and 1.5% for CUD (Compton et al., 2019). Additionally, these substances are commonly used simultaneously (Subbaraman & Kerr, 2015). Meta-analysis shows that 22% of regular cannabis users meet diagnostic criteria for CUD (Leung et al., 2020); estimates are likely higher in daily users (Connor et al., 2021). Trends over time indicate an increase in prevalence of both cannabis use and CUD (Hasin et al., 2019). Cannabis is commonly used for medicinal purposes, though the majority of those who report using for medical purposes do not have documentation (i.e., prescription) from a healthcare professional (CCSA, 2020). Overall, mean age of onset of CUD is 18 years old (Farmer et al., 2015a). CUD is more common in men, those with low income, those from racial/ethnic minorities, and younger adults (Hasin et al., 2016; Hasin et al., 2019).

Natural recovery is relatively common with CUD, with a common trajectory being "aging out" of CUD (Farmer et al., 2015a; Kosty et al., 2017). However, 30% of those with CUD experience a persistent course of the disorder and do not age out (Farmer et al., 2015a). Overall, chronicity varies across addictive disorders, though on average, it is similar for gambling disorders as SUDs, and experiencing multiple concurrent addictive disorders is associated with more severe chronicity (Gooding et al., 2022)

Consequences of Addictive Behaviours

The consequences of substance use are not homogenously negative. For instance, substance use can facilitate social bonding, serve as a shared pleasurable activity (e.g., wine tasting), and stimulate economic growth (Gronbaek, 2009; Peele & Brodsky, 2000; Room & Jernigan, 2000). However, it is important to underscore the individual, community, and public health costs of substance use and substance use disorders.

The long-term effects of chronic alcohol use are dramatic, including increased risk of several cancers, such as head and neck, liver, colon, pancreatic, and rectal cancer; chronic illnesses such as diabetes, liver failure, cardiovascular disorders, and pancreatitis; long-term impact on fetal health when consumed during pregnancy; and psychological and neurological difficulties such as impaired learning/memory and mental health disorders (CCSA, 2019). Additionally, alcohol is associated with a range of adverse behavioural and social consequences, such as impaired driving, sexual assault perpetration and victimization, physical assault, criminal behaviour, and IPV, the latter of which will be reviewed in detail below (Wilsnack et al., 2018). The cost to society of alcohol use is considerable, estimated at $14.6 billion annually in Canada, namely due to

lost productivity (including due to disability and premature death), healthcare costs, criminal justice, and property damage (CCSA, 2019).

Gambling harms are varied, though the most common is financial harm, e.g., bankruptcy, reduced spending on recreation, reduced spending on essentials, selling items, impacting both the gambler and affected close others (Li et al., 2017). Additionally, vocational consequences are common (e.g., loss of job), as well as impacts on physical/mental health, such as reduced sleep, poor medication adherence, increased anxiety, increased depression, suicidality, and self-harm (Langham et al., 2016; Li et al., 2017). Other forms of emotional and psychological distress include shame, stigma, and feelings of worthlessness (Langham et al., 2016). Lastly, gambling behaviour can cause significant harm to the relationships of someone with problem gambling (Tulloch et al., 2021), which will be expounded upon below.

Despite a common perception of cannabis as harmless, several specific costs to society have been well documented, such as increased prenatal exposure and accidental childhood ingestion, decline in occupational functioning, impaired driving, and increased risk of psychiatric disorders (Hasin, 2018). Cannabis use and associated harms have been increasing in the past decade (Hasin, 2018; Hasin et al., 2019). Individuals with chronic cannabis use are at risk of experiencing deficits in memory, attention, and executive functioning, as well as risk of psychosis, depression, anxiety, and respiratory problems (CCSA, 2020). Cannabis use during pregnancy has been associated with low infant birthweight, and later cognitive, behavioural, and psychological problems in the affected offspring (CCSA, 2020). The financial cost to society is notable, estimated at $2.3 billion annually, namely due to criminal justice system costs, lost productivity, and health care

(CCSA, 2020), though preliminary evidence suggests that the burden of cannabis use on the criminal justice system have lowered drastically since legalization (Government of Canada, 2022).

Unifying Theories of Addictive Behaviours

Multifinality indicates that one particular causal factor may diverge and result in several different outcomes in different individuals (Cicchetti & Rogosch, 1996). Examples of this include rumination as a risk factor in developing depression or generalized anxiety (Olatunji et al., 2013), or traumatic events resulting in post-traumatic stress or post-traumatic growth (Henson et al., 2021; Yehuda, 2002). In contrast to multifinality, equifinality postulates that a range of developmental/etiological factors may result in a given outcome (Cicchetti & Rogosch, 1996). For instance, depression has several distinct risk factors that may operate independently; in other words, there may be independent pathways that can lead to the common outcome of depression (Cicchetti, 2016). Examples of equifinality are numerous within the field of psychopathology (e.g., Green & Glausier, 2016; Keenan et al., 2014).

One of the clearest cases for multifinality with SUDs and addictive behaviours is adverse childhood experiences (ACEs): stressful childhood experiences, such as abuse (physical, emotional, sexual), neglect (physical, emotional), or household dysfunction (e.g., parent with major mental illness, witnessing domestic violence) which are associated in an allostatic (i.e. cumulative) manner with greatly increased risk of a range of SUDs and addictive behaviours (Cicchetti & Handley, 2019; Leza et al., 2021; Loo et al., 2019; Zhu et al., 2023).

Consistent with the principle of multifinality, transdiagnostic models of psychopathology are proliferating, with emphasis on risk factors that are relevant for multiple different disorders (Barlow et al., 2020; Ehring & Watkins, 2008). Researchers have noted several of the benefits of transdiagnostic approaches, such as parsimony, to help explain high rates of comorbidity, polysubstance use, and diagnostic drift over time (O'Connor et al., 2020; Tozzi, 2005). Indeed, those with problem gambling are more likely than those without problem gambling to have any other SUD (Kessler et al., 2008; Pilver et al., 2013; Wareham & Potenza, 2010), with odds ratios ranging from 4-6X higher rates of SUDs among problem gamblers. Conversely, those with SUDs are more likely to have problem gambling than those without (Loo et al., 2019). Addictive behaviours have often been implicated as risk factors for the development of additional addictive behaviours, e.g., cannabis use predicting problem gambling (Dowling et al., 2017; Wardell et al., 2020a). Further, concurrent problems with multiple addictive behaviours are associated with more severe problems and more comorbid psychopathology (Saha et al., 2018). Even among users with mild substance-related problems, polysubstance use is more the rule than the exception (Bailey & McHugh, 2023). These epidemiological findings underscore the importance of understanding transdiagnostic risk factors. Lastly, transdiagnostic approaches may aid in public health prevention strategies and designing parsimonious interventions (Nolen-Hoeksema & Watkins, 2011).

Transdiagnostic models of addictions propose that we consider addiction as a dimensional and latent factor that may express itself in a range of ways (i.e., with different substances), in contrast with our current categorical diagnostic classification

systems (American Psychiatric Association, 2013). However, even within the addictive behaviour literature, a transdiagnostic model is usually discussed in terms of substance use only (Eaton et al., 2015). Others have proposed a transdiagnostic model of addictive behaviours that includes substances, such as alcohol and cannabis, and non-substance addictive behaviours, such as gambling (Kim & Hodgins, 2018). This proposed model includes negative urgency—impulsive attempts to regulate unpleasant emotions, and motives for engaging in addictive behaviours, particularly coping motives (Kim & Hodgins, 2018). Indeed, there is evidence of a shared phenotype among problems associated with addictive behaviours, suggesting a latent factor explains significant variance between problematic addictive behaviours (Franco et al., 2019; Hodgins & Racicot, 2013; Kim et al., 2020a; Shaffer et al., 2018). However, it is worth noting that some factors associated with addictive behaviours demonstrate specificity. For instance, sensation seeking appears to confer risk specific to stimulant misuse, while hopelessness is more strongly associated with opioid use (Chinneck et al., 2018b; Mahu et al., 2019). Additionally, there are some etiological factors entirely unique to certain addictive behaviours. One such example is gambling-related cognitive distortions, such as illusion of control, belief in luck and perseverance, and chasing losses (Gainsbury et al., 2014b; Orlowski et al., 2020), which would not generalize to other addictive behaviours. Shared features will be reviewed below.

Etiology of Addictive Behaviours and Associated Problems

The risk factors for addictive behaviours and associated problems are multifactorial and intertwined. There is substantial evidence that interactions between individual risk factors confer more than additive risk (e.g., family environment and

impulsivity interacting to predict AUD (Hill et al., 2010); impulsivity, gambling to cope, and stressful life events interacting to predict gambling problems (Wang et al., 2020)). The most well-established risk factors will be reviewed.

While addictive behaviours occur across demographic strata, demographic trends have been noted. Across alcohol, cannabis, and gambling, demographic risk factors include younger age, being an ethnic minority, lower SES, lower educational attainment, having never been married, and being a man (Afifi et al., 2010b; Dowling et al., 2017; Hasin et al., 2019; Swendsen et al., 2009; Volberg et al., 2018). Additionally, treatment-seeking and availability of appropriate treatments vary by ethnicity and socioeconomic status, leaving important disparities (Vaeth et al., 2017). Women and ethnic minorities also report more attitudinal barriers to seeking treatment (Verissimo & Grella, 2017). Further, while men generally experience higher prevalence rates of problems associated with addictive behaviours, there is evidence of "telescoping" – a phenomenon in which women's course of addictive disorders tends to progress from non-problem use to problem use more quickly than for men (Towers et al., 2023). These factors may be particularly relevant for understanding the disparities in addictive behaviours and associated outcomes during the COVID-19 pandemic.

Overall, SUDs and gambling disorder are about 50% heritable (Deak & Johnson, 2022; Potenza et al., 2005). There is evidence of both disorder specific genetic risk and shared genetic variance between addictive behaviours (Gelernter & Polimanti, 2021; Kendler et al., 2003; Slutske et al., 2000), though evidence suggests shared genetic risk may be more influential (Kendler, 2003). Additional studies have found that this genetic

variance likely shares genetic risk with major depression, anxiety disorders, and substance use disorders (Giddens et al., 2011; Slutske et al., 2000).

The neurobiology of addictive behaviours is not the focus of the current dissertation, though experts in the field have reached consensus that addiction is associated with a consistent pattern of marked dysregulation of neurocircuitry. Namely, dysfunction in reward circuits and incentive salience, as well as deficits in executive functioning are implicated (Koob & Volkow, 2016). Importantly, these phenomena are observed across substance and behavioural addictions alike (see Koob and Volkow (2016) for a review).

Several distal factors have been demonstrated to predict later addictive behaviours and associated problems. As previously discussed, adverse childhood experiences are strong predictors of alcohol, cannabis, and gambling related problems (Anda et al., 2002; Lee & Chen, 2017; Leza et al., 2021; Loo et al., 2019; Roberts et al., 2017). Additionally, parental substance use/SUDs, childhood behavioural problems, poor school performance, and antisocial behaviour predicted later addictive behaviours and associated problems (Dowling et al., 2017; Guo et al., 2001; Hayatbakhsh et al., 2009; Maggs et al., 2008; Pingault et al., 2013; Wilsnack et al., 2018). Overall, childhood variables are a stronger predictor of adolescent alcohol use, and peer and parental influence on drinking behaviour became less strong into adulthood (Meque et al., 2019).

Both personality traits and personality disorders are robust predictors of addictive behaviours. For instance, all personality disorders are over-represented in those with problem gambling, with strongest effects for Cluster B disorders (Dowling et al., 2015); similarly, antisocial, borderline, dependent, and avoidant personality disorder predicted

both cannabis use and CUD (Gillespie et al., 2018). High neuroticism, low agreeableness and conscientiousness are strong predictors across cannabis, alcohol, and gambling related problems (Dash et al., 2019; Hakulinen et al., 2015); additionally, anxiety sensitivity has also been found to be associated with a range of addictive behaviours (Bristow et al., 2018; Raines et al., 2021; Stewart et al., 1999). Impulsivity and sensation seeking have been well established across addictive behaviours, though findings for sensation seeking are more mixed depending on the addictive behaviour (Dowling et al., 2017; Ioannidis et al., 2019; Johansson et al., 2009; Verdejo-Garcia et al., 2008). As mentioned above, some specificity has been found regarding specific personality risk factors and substance class, e.g., hopelessness being more strongly associated with sedative drug use (Woicik et al., 2009).

Overall, stressful events are associated with a range of SUDs, including CUD (Myers et al., 2014). Stressful life events have been found to increase alcohol use, drinking to cope, and AUD, cannabis use, CUD, using cannabis to cope, and gambling problems longitudinally (Boden et al., 2014; Hyman & Sinha, 2009; Keyes et al., 2011; Luce et al., 2016; Myers et al., 2014; Roberts et al., 2017; Wang et al., 2020), with some evidence that this effect is moderated (exacerbated) by childhood adversity (Myers et al., 2014; Young-Wolff et al., 2012). Results also suggest that this association may be stronger for women than for men (Boden et al., 2014). Stressful life events were found to be a stronger predictor of the transition from cannabis use to cannabis-related problems than stable vulnerability factors like childhood adversity, family history, or personality (van der Pol et al., 2013). These findings are consistent for gambling problems

(Buchanan et al., 2020; Luce et al., 2016; Russell et al., 2022), and indeed, cut across addictive behaviours (see Lijffijt et al. (2014) for a review).

Lastly, several psychological mechanisms may predispose or maintain addictive behaviours. Expectancy Theory posits that beliefs about the effects of a substance, e.g., alcohol, known as expectancies, develop via vicarious and experiential learning, and have been found to predict use patterns (Goldman et al., 1987). For instance, positive expectancies (e.g., that alcohol would make one feel closer to others or tell funnier stories) are associated with more drinking quantity and frequency, while negative expectancies (e.g., that alcohol increases aggression or makes people miss things going on) are associate with lower consumption patterns (Lee et al., 1999). Vicarious learning will be discussed under Partner Influence. Additionally, extensive research has been conducted on the role of reinforcement and operant conditioning in the etiology and maintenance of addictive behaviours (Higgins et al., 2004). Originally demonstrated in animal models in the 1960s and later translated to experimental and clinical research with humans, it became increasingly clear that substances can promote repeated use due to their reinforcing properties (Higgins et al., 2004).

Comorbidity with Emotional Disorders

AUD is highly comorbid with emotional disorders—those with AUD are 1.5X more likely to have any mood disorder and 1.3X more likely to have any anxiety disorder or post-traumatic stress disorder compared to those without AUD (Grant et al., 2015). Additionally, those with AUD are 4.1X more likely to have any other drug use disorder than those without AUD (Grant et al., 2015; Helle et al., 2020). There is substantial evidence that AUD predicts the onset and development of anxiety and depressive

disorders, and substantial evidence that anxiety and depressive disorders predict the onset and development of AUD (McHugh & Weiss, 2019; Ummels et al., 2022). However, findings are often mixed; for instance, a 4-wave, 4-week longitudinal study found that depressive symptoms predicted next-week heavy drinking, but not the other way around (Mushquash et al., 2013b). The directionality and mechanisms of the association between AUD and emotional disorders will be expanded upon below.

Additionally, problem gambling is highly comorbid with other disorders, such as mood disorders (odds ratio of 3.7) or anxiety disorders (odds ratio of 3.1) (Kessler et al., 2008). Notably, individuals with comorbid problem gambling and emotional disorders report, on average, that the problem gambling incidence followed the onset of the mood or anxiety disorder (i.e., 50-82% of the time, depending on the comorbid emotional disorder; Kessler et al., 2008). Indeed, among individuals with problem gambling, comorbidity is almost ubiquitous, with 96% of individuals with problem gambling having one or more comorbid disorder, and two-thirds of problem gamblers estimated to have three or more comorbid disorders. Increased comorbidity (i.e., a mood/anxiety disorder *and* a substance use disorder) is associated with significantly increased risk of comorbid gambling problems (5x more likely) compared to having either a mood/anxiety disorder or a substance use disorder alone (El-Guebaly et al., 2006).

Much research has been conducted in attempts to assess for sub-types of problem gamblers. One established three factor model, the pathways model, includes a sub-type of emotionally vulnerable gamblers, characterized by high comorbidity rates of emotional disorders prior to onset of gambling (Blaszczynski & Nower, 2002) who are more likely to gamble as a form of avoidance or self-medication (Valleur et al., 2016). Additional

work with gambling motives has validated this model (Stewart et al., 2008) yielding three clusters including a cluster of coping gamblers with high negative affect, similar to the emotionally vulnerable subtype in the pathways model. It was found that coping gamblers were more at risk for gambling problems and drinking problems compared to the other subtypes (Stewart et al., 2008).

Among those with past 12-month CUD, epidemiological data suggests these individuals have increased likelihood of comorbidity such as: other substance use disorders (odds ratio 9.3), mood disorders (odds ratio 3.8), anxiety disorders (odds ratio 2.8), PTSD (odds ratio 4.3), and any personality disorder (odds ratio 3.8; Hasin et al., 2016). Similar figures have been corroborated in a meta-analysis (Onaemo et al., 2021). Longitudinal designs have also evidenced that childhood or adolescent externalizing, but not internalizing, psychopathology predicted CUD in adulthood and that externalizing symptoms are overall stronger predictors of CUD than internalizing symptoms (Farmer et al., 2015b; King et al., 2004; Rogosch et al., 2010; Tarter et al., 2008; Zohsel et al., 2016). However, other longitudinal data shows depression predicts severe CUD but not less severe CUD (Grant & Pickering, 1998) and that major depressive disorder predicts initiation of cannabis use but not vise versa (Feingold et al., 2017; Feingold et al., 2015). Even after accounting for cannabis use levels, depression remained a consistent risk factor for CUD (Dierker et al., 2018). Further, anxiety has a strong association with CUD, even after controlling for potential confounds; similarly, this evidence was stronger in those with clinical levels of anxiety symptoms (Kedzior & Laeber, 2014). Odds ratios were found to be even higher when considering comorbid anxiety and depression with CUD compared to one emotional disorder alone with CUD (Kedzior & Laeber, 2014).

Internalizing disorders (i.e., depression and anxiety) may also play a role in mediating the link between negative life events and cannabis problems (Ketcherside & Filbey, 2015).

Overall, a recent review suggests sufficient evidence for a bidirectional relationship between CUD and depression (Kuhns et al., 2022). Additionally, a longitudinal study from late adolescence found a positive predictive value of internalizing symptoms (i.e., anxiety, depression) on initiation of cannabis use and progression of cannabis use to CUD, even when controlling for externalizing disorders (Wittchen et al., 2007). One possibility is that internalizing symptoms are a more proximal predictor of developing CUD in late adolescence and early adulthood, whereas childhood externalizing symptoms may act as a robust distal predictor.

Overall, comorbidity between addictive behaviours and emotional disorders is exceptionally common. Furthermore, comorbidity is associated with more severe illness and poorer outcomes, such as higher rates of suicidality, poor treatment outcomes, and worsening emotional disorder symptoms (Bahorik et al., 2017; Brière et al., 2014; McHugh & Weiss, 2019). Lastly, delay from onset of disorder to treatment is longer for substance use disorders than emotional disorders; percentage who ever seek treatment is lower for SUDs than emotional disorders (ten Have et al., 2013).

Mechanisms of Comorbidity

There are three major developmental pathways that may explain the high comorbidity between emotional disorders and addictive behaviours/associated problems. (1) Addiction could increase risk for the development of emotional disorders, for instance via the stress of adverse substance-related consequences or physiologically via hangover or withdrawal (Boden & Fergusson, 2010; Hasin & Walsh, 2021). (2) Emotional

disorders could increase the risk for the development of addictive behaviours and associated problems, e.g., via self-medication (Khantzian, 1997). (3) A third variable may be playing a shared causal role in the development of both kinds of disorders, such as adverse childhood experiences or shared genetic risk (Giddens et al., 2011; Lee & Chen, 2017), but with no causal link between emotional disorders and addictive disorders themselves. There is strong evidence for all three hypotheses, suggesting that they may each independently contribute to comorbidity, and are not mutually exclusive mechanisms (Davis et al., 2008; Hartmann & Blaszczynski, 2016; Kuhns et al., 2022; McHugh & Weiss, 2019; Ummels et al., 2022).

As discussed above, and consistent with the second hypothesis, emotional disorders often precede the development of problems associated with addictive behaviours (Brière et al., 2014; Conner et al., 2009). There is some evidence that this developmental/etiological pathway may be more common in women than in men, though this is not a consistent finding (Kuhns et al., 2022; Sundqvist & Rosendahl, 2019). Evidence for this developmental pathway, and possible underlying mechanisms, will be explored below.

Self-Medication

The self-medication hypothesis posits that individuals with psychiatric disorders may use substances or engage in potentially addictive behaviours to relieve unpleasant symptoms, and that doing so puts one at risk for developing heavier and more frequent use and problems associated with substance use or addictive behaviours (Khantzian, 1997). Indeed, a quarter of those with mood disorders reported using alcohol or other substances to relieve symptoms; even after accounting for baseline comorbidity with

SUDs, self-reported self-medication was associated with higher comorbid psychiatric disorders (Bolton et al., 2009). A meta-analysis found that those who use cannabis for medical reasons use largely to manage emotional disorders, such as depression (34%) and anxiety (50%), the most common reasons after physical pain (Kosiba et al., 2019). Additionally, increases in cannabis use on a population level have occurred more rapidly amongst those with depression (Pacek et al., 2020). The subtype of emotionally vulnerable problem gamblers is consistent with self-medication (Valleur et al., 2016). Despite higher rates of AUD in men than women (Grant et al., 2015), women are more likely than men to use alcohol to regulate negative affect and stress (Peltier et al., 2019).

The self-medication hypothesis has generated much attention and literature since it was first proposed (Turner et al., 2018). This psychodynamic theory has also attracted criticism. For instance, it has been criticized for leading to an underrepresentation or underdiagnosis of substance use disorders, due to the belief that they are only secondary to underlying psychiatric disorders (Lembke, 2012). This theory also fails to account for the ways in which addiction can be self-maintaining once established, requiring additional or integrated treatment. Additionally, self-medication has been criticized for proposing that substances effectively medicate or manage psychiatric symptoms, and for proposing that addiction can be nearly entirely explained by underlying psychiatric disorders, and ignoring factors such as poverty (Lembke, 2012). However, poverty is still an important distal factor that increases risk of emotional disorders, which in turn could drive substance use via self-medication. In other words, despite these criticisms, self-medication theory is not incompatible with the acknowledgement of distal or social risk factors. It is also important to note that while Khantzian's theory is psychodynamic,

there are versions of behavioural theory that discuss learning models of addictive behaviours and their negatively reinforcing properties, which are consistent with the same basic mechanism, i.e., use to alleviate aversive emotional states. One such learning-related model will be discussed below.

Motivational Model of Addictive Behaviours

As outlined above, there are several well-established distal predictors of addictive behaviours. However, stable distal factors are theorized to interact with proximal risk factors to result in the behaviour, such as availability of a substance (Bryden et al., 2012; Gillespie et al., 2009; Zoglauer et al., 2021), perceived social norms (Eisenberg et al., 2014; Meisel & Goodie, 2014), addictive behaviour outcome expectancies (Jones et al., 2001), or motivation to engage in the addictive behaviour (Cooper et al., 2016).

Motives for substance use is the one of the foci of this dissertation. The motivational model proposes that a given potentially addictive behaviour (e.g., drinking alcohol) could have several different desired outcomes, and that these corresponding motives are associated with distinct predictors (e.g., affective state, cues, environments) and outcomes (e.g., alcohol-related problems, frequency of use, quantity of use) (Cooper et al., 2016). Further, motivational models have utility in that they are more proximal predictors to use than distal predictors like personality or ACEs, and thus are stronger predictors of behaviour (Cooper et al., 2016). It should be noted that overall, all motives for engaging in addictive behaviours should theoretically be associated with increased behaviour to some degree, as all motives are valenced towards reason for using/engaging in the behaviour (Cooper et al., 2016). However, the motivational model also posits that

some motives are riskier than others in terms of their strength of association with levels of use and adverse outcomes associated with use (Cooper et al., 2016).

The motivational model improves upon the self-medication hypothesis in several important ways. First, it captures distinct (but overlapping and possibly co-occurring) reasons for engaging in addictive behaviours, which has utility explaining addictive behaviour along the entire continuum from normative and benign to severe psychopathology, reflecting the true dimensional nature of addictive behaviours and addiction. Second, it does not propose that individuals necessarily experience the desired effects from a substance or behaviour, only that their reason for using may influence the likelihood in engaging in that behaviour (though the motives may likely originate from personal operant learning and/or vicarious learning, as long as the expected outcome is desired). Third, the motivational model does not propose that addiction is merely a sequalae of emotional disorders, a position for which the self-medication model has been criticized (Lembke, 2012). Fourth, and perhaps most importantly, motives are proposed to be a final common pathway via which distal factors may exert their influence, which accounts for the influence of well-established biological and social risk factors, such as genetic risk and poverty (Cooper et al., 2016).

The original drinking motives model outlines four overlapping drinking motives, falling in a two-by-two framework. In this model, individuals may drink for internally focused vs external (focused on important others) rewards, and these rewards may in turn be positively or negatively reinforcing. This yields enhancement motives (positively reinforced, internal reward) in which individuals may drink to achieve a high or the pleasant/fun sensations; social motives (positively reinforced, external reward) in which

individuals may drink to celebrate occasions or to improve social gatherings; conformity motives (negatively reinforced, external reward) in which individuals may drink to avoid ridicule or to avoid feeling left out; and coping motives (negatively reinforced, internal reward) in which individuals may drink to cheer themselves up when they are in a bad mood or to forget their worries (Cooper, 1994). Since the original validation of this empirical model, coping motives have been separated into drinking to cope with anxiety and drinking to cope with depression motives (Grant et al., 2007).

Drinking motives theory has been extended to other addictive behaviours (i.e., cannabis use, gambling) using a similar model (Simons et al., 1998; Stewart & Zack, 2008), though some addictive behaviours have been found to have motives unique to that behaviour. For instance, craving motives have been established for tobacco use, pain coping motives for opioid use, financial motives for gambling, and expansion motives for cannabis use (Lee et al., 2009; McHugh et al., 2022; Piper et al., 2004; Stewart & Zack, 2008). Overall, across samples, for alcohol and cannabis use, endorsement of motives for use are strongest for social motives and enhancement motives, followed by coping and conformity motives (Cooper et al., 2016), likely reflecting the frequency of each respective motive. In an ecological momentary assessment of cannabis use, enhancement and coping motives were the most common reasons cited for using (Buckner et al., 2015).

Two key premises of the motivational model of addictive behaviours will be examined more thoroughly. First, that different motives are associated with distinct antecedents, and secondly, that different motives are associated with distinct consequences. On the basis of these two premises, the motivational model posits that the same behaviour motivated by different desired outcomes represents functionally different

behaviours. Examining the evidence for these premises begets an analysis of whether motives are best conceptualized as a trait-level variable or examined on the state- or event-level (i.e., motives for using alcohol now); similarly, we must examine if motives exert their influence over time (e.g., months, years) or if they exert most of their influence on the event-level when engaging in addictive behaviours.

In essence, the motivational model is consistent with the principles of equifinality (that distinct pathways can all lead to the same behaviour, e.g., drinking) and multifinality (that the same behaviour, e.g., drinking, can lead to distinct consequences, such as interpersonal impairment or a sense of closeness), and extends these ideas to link pathways to and from the addictive behaviour.

Antecedents of Motives

One would expect that those who report negatively reinforcing (i.e., avoidant) motives for addictive behaviours would tend to experience more aversive states or experiences that may drive the need for relief (Cooper et al., 2016). This is highly supported in the literature. For instance, those who report more coping motives are also higher in neuroticism, anxiety sensitivity, low self-esteem, anxiety symptoms, and depressive symptoms (Barrault et al., 2019; Chinneck et al., 2018a; Comeau et al., 2001; Glodosky & Cuttler, 2020; Grazioli et al., 2018; Grubbs & Rosansky, 2020; Mackinnon et al., 2017; Schick et al., 2022). Similarly, one would expect that those who report positively reinforcing (i.e., approach) motives for addictive behaviours would tend to experience more pleasant or positive states and experiences. This is similarly supported: those who report more social and enhancement motives are higher in extraversion,

positive affect, reward sensitivity, and sensation seeking (Adams et al., 2012; Arbeau et al., 2011; Gautreau et al., 2015; Lyvers et al., 2017; Stewart & Devine, 2000).

Similarly, context of addictive behaviours is associated with different motives. For instance, coping motives are significantly associated with drinking or using cannabis in solitary vs social environments (Mohr et al., 2005; Okey et al., 2022; Skrzynski & Creswell, 2020; Waddell et al., 2022). Similar effects have been found with gambling to cope motives predicting solitary gambling (Quinlan et al., 2013). Gambling to cope is also associated with more online gambling (Goldstein et al., 2016). Indeed, these antecedents may operate sequentially: for instance, one study showed that anxiety sensitivity predicted solitary gambling, which in turn, predicted excessive gambling (Bristow et al., 2018).

Affective Antecedents.

The motivational model would also hypothesize that different motives are associated with different affective antecedents to addictive behaviours. For example, coping motives should be associated with negative or unpleasant affective states prior to engaging in the addictive behaviour (Cooper et al., 2016). It is worth noting that enhancement and social motives would not be theorized to necessarily be associated with a distinct affective antecedent, as these motives are distinguished by a drive *for* a given affect, rather than a drive to *change* a given affect that is being currently experienced (Cooper et al., 2016). Discussed above, those who *tend to* experience more unpleasant affect also report more coping motives, and unpleasant affect is associated with *increases* in coping motives over time (Colder et al., 2019). However, evidence on the affective antecedents to engaging in addictive behaviours on the event level is mixed. This

literature naturally relies on daily dairy or ecological momentary assessment methodology. Furthermore, more research has been conducted on alcohol use, and thus a review of this literature will disproportionately discuss drinking motives. Lastly, some of this literature examines affective antecedents to addictive behaviours without examining motives directly; this evidence will still be reviewed below.

Those who report higher drinking to cope at baseline experienced a stronger association between same-day negative mood and negative social interactions and later alcohol consumption; whereas those who reported less strong coping motives experienced the inverse – reduced likelihood of consuming alcohol on days with stronger negative mood (Mohr et al., 2005). Similarly, those higher in enhancement motives at baseline consumed more alcohol on days with more positive mood compared to those lower in enhancement motives (Mohr et al., 2005). A later study found no association between daytime mood and same-day alcohol consumption, but did find that negative mood predicted faster time to alcohol consumption (Todd et al., 2009). Further, sadness and arousal have been found to predict a desire for gambling, and a desire to gamble predicted gambling behaviour (Quilty et al., 2017). An experimental study found that those higher in coping motives consumed more alcohol after an induced stressful task than those lower in coping motives, particularly for those lower in overall adaptive coping (Merrill & Thomas, 2013). On the event-level, negative affect, including anxiety, has been found to predict cannabis use (Buckner et al., 2012; Buckner et al., 2015). A review of ecological momentary assessment studies found that cannabis use follows negative affect, though there is stronger evidence of this association in clinical samples compared to community samples (Wycoff et al., 2018). A more recent daily diary study

found that low affect in the morning predicted same-day cannabis use (Testa et al., 2019). Across substance use disorders, an ecological momentary assessment study showed craving predicted use and those with comorbid mood/anxiety disorders had higher cravings and more frequent use; additionally, mood/anxiety disorders remained a predictor of frequency even after accounting for cravings (Fatseas et al., 2018). Additionally, a meta-analysis of in laboratory negative mood induction found that individuals drink more and report more cravings following induction of negative affect (Bresin et al., 2018). There is also evidence of affect specificity. For instance, coping motives mediated the association between shame and problem gambling, but the same pathway was not supported for guilt (Schlagintweit et al., 2017).

Two recent meta-analyses show that positive affect is more predictive of alcohol use than negative affect (Dora, 2023; Tovmasyan et al., 2022b). Furthermore, one of these meta-analyses found those with higher coping motives drank more overall, but that negative affect did not predict alcohol use behaviour for those high in coping motives in general, and not more so than those lower in coping motives (Dora, 2023). These findings are not consistent with what would be predicted from the motivational model of addictive behaviours. However, the vast majority of studies included in these meta-analyses are in non-clinical samples, and it may be possible that this mechanism is stronger for those who experience more severe EDS. Indeed, social and enhancement motives are the most frequently endorsed, and thus this effect may reflect phenomenon in largely non-clinical samples (O'Hara et al., 2015). Additionally, the authors note the possibility of countervailing effects, in which negative affect decreases the likelihood of consuming alcohol in some instances (e.g., avoiding a social interaction due to low mood), but

increases it in others (e.g., drinking alone, using to cope in a social setting) as seen in the Mohr et al. (2005) study. Another recent meta-analysis found that it was affect intensity, not valence (i.e., positive vs negative), that predicted alcohol use (Tovmasyan et al., 2022a). This is consistent with findings that poor emotion regulation abilities are a strong predictor of substance use for both positive and negative affect (Weiss et al., 2022). Additionally, effects may have been lost due to the combining of affects; for instance, the same study found that anger and nervousness were stronger predictors of drinking (mediated via coping motives) compared to other negative affects (Todd et al., 2009). Other variables may also be at play here, for instance, the subjective perception of negative affect as tolerable vs intolerable may matter more than the "absolute value" of affect intensity in driving coping motivated addictive behaviours (Bujarski et al., 2012).

These recent findings may require further investigation into the level at which motives operate. The above meta-analysis (Dora, 2023) may have lost a real effect, as they averaged affect during the day from ecological momentary assessment studies. Averaging daily affect may have resulted in lost variance at the hour-to-hour level (i.e., acute affective state). For instance, one daily diary study found that acute negative affective state predicted earlier initiation of drinking that day, or lost variance due to effects of weekday/weekend day (Todd et al., 2009). Trait-level motives and event-level motives may even be distinct constructs (Votaw & Witkiewitz, 2021). For instance, coping motives as a trait predicted more solitary drinking, but coping motives at the state level predicted social and solitary drinking (O'Hara et al., 2015). A more recent study found that coping motives were directly associated with alcohol problems when examined on a trait level (averaged across drinking days in the study) but not on the

drinking occasion (state) level (Cook et al., 2020). Similarly, another ecological momentary assessment (EMA) study found that negative affect predicted alcohol use via cravings, with a stronger effect in those with higher dispositional (trait) coping motives, but found no effect of state coping motives interacting with momentary negative affect to predict alcohol use (Waddell et al., 2021). This may partly explain the lack of effect between event-level negative affect and alcohol use, in that negative affect may be acting to increase cravings in those higher in trait-level coping motives, which then may interact with environmental factors to result in alcohol use. Additionally, if this event-level effect is a true effect, it may just be quite difficult to capture it with EMA; one would need to get the precise timing of affective state, the state coping motive during the affective state, and then the behaviour driven by the state motive. Taken together, the affect-motives and affect-use relationship appears to be stronger, or at least more detectable with current methodology, at the trait level than the event level, or/and this may play out over different periods of time (e.g., months, years). As will be discussed below, the motives-problems relationship is also stronger for coping motives than the motives-use relationship.

Consequences of Motives

The motivational model proposes that internal motives (e.g., enhancement, coping) are likely to be more stable across time than external motives, and that avoidant motives (e.g., coping, conformity) are riskier for the development of problems than approach motives, due to the stable finding that avoidant coping is associated with poorer outcomes (Chao, 2011). In summary, this research yields the conclusion that coping motives might overall be associated with the most problems (Cooper et al., 2016).

The motivational model of addictive behaviours does not posit that the consequences of use would be the desired outcome. Indeed, there is mixed evidence of the desired effects being achieved, i.e., coping motives resulting in alleviation of the unpleasant affective state (Goldstein et al., 2016; Piasecki et al., 2014). In fact, inconsistent achievement of the desired outcome may result in intermittent reinforcement, maintaining the behaviour over time (Blume, 2001). Furthermore, regardless of whether use of potentially addictive behaviours to cope helps in the immediate term, the evidence is overwhelmingly that doing so makes people feel worse in the long term, starting as soon as the following day (Armeli, 2014; McHugh & Weiss, 2019).

Recent meta-analyses have examined the consequences of motives for alcohol use and cannabis use. Enhancement motives were found to be the strongest predictors of drinking behaviour, while enhancement and coping motives were both strong predictors of drinking problems; this held cross-sectionally and longitudinally (Bresin & Mekawi, 2021). Interestingly, conformity was protective against greater alcohol use when controlling for other motives. Furthermore, the meta-analysis found that enhancement motives were associated with drinking problems longitudinally (mean time between measurement = 8 months) via increased drinking behaviour (Bresin & Mekawi, 2021). Conversely, the effect of coping motives was better explained as influencing drinking behaviour via drinking problems; drinking problems can drive increased drinking due to increased tolerance, decreased control, decrease in time spent on other important activities, etc. (Bresin & Mekawi, 2021). In other words, coping motives were found to be more directly related to drinking problems, while enhancement motives were more

indirectly related to drinking problems (via using more). The longitudinal findings suggest that motives influence outcomes on longer time scales, such as months to years.

A similar meta-analysis was conducted on cannabis use motives; however, the sample of studies was much smaller (48 for cannabis motives vs 229 for drinking motives; $N = 11{,}274$ vs $N = 130{,}705$) and did not contain enough longitudinal studies to be included. Here, the meta-analysis found that coping, enhancement, and expansion motives for cannabis use were associated with cannabis use frequency, while coping and conformity were associated with cannabis problems (Bresin & Mekawi, 2019). Mirroring the findings for drinking motives, cannabis conformity motives were negatively associated with cannabis use frequency after adjusting for other motives. This suggests that individuals who use (alcohol and cannabis) for conformity reasons likely restrict their use to the minimal amount to fit in, or restrict to certain contexts, resulting in overall less use, but that using for this reason may still result in problems from using.

While the cannabis meta-analysis (Bresin & Mekawi, 2019) did not include longitudinal studies, a few have been conducted. Longitudinal evidence suggests that coping motives are associated with the transition from frequent cannabis use to developing problems related to use, as well as the exacerbation of emotional disorder symptoms (Colder et al., 2019; Moitra et al., 2021; van der Pol et al., 2013). A daily diary study found that social, coping, and enhancement motives were all associated with cannabis quantity, though problems were not assessed (Bonar et al., 2017).

No meta-analysis has been conducted on gambling motives broadly, though one has been recently published on financial motives specifically. This meta-analysis found that financial gambling motives were significantly associated with gambling frequency

and gambling problems, controlling for other gambling motives (Tabri et al., 2022). Other studies have established that coping motives (sometimes measured as "gambling to escape"), enhancement motives, and chasing losses are associated with more severe problem gambling (Barrault et al., 2019; Canale, 2015; Hagfors et al., 2022; Marchica et al., 2020; Rodriguez et al., 2015; Sundqvist et al., 2016). Further, like alcohol and cannabis coping motives, it has been found that gambling coping motives are uniquely *directly* associated with problem gambling severity, whereas other motives (e.g., enhancement, financial) are associated with problems via frequency (Schellenberg et al., 2016). While most available data in this area is cross-sectional, a longitudinal study found that coping motives predicted problem gambling at 6-month follow up (Grubbs & Rosansky, 2020). Similarly, a large Finnish longitudinal study found that gambling to escape (conceptually similar to coping motives) and financial motives predicted gambling problems at 6-month follow up. Additionally, some evidence suggests some gambling types are riskier for coping motives and associated problems, such as online gambling and EGM (Goldstein et al., 2016; Sundqvist et al., 2016).

Overall, coping and enhancement motives are the most relevant for understanding risk factors for the engagement in addictive behaviours and associated problems. Coping motives appear to be more clinically relevant than enhancement motives, even when discussing increased frequency of addictive behaviours, due to the robust association with problems associated with addictive behaviours directly and indirectly via increased frequency. Indeed, it has been demonstrated that positive reinforcement is more predictive of alcohol consumption for those without alcohol dependence, whereas the association for those with alcohol dependence was stronger with negative reinforcement

than positive reinforcement (Cho et al., 2019). Furthermore, coping motives are the most clinically relevant motive when understanding the high rates of co-occurrence between internalizing/emotional disorders and addictive behaviours and associated problems. Antecedents and consequences of motives have been reviewed. There is a plethora of evidence to support the *chain* of antecedents-to-motives and subsequently, motives-to-consequences, e.g., negative affect/EDS to problems associated with addictive behaviours mediated via coping motives (Anthenien et al., 2017; Bravo et al., 2017; Buckner et al., 2015; Bujarski et al., 2012; Chinneck et al., 2018a; Corbin et al., 2013; Desalu et al., 2019; Keough et al., 2018; Kim et al., 2019; Marchica et al., 2020; Metrik et al., 2016; Schlagintweit et al., 2017; Wardell et al., 2020b). Coping motives appear to play an important role in the link between EDS and addictive behaviours/associated problems.

Relationship Conflict

Definition of Conflict

Relationship conflict is a construct that has attracted many definitions. Definitions vary in terms of their level of analysis (i.e., a given instance of conflict vs pervasive patterns or dynamics) and level of behavioural specificity (i.e., defining conflict behaviours vs describing the nature of differences in needs, opinions, or preferences between two people; Canary et al., 1995). The most inclusive definitions describe conflict as instances when the goals, motivations, and preferences of two people are incompatible (Overall & McNulty, 2017). Most scholars agree, when taking a wide view of conflict such as this, that conflict is an inevitable part of human relationships, or similarly, that it is inherent in "the very activity of two people relating to each other" (Canary et al., 1995, p. 3). From this perspective, it is clear that conflict serves important functions, such as

providing feedback and initiating problem solving (Laursen & Hafen, 2010; Overall & McNulty, 2017; Overall & Simpson, 2013). The most common sources of romantic relationship conflict include money, sex, communication, other relationships (relatives, friends, children, jealousy, affairs), recreation and hobbies, habits, division of labour, and affection/loving feelings (Dillon et al., 2015; Papp, 2017; Storaasli & Markman, 1990).

Due to the disparate conflict behaviours associated with disparate outcomes, several methods of classifying conflict styles have been validated. Methods of classification of romantic relationship conflict will be reviewed. These include variation in intensity of emotion expressed (e.g., angry conflict style), degree of engagement vs withdrawal in conflict, degree of constructive strategies (e.g., offering solutions, providing support), degree of negativity, (e.g., insulting the other, criticism), degree of assertiveness (i.e., attempts to satisfy own concerns), and degree of cooperativeness (i.e., attempt to satisfy partner's concerns) (Greeff & de Bruyne, 2000; Kurdek, 1995). For instance, Greeff and de Bruyne (2000) proposed a conflict styles framework with a 2x2 dimensional design, in which individuals can be high/low in assertiveness and high/low in cooperation. Similarly, the Rahim Organisational Conflict Inventory falls on a 2x2 design, in which the dimensions are concern for self and concern for other (Cann et al., 2020). Another framework proposes three styles, characterized by constructive, angry, or depressive behaviours (Du Rocher Schudlich et al., 2004, 2011). Other studies focus more simply on degree of negative conflict style as a predictor (Cramer, 2000). Gottman developed a theory with four conflict styles: volatile, avoidant, hostile, and validating (Busby & Holman, 2009). Lastly, a particular dyadic pattern of conflict characterized by one partner's approach behaviour and the other partner's avoidance behaviour (the

demand-withdrawal pattern) has received much attention in the literature (Eldridge & Christensen, 2002). This pattern is associated with poorer relationship satisfaction cross-sectionally and longitudinally (Eldridge & Christensen, 2002).

Regardless of which method used to categorize conflict style, virtually all studies found associations between style type and outcomes, such as conflict resolution, relationship satisfaction, and depressive symptoms (Gottman & Levenson, 2004). Namely, hostile, dominating, negative, angry, competitive, and avoidant conflict styles are associated with worse outcomes (e.g., depressive symptoms, poor relationship satisfaction), while collaborative, validating, and compromising conflict styles are associated with higher relationship satisfaction (Cann et al., 2020; Cramer, 2000; Greeff & de Bruyne, 2000; Holman & Jarvis, 2003). A meta-analysis of coded conflict interactions showed that, of unhelpful conflict styles (i.e., hostile, distress, withdrawal), hostility was most strongly associated with lower relationship satisfaction (Woodin, 2011). Negative conflict style was a more robust predictor of relationship satisfaction than the frequency of conflict (Cramer, 2000). Hostile romantic conflict has been linked to a range of physical health concerns, such as disrupted sleep, metabolic changes, and diabetes (Kiecolt-Glaser & Wilson, 2017; Stubbs & Szoeke, 2022).

IPV is a subset of more severe and problematic relationship conflict behaviours, usually referring to behaviour that, according to the WHO (2002), "causes physical, sexual or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse, and controlling behaviours." Many attempts to classify forms of IPV have led to consensus that there are probably subtypes (i.e., not all IPV is the same) but have not led to consensus on what the most robust classification is (Ali et al., 2016;

Anderson, 2008). Most attempts to classify IPV focus on differing levels of physical violence, and thus may miss differences in the type or severity of other facets, such as control or emotional abuse (Ali et al., 2016). For instance, women who experience a combination of control and physical violence may experience worse outcomes than those who experience physical violence alone (Anderson, 2008). Others have critiqued a model based on violent incidents as the main indicator of partner abuse (Stark, 2012). Because women are more likely to be injured by male partners when abused than men by female partners (Hamberger, 2005; Whitaker et al., 2007), centering physical violence may underestimate the prevalence of male victims in mixed-gender relationships. Indeed, the prevalence of male victims in mixed-gender relationships is about equivalent to the proportion of female victims in mixed-gender relationships (Hines & Douglas, 2009). Further, partner violence occurs at a higher prevalence rate in same-gender couples compared to mixed-gender couples (Rolle et al., 2018).

One expert laid out a framework of IPV that distinguishes: intimate terrorism – characterized by control over the other; violent resistance – characterized by reactive attempts to resist intimate terrorism; and situational couple violence – the most common subtype, characterized by violence that is provoked and limited to a given conflict or interaction, rather than efforts for global control within the relationship (Johnson, 2006). In other words, it is patterns of power and control, not motives or degree of violence, that distinguish subtypes of IPV. There are other noteworthy correlates: men are the dominant perpetrators of intimate terrorism, while women primarily engage in violent resistance, and situational conflict violence is typically associated with gender symmetry (Johnson, 2006).

Meta-analysis has demonstrated a strong inverse association between IPV and martial satisfaction; additionally, effects were stronger for victims vs perpetrators, and stronger with male perpetrators and female victims (Stith et al., 2007). Indeed, hostile conflict behaviours are important predictors of later divorce and relationship dissolution (Gottman, 1994). The impact of hostile conflict on emotional disorders and addictive behaviours will be examined next.

The present dissertation focuses on hostile romantic conflict behaviours that would not typically qualify as IPV, as indices of physical violence, threats of physical violence, or controlling behaviours were not specifically examined (Calvete et al., 2005). The measure used in all four studies within this dissertation assesses hostile, critical, and rejecting conflict behaviours (Murray et al., 2003), rather than a neutral assessment of conflict (e.g., frequency of disagreement) or assessing and contrasting a range of conflict styles (e.g., engaged, constructive, hostile, withdrawing). Indeed, several of the items (e.g., yelling at, insulting, criticizing, embarrassing your partner; see Table 1.1) align with well-validated measures of IPA, verbal aggression, or psychological abuse (e.g., Calvete et al., 2005; Derrick et al., 2014; Straus et al., 1996). Additionally, the literature on IPV is extensive and studies of IPV often include measures of verbal aggression or psychological abuse. Furthermore, physical violence often co-occurs with verbal aggression, and thus IPV shares antecedents and consequences with verbal aggression or hostile conflict behaviours (Johnson, 2006). For this reason, the literature on IPV will be reviewed (along with other types of relationship conflict), despite several characteristics (i.e., physical violence, attempts at control) being beyond the scope of the current dissertation.

Prevalence Rates of Conflict

Estimates of the prevalence rates of romantic conflict vary considerably based on definitions of conflict and samples. For instance, women report 5-year prevalence rates of any type of IPV at 15% and lifetime prevalence of 44% (Thompson et al., 2006). A large review that examined men and women physical violence perpetration found an overall pooled prevalence of 25%, with *slightly* higher rates for women (Desmarais et al., 2012). Most IPV has been found to be bidirectional, at least when considering low thresholds of violent behaviour (Renner et al., 2014).

A large scale study found that negative conflict behaviours, such as verbal abuse (i.e., criticism, belittling, yelling, using derogatory names), withholding emotionally, threats to intimidate, and creating a hostile environment (i.e., expressing contempt, creating conflict for its own sake) were all highly prevalent in couples, ranging from 45-60% for receiving and 20-48% perpetrating these behaviours (Follingstad & Edmundson, 2010). Additionally, this study found that despite discrepancies in prevalence between reports of one's own behaviour and one's partner's behaviour, these hostile conflict behaviours tend to be highly reciprocal (Follingstad & Edmundson, 2010). Overall, hostile and aggressive conflict behaviours are neither universal nor uncommon. Established antecedents and consequences of IPV and hostile conflict behaviour will be discussed next.

Antecedents of Conflict

Several antecedent factors are associated with IPV (Capaldi et al., 2012). IPV perpetration has been evidenced to be influenced by factors at all levels of one's environment: individual (e.g., well-being, depressive symptoms, alcohol problems,

history of adversity), family (e.g., relationship satisfaction, financial stress), workplace (e.g., hours worked, income), and community (e.g., community safety, support from neighbours, social support) (Okuda et al., 2015; Slep et al., 2014).

Regarding demographic factors, age is a well-established protective factor (Caetano et al., 2008). However, a cohort study revealed that this phenomenon is both robustly associated with age and with cohort – that is, IPV is most prevalent in people's 20s and 30s and is also declining with successive birth cohorts (Rivara et al., 2009). Additionally, unemployment (Caetano et al., 2008; Kimerling et al., 2009) and low income (Ahmadabadi et al., 2020a) are both risk factors for IPV perpetration and victimization, as well as mutual aggression. Many distal factors are robust yet weak predictors of IPV perpetration, such as witnessing IPV in childhood (Halford et al., 2000; Linder & Collins, 2005; Roberts et al., 2010) and early childhood physical abuse (Costa et al., 2015; Linder & Collins, 2005).

Interpersonal factors also appear to be relevant, such as social support being protective, though findings are mixed regarding the gender of the perpetrator and different types of support that are protective, such as family support, friend support, and neighbourhood support (Slep et al., 2010; Wright, 2012). Lastly, relationship and individual characteristics, such as impulsivity, overall appear to be the most relevant in predicting IPV over environmental risk factors (Cunradi et al., 2013).

Emotional disorder symptoms predict aggressive conflict at the trait (Leach & Butterworth, 2020) and event level (Elkins et al., 2013), and for both enacting and receiving these behaviours. Additionally, there is extensive literature linking substance use, substance-related problems, and acute intoxication to enacting and receiving conflict

behaviours, IPV, and IPA (Moore et al., 2008; Smith et al., 2012). This literature will not be reviewed in full as it is not the core focus of the present dissertation. However, a summary with examples is outlined below:

A large Swedish epidemiological survey (over a million individuals) examined a wide range of mental disorders as longitudinal predictors of men perpetrating severe IPV (i.e., leading to arrest) and found virtually all diagnoses examined were associated with increased risk; comorbid SUDs and personality disorders were particularly risky, as were AUD and drug use disorder compared to other diagnoses (Okuda et al., 2015; Yu et al., 2019). Overall, alcohol has been found to have the strongest association with IPV, but cocaine, cannabis, and opioid use have all been implicated (Smith et al., 2012), including some longitudinal evidence (Leonard & Senchak, 1996).

Evidence is suggestive of alcohol intoxication as an acute risk factor for IPV perpetration, using daily diary methodology (Leonard & Quigley, 1999; Mair et al., 2013; Shorey et al., 2014a) and laboratory-based experiments (Samp & Monahan, 2009; Watkins et al., 2015). Findings are mixed on cannabis use increasing conflict perpetration at the event-level (Shorey et al., 2016b; Shorey et al., 2014b; Testa et al., 2018a) and evidence is consistent that conflict victimization is more likely when using either substance (Shorey et al., 2016b; Shorey et al., 2014a).

However, cannabis use has been shown to overall be associated with physical, psychological, and sexual IPV (Flanagan et al., 2020b; Reingle et al., 2011; Shorey et al., 2018). Furthermore, there is a robust association between IPV and gambling problems (Dowling et al., 2016a; Suomi et al., 2019), including problem gambling predicting IPV perpetration longitudinally (Roberts et al., 2018). Indeed, rates of IPV perpetration are

high among problem gamblers: a meta-analysis reported a prevalence rate of 37% (vs. 15-25% base rate), and conversely that 11% (vs 2% base rate) of IPV perpetrators experience problem gambling (Dowling et al., 2016a). Additionally, a meta-analysis found a medium effect size of alcohol use/alcohol problems and IPV for men and a small effect for women (Foran & O'Leary, 2008). This effect had significant moderators for men, in which the association was larger in clinical samples and when measuring more severe alcohol-related problems (Foran & O'Leary, 2008). Substance use, and in particular polysubstance use, puts both members of a couple at risk of both IPV perpetration and victimization; partner effects have also been observed, highlighting the importance of examining dyadic effects and understanding these phenomenon at the couple level (Low et al., 2017).

Conflict and Emotional Disorders

While low relationship satisfaction is associated with poor mental health outcomes, there is evidence that martial conflict, and particularly hostile romantic conflict, at least partially moderates the relationship between low satisfaction and later depressive symptoms (Du Rocher Schudlich et al., 2011; Kouros et al., 2008). Similarly, another study found that dyadic physical aggression accounted for additional variance in women's depressive symptoms above and beyond that explained by low marital satisfaction (Beach et al., 2016). Thus, the direct effect of conflict on EDS will be discussed. The association between relationship conflict and EDS is clearly bidirectional; however, some have suggested that there is overall stronger evidence that conflict precedes depression than depression preceding conflict (Goldfarb & Trudel, 2019).

Nonetheless, the Goldfarb and Trudel (2019) review did not specifically examine hostile or aggressive conflict behaviours.

Aggressive and hostile romantic conflict is a significant predictor of emotional disorders. A recent meta-analysis showed that negative conflict behaviours (e.g., criticism and perceived psychological abuse) were associated with anxiety longitudinally (Postler et al., 2022). These findings hold for IPV: a meta-analysis showed that those experiencing violence experience odds ratios from 3.5-5.6 of experiencing a mental disorder (e.g., PTSD, depression), and that this occurred in a dose-dependent manner (Golding, 1999). A more recent meta-analysis on women who experienced IPV victimization indicated a 2-3X increase in the risk of major depressive disorder, a 1.5-2X increase in the risk for depressive symptoms, and that up to 28% of depressive symptoms and disorders can be explained by exposure to IPV (Beydoun et al., 2012). Most of the studies available for inclusion in the meta-analysis were cross-sectional in design (Beydoun et al., 2012). Longitudinal findings are consistent; for instance, IPV exposure was found to predict depressive symptoms two years later (Chuang et al., 2012). Similar results were found with a large retrospective cohort study: women who experienced IPV were at 2.6-3.0X increased risk of anxiety, depression, and severe mental illness (i.e., bipolar disorders, psychotic disorders), even after excluding those with mental illness at baseline; odds ratios were larger for depression than anxiety (Chandan et al., 2020). Not only does conflict predict depressive symptoms, but it has also been shown to longitudinally predict the onset of major depressive episodes (Ahmadabadi et al., 2020b; Whisman & Bruce, 1999). Similar results were found for IPV longitudinally predicting

worsening anxiety symptoms and new onset anxiety disorders (Ahmadabadi et al., 2020b).

Extant evidence suggests that any pattern and degree of violence is associated with anxiety and depression symptoms. But these associations are stronger for more severe violence, more chronic violence, and for women when type and degree of IPV was held constant (Ansara & Hindin, 2011). It has been hypothesized that these gender differences may be moderated by experiences of fear, which may be more likely to impact women victims of IPV (Ansara & Hindin, 2011; Johnson, 2006). In contrast, another study demonstrated that male victims reported more anxiety symptoms than female victims; however, it is possible that this may be due to types of victimization emphasized in various studies. For instance, this study looked at sexual victimization, which may be particularly challenging for men, whereas studies that found less EDS for men than women focused on physical violence, in which men may experience less fear than women (Johnson, 2006; Shorey et al., 2011). Many of the above results examined IPV *victimization*, rather than IPV *perpetration*. When directly comparing these perpetrators and victims, it was found that associations between anxiety/depression and IPV were robust for both victimization and perpetration, but that effect sizes were larger for victimization (Sesar et al., 2015).

Some gender differences have been noted in this area, though trends are inconclusive. A review on marital conflict and depression found that gender differences were inconclusive, with some studies finding that conflict predicted later depression for wives while a bidirectional relationship was found for husbands, but that several other studies found no gender differences in these effects (Goldfarb & Trudel, 2019). In

examining perpetration, it was found that abuse perpetration was associated with increased depressive symptoms for women, but not men; victimization was a strong predictor of depressive symptoms for both men and women, although the association was stronger for women (Renner et al., 2014). Another study found that one's own hostile behaviour was related to one's own depressive symptoms for both men and women, as well as related to one's spouse's depressive symptoms, but only for women (Brummett et al., 2000)

These effects also hold at the event level. Although conducted in adolescents, a daily diary study found that conflict was associated with same-day negative affect (Rogers et al., 2018). A similar study in adults corroborated these findings: perpetrators and victims of IPA experienced short term consequences of worsened mood and poorer relationship functioning (Derrick et al., 2014). Another daily diary study showed women experienced decreased positive mood and increased negative mood in the 24 hours and 7 days following experiences of aggression – no differentiation between victimization and perpetration was made in the measurement of aggression in this study (Parks et al., 2008).

While the impacts of aggressive or hostile conflict on EDS are large and well-established, the picture is not as straightforward as all conflict being deleterious. A longitudinal study found that those with stable relationships that are high in conflict were not lower in overall quality of life compared to other couples, and actually may have had a larger decline in depressive symptoms over time (Roberson et al., 2018). Aligned with this finding, some studies have found that perceived support from a romantic partner matters more in determining outcomes than does conflict (Cramer, 2003, 2004; Laurenceau et al., 2005). This could also partially be explained by the finding that

avoiding and withholding conflict is also associated with poor outcomes (Smith et al., 2008).

Conflict and Addictive Behaviours

Interpersonal conflict has long been theorized to be a significant stressor putting individuals at risk of increased alcohol consumption or relapse (Marlatt, 1996). Overall, there is a robust association between IPV (victimization and perpetration) and substance use, with larger effects for problems than use (Cafferky et al., 2018). However, more research has been conducted examining substance use as a risk factor for IPV rather than IPV/aggressive partner conflict as risk factors for substance use or related problems (Rodriguez & Derrick, 2017), though there is clear evidence of a bidirectional association (Derrick et al., 2019). The literature on conflict as a risk factor for addictive behaviours and associated problems will be summarized. Much of the existing literature in this area is on alcohol, with fewer studies examining cannabis or gambling.

A systematic review of studies on women found that IPV predicted substance use, SUDs, and worse SUD treatment outcomes (Ogden et al., 2022). Longitudinal data supports romantic conflict as a risk factor for later addictive behaviours. In a sample of women, IPV predicted subsequent heavy drinking, but not subsequent drug use (Testa et al., 2003). Another study found partner conflict predicted later development of comorbid tobacco dependence and AUD (Meacham et al., 2013). In a large study that sampled individuals at age 21 and age 30, experiencing IPV (physical and emotional abuse subscales) at age 21 predicted later development of SUDs for men and women, with larger effect sizes for women (Ahmadabadi et al., 2019).

In a laboratory conflict experiment, it was found that more negative conflict behaviours resulted in more alcohol craving post-conflict (Flanagan et al., 2020a). Furthermore, this study found that this association was stronger in those who engage in more severe psychological IPV perpetration, but only for men (Flanagan et al., 2020a). These results suggest that even when conflict is managed relatively well, conflict may be perceived as quite stressful for those who engage in aggressive conflict behaviours (Flanagan et al., 2020a). This may be consistent with the Votaw and Witkiewitz (2021) meta-analysis that showed that affect intensity, but not valence, predicted alcohol use. Another laboratory conflict study found experimental evidence for conflict-induced substance use. This study randomized couples to discuss an unresolved conflict or neutral topic followed by an ostensibly unrelated beverage rating task to assess alcohol consumption; results showed that women, but not men, consumed significantly more alcohol following conflict than their counterparts in the neutral condition (Stewart, 2020, February).

Conflict as a risk factor for substance use has also been studied using daily diary methodology. A daily diary study with young adults demonstrated increased alcohol use following conflict and other negative interactions, particularly for women (Levitt & Cooper, 2010). The predominant interpretation the authors made was the presence of stress-induced drinking following conflict; however, they did also discuss that women may be more likely to engage in drinking with their partner following conflict or perceived lack of intimacy in order to enhance feelings of intimacy (Levitt & Cooper, 2010). Another daily diary study of community couples demonstrated that both victims and perpetrators of verbal, but not physical, aggression were more likely to use alcohol in

the 3 hours *following* instances of aggression (Derrick et al., 2017). Importantly, these results only held for self-reports (but not partner reports) of perpetration and victimization, highlighting the importance of actor reports, even for socially undesirable behaviours. However, some studies have found that victims are more accurate reporters of perpetrator's abusive behaviours (Derrick et al., 2014). Among college women who experienced aggression, individuals reported increased alcohol use in the 24 hours following verbal aggression (Parks et al., 2008); however, this study did not differentiate between perpetration and victimization due to their high co-occurrence.

A national representative sample demonstrated a clear bidirectional association between IPV and problem gambling, even after adjusting for other mental disorders (Afifi et al., 2010a). The literature specifically examining conflict preceding gambling is limited. However, in a large qualitative study of problem gamblers, about half of those who reported IPV reported that violence preceding gambling behaviours (Suomi et al., 2019). Additionally, when asked (open-ended) how conflict and gambling were related, the majority of those who reported that aggression preceded gambling, endorsed they gambled in order to cope with the stress of the conflict, sometimes in addition to describing physically escaping the conflict environment as well (Suomi et al., 2019). There is a paucity of literature examining conflict behaviours as an independent predictor of gambling behaviour and gambling problems.

Summary

In summary, there are clinically relevant bidirectional associations between conflict and EDS, conflict and addictive behaviours, and EDS and addictive behaviours. One potential unifying explanation of associations between these variables is mediation

through coping motives; that is, increases in EDS (e.g., distress, unpleasant affect, rumination, insomnia) following the stressor of romantic conflict results in engaging in addictive behaviours, motivated by a desire to cope (i.e., conflict → EDS → coping motives → addictive behaviours and/or associated problems). Various parts of this pathway have been tested (some of which were reviewed above, e.g., EDS to coping motives to addictive behaviours).

Additionally, some findings have linked conflict and addictive behaviours together via EDS and/or coping motives. For instance, avoidant coping strategies related to a recent romantic conflict mediated the association between psychological and sexual victimization (predictors) and PTSD symptoms, depressive symptoms, and drug use problems in women experiencing bidirectional aggression (Flanagan et al., 2014). However, this study did not examine depressive symptoms as a mediator between avoidant coping and substance problems; additionally, avoidant coping was operationalized as a response style, rather than assessing coping motived use of substances specifically. A recent study examined declines in cortisol following an in-laboratory conflict manipulation, and found that less decrease in cortisol (i.e., prolonged (but not stronger) stress response to conflict) predicted recent drinking frequency and quantity, which were also associated with poorer relationship satisfaction (Hogan & Flanagan, 2022). This suggests that prolonged stress following conflict puts individuals at risk for increased alcohol use. Evidence from a national epidemiological survey not only suggested that IPV victimization is a risk factor for alcohol use, but also established that this this effect was mediated by major depressive disorder (LaFlair et al., 2012).

A meta-ethnography of qualitative studies on the interplay between IPV and substance use revealed themes related to using substances to cope with aggression victimization, and to a lesser degree, perpetration, i.e., the perpetrator using to cope with other mental health difficulties, and with couples' co-use following aggression as a form of repair (Gilchrist et al., 2019). Indeed, there is evidence that drinking together can enhance intimacy (Levitt & Leonard, 2013).

Partner Influence

Overview

Social impact theory posits that our social environment influences us, and that this occurs as a function of closeness of a given relationship, i.e., that stronger and more immediate relationships will have more influence (Latanè, 1981). Indeed, close others have been demonstrated to influence a wide range of behaviours and experiences, such as emotion regulation strategies and depressive symptoms (Marroquin & Nolen-Hoeksema, 2015), condom use (Hunter et al., 2019), exercise (Carron et al., 1996), fad dieting (Spadine & Patterson, 2022), other food choices (Cruwys et al., 2015), smoking (Homish & Leonard, 2005), vaccination (Brunson, 2013), and general happiness (Hoppmann et al., 2011). Much of this research has examined committed romantic partnerships or marriage, one of the closest relationships in adulthood (Takahashi, 2005). A large longitudinal study of over six thousand married couples corroborated the robustness of this effect across a range of behaviours (Falba & Sindelar, 2008).

Mechanisms of Partner Influence

There are several mechanisms at play in this effect. One is selection effects, in which people choose partners who are similar in a variety of ways. Indeed, there is robust

evidence of large effects where romantic partners select one another on the basis of race, religion, socioeconomic status, health behaviours, political attitudes, affective disorders, and other psychiatric disorders (Alford et al., 2011; Blackwell & Lichter, 2016; Ford et al., 2003; Mathews & Reus, 2001; Monden, 2007; Nordsletten et al., 2016; Skopek et al., 2010). Another possibility is the effect of marriage/stable partnership on increasing *health* behaviours specifically (Fleming et al., 2010; Joung et al., 1995). Overall, a protective effect of marriage has been observed on a range of health behaviours, including reduced heavy alcohol use (Salvatore et al., 2020), even after accounting for selection effects (Leonard, 1999). On the other side, leaving marriage tends to result in increased heavy drinking, both for selection effects (heavy drinkers being more likely to get divorced) and the transition out of marriage is itself being risky for alcohol use and related problems (Leonard, 1999). Overall, marriage and committed relationships have been associated with decreased heavy drinking and cannabis use, but this was moderated by partner's substance use, suggesting that the protective effect of marriage may depend on the substance use of one's spouse (Fleming et al., 2010). Additionally, the protective effect of marriage would not explain the above findings that demonstrate *changes* in one partner's health behaviours can predict changes in the other partner, even in the direction of less "healthy" behaviours, e.g., one partner relapsing after smoking cessation increases the likelihood of the other partner relapsing (Homish & Leonard, 2005).

Lastly, there may be socialization effects at play, essentially a form of direct partner influence, such that partners become more similar to each other over time in their behaviours. This, of course, could be through a variety of mechanisms, such as peer

pressure or coercion of some kind, curiosity combined with opportunity, a desire for acceptance (conformity), or social learning (Wargo Aikins et al., 2010).

There is strong evidence of socialization effects. Indeed, even among emerging adults, for whom peer relationships would be theorized to be more influential than for middle adults, romantic partners were the social network members who most strongly predicted one's binge drinking (Bartel et al., 2020). A recent meta-analysis of longitudinal studies on couples' drinking behaviour found that romantic partners influence one another's drinking (Muyingo et al., 2020). In mixed-gender couples, men and women mutually influence each other's heavy drinking over time, consistent with the idea of "drinking partnerships" (Bartel et al., 2017; Mushquash et al., 2013a). For instance, one study examining partner drinking behaviour found that the similarity between members of couples in their drinking behaviour was predicted by days drinking together and days of direct contact, suggesting socialization, and not just selection, partially explains this phenomenon (Kehayes et al., 2017); a daily diary study corroborated this with cannabis, in which individuals were more likely to use cannabis on a given day when their partner used cannabis that day, suggesting direct influence over this behaviour and possible co-use (Testa et al., 2019). Another study found that relationship satisfaction predicted lower frequency of heavy drinking and cannabis use, but only when one's partner was a low use or abstainer, indicating that one's partner influences the association between dyadic relationship variables and one's substance use (Fleming et al., 2010).

These mechanisms are not mutually exclusive: people likely select partners with similar behaviours and then are influenced to maintain similarity or become more similar

over time. Research on these processes in adolescent dating relationships has demonstrated this combination of selection and socialization influences on substance use (Wargo Aikins et al., 2010). Longitudinal studies have demonstrated evidence for both selection and socialization effects in romantic partners influencing each others' cannabis use, with mixed evidence of gendered effects (Homish et al., 2007; Liebregts et al., 2013).

Social learning theory, most famously proposed and discussed by Albert Bandura, postulates that behaviour is influenced by our social environment (Bandura, 1971; Bandura, 1997). This theory suggests that individuals alter behaviour based on modelling or vicarious learning, i.e., are more likely to initiate or increase a behaviour if they observe that behaviour being rewarded for someone else, and conversely, would be more likely to decrease or not initiate a behaviour if they observe that behaviour being punished for someone else (Bandura, 1997). Other social learning theories discuss a component referred to as differential associations: the degree to which one is exposed to close others who engage in certain behaviours and the degree to which those behaviours are valued or normalized (Akers, 1998). Socialization likely occurs through multiple mechanisms consistent with social learning theory, though evidence is strongest for differential associations, and is stronger for more commonly used substances, such as alcohol and cannabis, compared to "hard" drugs, such as amphetamines and opioids (Kruis et al., 2020).

Partner Influence on Addictive Behaviours via Motives

One possible factor contributing to partner influence in addictive behaviours is via motives for use. For instance, drinking behaviour in college students has been found to be

influenced by close friends' drinking motives (Hussong, 2003). More recent research found that specifically social, enhancement, and coping with anxiety motives of one's drinking buddy influenced one's own drinking behaviour (Kehayes et al., 2020). Research suggests couples are also more similar than would be explained by chance in not just their drinking behaviour, but also their drinking motives (Kehayes et al., 2017). A four-week longitudinal study of romantic partners found that changes in one's own coping with anxiety motives predicted changes in one's partner's drinking quantity (Kehayes et al., 2019). The findings in this study suggest that this effect is mediated via changes in one's own drinking motives (Kehayes et al., 2019).

It is perhaps perplexing that an internal drinking motive would be associated with another's behaviour, as internal motives are (theoretically) not directly observable. However, evidence on the influence of motives on another's behaviour suggests that internal motives are perceivable by others, whether via pairing observations of emotional or motivational states, e.g., signs of distress, with addictive behaviour, or vocalized motives to close others. Indeed, there is evidence that individuals are accurate in their perception of close others' coping motives for alcohol use (Bartel et al., 2022), though through which exact mechanism is not yet known.

Partner Influence on Addictive Behaviours in the Context of Conflict

Prior to the current dissertation, only one study examined romantic conflict as a predictor of addictive behaviours via coping motives and partner influence within this model. This study recruited 100 young adult couples (mean age of 22 years old) in a 4-week, 4-wave longitudinal study and assessed conflict, drinking motives, and a 7-day measure of alcohol problems (Lambe et al., 2015). This study used a composite measure

of three different measures of conflict, all of which measured negative conflict behaviours, which largely represented hostile conflict behaviours (e.g., being critical/judgemental, yelling); reports on conflict were combined from each member of the couple to assess dyadic hostile conflict. Actor-partner interdependence models were run to allow for detection of partner effects (i.e., ways in which one partner's motives impact the other's alcohol-related problems). The authors reported that coping with depression motives mediated the association between dyadic conflict and alcohol-related problems at both the within and between subjects levels (Lambe et al., 2015). Coping with anxiety motives were not a significant mediator, despite being significantly associated with conflict (Lambe et al., 2015). Additionally, supplemental analyses found that this mediation held only for women, not for men (in mixed-gender couples). Contrary to the author's hypotheses, no partner effects were detected on coping motives, though an overall indirect effect of one partner's alcohol problems on the other's alcohol problems was found (Lambe et al., 2015).

This study provided several contributions to the literature on dyadic hostile conflict as a predictor of problems associated with addictive behaviours via coping motives. However, the null partner effects of motives is puzzling given previous findings (Kehayes et al., 2019). The authors noted that this may be due to separate drinking contexts or due to the younger age of the couples recruited. While the longitudinal design is a significant strength, several limitations of this study are worth noting. First, as the authors considered, there may be unique considerations with romantic partnerships in emerging adulthood that may not generalize to other stages of adulthood. Additionally, the study measured alcohol-related problems, but not alcohol use behaviour itself;

mechanisms of influence may be different or at least occur on different time frames for these two related, but distinct, variables. Furthermore, the study examined alcohol-related problems, but did not extend to other addictive behaviours or associated problems (i.e., gambling, cannabis). Lastly, the sample size (100 couples) may have simply been underpowered to detect partner effects, which are smaller than actor effects (Kenny et al., 2020).

Summary

Romantic conflict, particularly hostile, critical, and aggressive conflict, is usually bidirectional between couple members (Renner et al., 2014). It is associated with the development and exacerbation of emotional disorders, such as anxiety and depression (Chandan et al., 2020), and addictive behaviours and associated problems, such as alcohol, cannabis, gambling, and associated problems (Cafferky et al., 2018). While evidence is strong that romantic conflict increases the likelihood of engaging in addictive behaviours, much more research has been conducted on addictive behaviours as a risk factor for hostile conflict than vice versa.

Coping motivated engagement in addictive behaviours may help explain the link between these phenomena, in which distress following conflict motivates substance use or gambling to cope with, regulate, or otherwise alleviate unpleasant feelings. Coping motives have been well established to predict problems associated with addictive behaviours and are often found to also be associated with increased engagement in addictive behaviours as well (Bresin & Mekawi, 2019; Bresin & Mekawi, 2021).

Lastly, partners influence each other's engagement in addictive behaviours, and this may at least partially occur via social influence of partner motives (Kehayes et al.,

2019). However, the only study examining partner influence of motives in association with dyadic hostile conflict failed to find partner effects; this is possibly due to small sample size.

Most of this research occurred before the COVID-19 pandemic. During the COVID-19 pandemic, rates of partner aggression and emotional disorders surged (Biddle et al., 2020; Deng et al., 2021; Galasso, 2020; Langhinrichsen-Rohling et al., 2022; Leonard et al., 2022; Piquero et al., 2021). Additionally, those at risk for problems with addictive behaviours showed an overall increase or exacerbation in addictive behaviours (Brenneke et al., 2022; Brodeur et al., 2021; Kim et al., 2020b; Sharman et al., 2021; Vedelago et al., 2022). The pandemic context may have also created an environment in which social influence was concentrated into a fewer number of close others and where there was increased exposure to one's partner's behaviours during lockdowns, both of which may have increased the effect size of romantic partner influence.

Aims of the Present Dissertation

The aim of the present dissertation was to examine a cohesive model to explain how hostile and dyadic romantic conflict acts as a risk factor for addictive behaviours and associated problems in the context of the COVID-19 pandemic. Furthermore, this dissertation sought to investigate partner influence of coping motives on addictive behaviours and associated problems using actor-partner interdependence modelling (Kenny et al., 2020). The present dissertation specifically examined romantic conflict (1) as a dyadic variable, as most conflict is bidirectional, and dyadic variables are stronger predictors of relationship satisfaction than individual differences (Joel et al., 2020), and (2) with a measure of hostile conflict behaviours used in all four studies. This measure of

hostile conflict behaviours was used due to the deleterious effects associated with this conflict style (Holman & Jarvis, 2003), but is not a measure of IPV; see Table 1.1 for a list of items included in this measure (Murray et al., 2003). The three cross-sectional datasets were gathered at different stages of the pandemic:

Study 1

Entitled "Drinking to cope mediates the association between dyadic conflict and drinking behaviour: A study of romantic couples during the COVID-19 pandemic", Study 1 collected data from couples during Wave 1 (April 2020) of the COVID-19 pandemic, i.e., during lockdown. This study sought to replicate the actor-partner interdependence mediational model in Lambe et al. (2015) with a few distinct changes. Firstly, Study 1 recruited a sample of adults older than in the Lambe et al. (2015) study. Additionally, a much larger sample was recruited with the intention to be adequately powered to detect partner effects. Lastly, alcohol use was examined as the outcome, rather than alcohol-related problems, due to the more proximal association between coping motives and behaviour (rather than coping motives and consequences of use). Two models were examined: one using all couples who consumed alcohol during the reporting period in which members of each couple were constrained to be equal (indistinguishable dyads model); the other using only mixed-gender couples who consumed alcohol during the reporting period in which men and women were each assigned to one pathway in the model (distinguishable dyads [by gender] model).

Study 2

Entitled "*What explains the link between romantic conflict with gambling problems? Testing a serial mediational model*", Study 2 recruited romantically involved

gamblers, reporting on their conflict behaviours, negative affect, coping motives, and gambling problems in July 2021, which was roughly between Waves 3 and 4 of the pandemic (July 2021). The primary goals of Study 2 were to examine the hypothesized mediation model in problem gambling and to include negative affect as a serial mediator. Gambling problems have been under-researched in relation to romantic conflict as a trigger. Additionally, the specificity of different negative affects (i.e., stress vs depression vs anxiety) were examined.

Study 3

Entitled "*Romantic conflict and coping-motivated substance use: An actor-partner interdependence serial mediation model*", Study 3 collected data from couples during Wave 2 (January/February 2021) of the COVID-19 pandemic. January 2021 was one of the two most fatal months in Canada for deaths attributed to COVID-19 infection (Center for Systems Science and Engineering, 2023). This study built off Study 1 by including a measure of emotional disorder symptoms as a mediator between romantic conflict and coping motives in a serial or "chained" mediational model. In this manner, Study 3 extended the chained mediational model in Study 2 to alcohol and cannabis use (from gambling problems) and in examining couples. Additionally, Study 3 filled a gap in the literature by examining cannabis use as an outcome, in addition to alcohol use. Like in Study 1, indistinguishable and distinguishable dyad (by gender) models were run to examine overall and gendered effects in mixed-gender couples.

Study 4

Entitled "*Dyadic conflict, emotional disorders, coping motives, and substance-related problems: A serial mediation model*", Study 4 is a direct extension of Study 3

using the same dataset. Study 4 extended the models examined in Study 3 by using substance-related problems as the dependent variable, using a measure that combined problems associated with alcohol use and drug use, and examining this serial mediation actor-partner interdependence model using an indistinguishable and distinguishable by gender model. This also made this study a closer replication of the Lambe et al. (2015) study which examined alcohol-related problems, but Study 4 added in the effects of problems related to cannabis use.

Outline

The four manuscripts outlined above are presented sequentially. Study 1 can be found in Chapter 2, Study 2 in Chapter 4, Study 3 in Chapter 6, Study 4 in Chapter 8, and transitions between studies can be found in Chapters 3, 5, 7, respectively. Finally, Chapter 9 presents an integrated discussion of the findings of the dissertation, including theoretical implications, clinical implications, limitations of the dissertation studies, and future directions.

Table 1.1. Items in the Partner-Specific Rejecting Behaviours Scale

1. I was angry or irritated with my partner
2. I criticized or complained about my partner (to him/her)
3. I insulted my partner
4. I ignored or did not pay attention to my partner
5. I was inconsiderate or selfish with my partner
6. I snapped or yelled at my partner
7. I embarrassed or made fun of my partner

Note. Copyright © 2003, American Psychological Association. Reproduced with permission. Murray, S. L., Rose, P., Griffin, D. W., & Bellavia, G. M. (2003). Calibrating the sociometer: The relational contingencies of self-esteem. *Journal of Personality and Social Psychology*, *85*(1), 63-84. https://doi.org/10.1037/0022-3514.85.1.63. Copyright permission in Appendix A.

CHAPTER 2. STUDY 1: DRINKING TO COPE MEDIATES THE ASSOCIATION BETWEEN DYADIC CONFLICT AND DRINKING BEHAVIOUR: A STUDY OF ROMANTIC COUPLES DURING THE COVID-19 PANDEMIC

The manuscript prepared for this study is presented below. Mandy Hagen, under the supervision of Dr. Sherry Stewart, was responsible for developing the research questions and hypotheses, providing input on data collection procedures and materials used in data collection, preparing the dataset for analyses, conducting analyses, and interpreting study findings. Consultation on analyses was provided by Dr. Clayton Neighbors and Dr. Lindsey Rodriguez (both co-authors). Co-authors (listed below) secured funding, selected materials and measures, and collected data. Mandy also wrote the manuscript, incorporating feedback from co-authors. The manuscript underwent peer review, during which time Mandy led the response to revisions and resubmissions. The manuscript was accepted for publication in 2023. The published article is licensed under an open access Creative Comments CC BY 4.0. The published article is reproduced below, with changes only made to formatting for consistency with APA 7th edition formatting guidelines. The full reference is as follows:

Hagen, A.E.F., Rodriguez, L.M., Neighbors, C., Nogueira-Arjona, R., Sherry, S.B., Lambe, L., Deacon, S.H., Meier, S., Abbass, A., & Stewart, S.H. (2023). Drinking to cope mediates the association between dyadic conflict and drinking behaviour: A study of romantic couples during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *20*(14), 6332. https://doi.org/10.3390/ijerph2014633

Abstract

The COVID-19 pandemic spurred public health measures to reduce viral spread. Concurrently, increases in alcohol consumption and conflict in romantic partnerships were observed. Pre-pandemic research demonstrated a bidirectional association between couples' conflict and drinking. Recent research shows one's drinking motives (proximal predictors of drinking behaviour) can influence another person's drinking in close relationships. It is possible that individuals are drinking to cope with distress following romantic conflict. The current study examined 348 cohabitating couples during the first lockdown in the spring of 2020. Our analyses examined coping motives as a mediator between dyadic hostile conflict and drinking behaviour using actor-partner interdependence models. Results showed that conflict was associated with greater reports of own drinking in gendered (distinguishable) and nongendered (indistinguishable) dyad analyses through coping motives. Further, in mixed-gender couples, men partners' coping motives were associated with less drinking in women, while women partners' coping motives were associated with marginally more drinking in men. Partner effects may have been observed due to the increased romantic partner influence during COVID-19 lockdown. While these results suggest that men's coping motives may be protective against women's drinking, more concerning possibilities are discussed. The importance of considering dyadic influences on drinking is highlighted; clinical and policy implications are identified.

Keywords: COVID-19; alcohol use; couples' conflict; drinking motives

Introduction

In the spring of 2020, businesses, travel, workplaces, and schools were closed across Canada and many jurisdictions around the world in response to the declaration of the COVID-19 virus as a pandemic (WHO, 2020). As such, many cohabitating romantic couples found themselves spending extended periods of time in the home together. Couples also had highly limited opportunities to socialize with others or participate in activities outside the home. Romantic couples also faced additional pandemic-specific stressors, such as shifts to working from home, mandatory homeschooling, and financial and/or health-related concerns.

The effects of the COVID-19 pandemic and associated public health measures have resulted in deleterious consequences to *individuals'* well-being, including increases in anxiety and depressive symptoms, increased loneliness, and decreased positive emotions and life satisfaction (Rosenberg et al., 2021; Vindegaard & Benros, 2020). Further, some evidence suggested increased individual alcohol use and alcohol-related problems during COVID-19 lockdowns (Kim et al., 2020b; Pollard et al., 2020) particularly among those with higher levels of pandemic-related distress (Rodriguez et al., 2020b; Schmits & Glowacz, 2021). Population increases in alcohol use are of great public health importance due to the range of adverse consequences (e.g., injury, medical illness, suicide, violence) associated with heavier drinking (Rossow & Mäkelä, 2021). Despite increases in reports of stressful life events frequently associated with increases in romantic conflict (e.g., job loss, health changes) (Howe et al., 2004), there is less information available on the psychological impact of the pandemic on romantic *couples.*

There is a particular dearth of studies using dyadic methods where the perspectives of both couple members are included.

Romantic Partnerships & Conflict in COVID

Romantic relationships are typically the largest source of social interaction and one of the most influential social relationships (Umberson et al., 2010; Whisman et al., 2000). Indeed, romantic relationship satisfaction is a robust predictor of overall life satisfaction (Roberson et al., 2018). Research has begun to identify impacts of the pandemic on romantic relationship functioning including effects on couples' well-being and relationship satisfaction. For instance, married individuals experienced a steeper decline in well-being than unmarried people during the COVID-19 outbreak (Yang & Ma, 2020).

The COVID-19 pandemic and associated stressors (e.g., mandatory homeschooling) has increased 'couples' conflict' (Basso et al., 2023). This dyadic construct includes a variety of negative communication behaviours that arise out of disagreement or incompatibility, including interruptions, contempt, rejection, condemnation, and communication avoidance (Ortzel & Ting-Toomey, 2006). At the extremes of conflict, reports of intimate partner violence roughly doubled in frequency and severity during the pandemic (Gosangi et al., 2021). Moreover, couples who reported more COVID-19 related stress also reported more conflict and lower relationship satisfaction (Balzarini et al., 2020). Increases in romantic conflict result in decreased intimate sexual behaviour within the partnership during COVID-19 (Luetke et al., 2020), further undermining relationship quality. The importance of examining romantic conflict during the COVID-19 pandemic is further underscored by the known deleterious effects

of romantic conflict, particularly hostile conflict behaviours, on life and relationship satisfaction over time (Booth et al., 2001; Cramer, 2000; Holman & Jarvis, 2003; Karney & Bradbury, 1995).

Romantic Partnership Conflict and Drinking

A systematic review found the effects of drinking on marriages are overwhelmingly negative (Marshal, 2003). Indeed, heavy alcohol use and alcohol-related problems co-occur with marital conflict (Marshal, 2003). Other research suggests the relation between drinking and marital satisfaction is more nuanced. First, there are reported positive effects of matched substance use behaviour in romantic couples, regardless of quantity of use (Leonard & Homish, 2008; Levitt & Cooper, 2010). Additionally, a bidirectional relation exists between conflict and drinking in couples. Not only does drinking before a conflict result in more aggressive conflicts (Stets & Henderson, 1991), but some research suggests conflict result in more alcohol use or alcohol-related problems (Maisto et al., 1988; Whisman et al., 2000). For example, a daily diary study found that romantic conflict predicted increases in next day drinking behaviour (Levitt & Cooper, 2010). This study also showed that the tendency to drink in response to earlier romantic conflict was stronger in women than in men (Levitt & Cooper, 2010).

Cooper's drinking motives theory (Cooper, 1994; Cooper et al., 2016), describes how individuals may be motivated to drink to achieve different desired outcomes. These different motives are outlined in terms of the type of reinforcement desired (i.e., positive or negative reinforcement) and the source of reinforcement (i.e., internal or external to the individual). Crossing these two dimensions of desired outcomes yields four distinct

drinking motives: social (positive-external motives; to increase social affiliation), enhancement (positive-internal motives; to heighten pleasurable sensations or affect), conformity (negative-external motives; to alleviate/avoid social rejection), and coping (negative-internal motives; to reduce undesirable internal states) (Cooper, 1994). Of these four motives, coping motives appear the riskiest or among the riskiest (Bresin & Mekawi, 2021); they consistently predict heavy drinking and alcohol-related problems both cross-sectionally (Cooper et al., 1995; Park & Levenson, 2002) and longitudinally (Cooper et al., 2016; Mackinnon et al., 2014; Stevenson et al., 2019).

Coping motives provide one possible explanation for drinking behaviour following conflict. Drinking to cope with interpersonal conflict (including romantic conflict) explains 36% of the variance in coping drinking motives (Carrigan et al., 1998). This supports a coping-motivated link in the couples' conflict-to-drinking relation. Additionally, an individual's drinking motives (including their coping motives) may be influenced by the drinking motives of close others. This has been theorized to occur via social learning: while one cannot directly observe the motivations of others, an individual can witness their partner being reinforced or punished, which may lead them to drink to achieve similar outcomes (Bandura, 1971). While it is well established that romantic partners influence one another's drinking behaviour (Muyingo et al., 2020), it has only recently been established, in pre-pandemic research, that an individual's drinking motives can influence their partner's drinking behaviour. Specifically, one partner's coping motives were longitudinally associated with the other partner's drinking behaviour as mediated through the other partner's coping motives (Kehayes et al., 2019). This points to the importance of examining partner effects in this field.

Another pre-pandemic study from Lambe et al., examined the links between couples' conflict and alcohol outcomes in a sample of 100 emerging adult couples (Lambe et al., 2015). They examined the individual's own coping motives and the partner's drinking motives as possible mediators of the conflict – drinking outcomes link (Lambe et al., 2015). In indistinguishable dyad analyses (i.e., not distinguished by gender), this study showed that the individual's coping-with-depression motives mediated the relation between dyadic conflict (combined reporting by both partners) and the individual's alcohol-related problems (Lambe et al., 2015). Within the mixed-gender couples, this mediation held true for women but not men. This pattern was consistent with prior gendered findings on conflict-related drinking (Levitt & Cooper, 2010). Both the indistinguishable dyads and distinguishable dyads (by gender) analyses found actor effects but no partner effects. Thus, no evidence was found that the partner's coping motives influenced the individual's alcohol-related problems (Lambe et al., 2015).

While there were important insights offered by Lambe et al.'s study (2015), there were also limitations. First, this study recruited emerging adults, which may limit generalizability to longer-term romantic relationships since partner drinking influence has been shown to vary by stage of relationship, increasing with marriage (Leonard & Homish, 2008). Further, with only 100 couples, their study may have been underpowered to detect smaller magnitude partner effects (Kenny et al., 2020). Additionally, Lambe et al. (Lambe et al., 2015) examined alcohol-related problems as their outcome. Increased drinking levels is the more proximal outcome of drinking to cope, which may lead to alcohol-related problems over time (Cooper et al., 1995). While examining alcohol-related problems may have been an appropriate outcome given Lambe et al.'s (Lambe et

al., 2015) longitudinal design, it remains important to test their model with drinking behaviour as the theoretically more proximal outcome, particularly given the adverse public health consequences of increased heavy drinking during the pandemic (Pollard et al., 2020; Sohal et al., 2022).

The Current Study

Given the increases in both couple's conflict and drinking during the COVID-19 pandemic (Balzarini et al., 2020; Kim et al., 2020b; Pollard et al., 2020), it is important to test the influence of the drinking motives of both individuals in a couple in response to dyadic hostile conflict on both couple members' heavier drinking behaviour. In other words, it is important to test both actor and partner effects. The current study was a conceptual replication of Lambe et al. (Lambe et al., 2015) and an extension to a larger, older, community-recruited sample and to drinking behaviour as the outcome, conducted in the context of stay-at-home orders during the COVID-19 pandemic. We utilized a cross-sectional design and the Actor-Partner Interdependence Model (APIM; (Kenny & Ledermann, 2010)). We reasoned that results could help shed light on the consequences of the pandemic, along with the associated public health viral containment measures put in place in the spring of 2020, on drinking behaviour in couples.

We hypothesized we would detect partner effects despite their absence in Lambe et al. (Lambe et al., 2015) due to our larger sample size (partner effects tend to be smaller, e.g., (Kehayes et al., 2019)), and due to the probable greater influence of a cohabitating partner on an individual's behaviour during the stresses and isolation of lockdown. Additionally, the various unique stressors associated with lockdown (e.g., health, financial, homeschooling, loss of leisure activities) could have increased conflict

(e.g., negative partner behaviours and verbal aggression) and the influence of conflict on members of a couple. We reasoned that the increase in time spent with one's romantic partner, and corresponding decrease in time spent with other individuals outside the home, may amplify the influence of a romantic partner on one's own behaviour. We specifically hypothesized that:

H1: Dyadic hostile conflict would have an indirect effect on increasing drinking behaviour through one's own coping motives (actor effects). This would hold true for both indistinguishable and distinguishable (by gender) dyads analyses (Lambe et al., 2015).

H2: While both were hypothesized to be significant, we expected that mediation effects for the actor effects would be significantly larger in women than the same mediation for men in the distinguishable (by gender) dyads analysis (Lambe et al., 2015; Levitt & Cooper, 2010).

H3: Dyadic hostile conflict would have an indirect effect on increasing drinking through one's partner's coping motives (partner effects; (Kehayes et al., 2019)) in both indistinguishable and distinguishable dyads analyses.

Method

Participants

Participants were 758 romantic cohabitating couples in Canada (N = 1516 individuals). To meet study eligibility, Qualtrics panelists must have: been living in Canada throughout April 2020, been at least 19 years of age, been involved in a romantic relationship with a partner who is also at least 19 years of age, cohabited with that same romantic partner throughout April 2020, reported that they and their partner were

following COVID-19-related stay-at-home advisories in their local jurisdiction in April 2020, and confirmed that their romantic partner was also willing and available to participate. Essential workers were excluded as we wished to examine couples staying at home together during lockdown. Additional descriptive statistics can be found in four other published papers from this data set (Basso et al., 2023; Deacon et al., 2021; DesRoches et al., 2021; Kim et al., 2022). This study was approved by a university research ethics board (#2020-5166).

Only couples in which both partners reported drinking on at least one occasion in April 2020 were included in the present analyses (n = 348 couples). Non-drinkers (couples where one or both members reported consuming alcohol zero times in the reporting period; n = 410 couples) were excluded due to the zero-inflated distribution created by these cases for the outcome variables and due to the absence of coping motives for non-drinkers (i.e., drinking motives are only queried of drinkers). Demographics of the final sample are provided in Table 2.1. Descriptive statistics for key variables can be found in Table 2.1, Table 2.2, Table 2.3 for the total sample and subsamples by gender, respectively. Notably, the current sample contains a higher proportion of "binge drinkers" (i.e., heavy episodic drinkers) in both the men and the women than pre-pandemic Canadian norms (CCSA, 2019). Additionally, men showed higher rates of binge drinking than women in our sample for both peak and typical drinking occasions, consistent with gender differences in binge drinking rates seen prior to the pandemic (CCSA, 2019). Chi-square analyses were conducted to compare those included in the analyses vs those excluded for having a non-drinker as one or both members of a couple. Notably, the subsample used in the present analyses were more

educated, reported higher income, and more full-time employment, than those excluded from analyses for not consuming alcohol during the period assessed. Additionally, there were significant differences in ethnicity: those excluded from analyses for being non-drinkers were disproportionately East Asian and South Asian. Chi-square analyses yielded no significant differences in relationship composition, relationship status, if living with children or not, other ethnic categories, gender, age, or relationship length between those that consumed alcohol (and thus were included in the present analyses) vs those that were excluded from the analyses. Lastly, couples included in the analyses did not report significantly more romantic conflict, coping motives, peak alcohol consumption, or typical alcohol consumption quantity than those excluded; however, individuals in couples that were included in the analyses (in which both partners reported drinking) reported drinking at a significantly greater frequency than drinkers whose partner did not drink and thus were excluded from analyses (see Table 2.2).

Measures

Demographics

Demographic and relationship variables were assessed, such as gender, sex, age, racial identity, employment status, educational attainment, relationship status, relationship length, as well as adherence to stay-at-home advisories, essential worker status, and COVID-19 infection (Deacon et al., 2021; DesRoches et al., 2021). Age was controlled in the main analyses. Income was controlled in supplemental sensitivity analyses.

Dyadic Hostile Conflict

Hostile conflict was assessed using the 7-item Partner-Specific Rejecting Behaviours Scale (Murray et al., 2003). Participants were asked to report on their behaviour towards their partner (e.g., "I was angry or irritated with my partner", "I snapped or yelled at my partner") on a Likert scale from *1-strongly disagree* to *9-strongly agree*, in which higher sum scores (possible scale range 7-63) indicated more severe hostile conflict behaviour. Consistent with previous research (Lambe et al., 2015; Mackinnon et al., 2012), scores from each member were averaged into a dyadic conflict score for analysis. This score represented equal contributions from each partner and captured the fact that couples' conflict is an inherently dyadic construct. Notably, this scale measures hostile conflict behaviours (i.e., not just the presence of disagreement, but rather behaviours such as ignoring, insulting, criticizing) but does not measure intimate partner violence or physical aggression. This scale has shown strong psychometric properties, i.e., internal consistency (Mackinnon et al., 2012). Additionally, each individual's reports on their own conflict behaviour toward their partner were highly associated within couples, $r = .78$, $p < .001$, providing psychometric support for the averaging of the two scores into a single dyadic conflict measure. Internal consistency for the present sample can be found in Table 2.4.

Drinking to Cope

Drinking motives were measured using the two coping items from the Brief Alcohol Motive Measure (Bartel et al., 2023). Participants were asked to report how frequently during the month of April 2020 they drank for various reasons. Responses were made on a set of sliding scale visual analogue scales (VAS) anchored from *never* to

always. Each VAS item was scored on a continuum from 0-100, divided by 10 for analyses for consistency with Bartel et al. (Bartel et al., 2023). Each item represented a distinct motive for drinking. This scale has been validated against the original multi-item Modified Drinking Motives Questionnaire-Revised (Grant et al., 2007) and has been shown to have similar levels of concurrent and predictive validity to the original measure in relation to drinking levels and alcohol-related problems (Bartel et al., 2023). The drinking to cope with anxiety and drinking to cope with depression items were averaged into a single coping motives scale (Deacon et al., 2021) given their high correlation in the present sample ($r = .82$, $p < .001$) and to increase reliability of measurement (Table 2.1).

Drinking Behaviour

The Quantity/Frequency/Peak Alcohol Use Index (Dimeff, 1999) was used to assess drinking behaviour during the month of April 2020. Analyses used a composite of three measures: drinking frequency, i.e., how many days of consuming alcoholic beverages in the month, with 11 ordinal forced choice options ranging from "once a month" to "every day," which were translated to days of drinking per month (e.g., "4 times per week" was coded as "16"); typical quantity, i.e., how many drinks were typically consumed on days with alcohol consumption (with options ranging from 0-25+; in which "25+" was coded as 25.5); and peak quantity, i.e., how many drinks were consumed on the single instance of heaviest consumption (with options ranging from 0-25+, with responses of "25+" coded as 25.5). Frequency was used to identify individuals who were non-drinkers during April 2020.

Procedure

Qualtrics Panels, a survey management service that recruits from a large pool of potential participants, was used to gather the current data based on researcher-specified criteria. A total of 3292 couples began the survey and were assessed on the eligibility criteria. Participants who were eligible and provided informed consent were asked questions about a variety of constructs relevant to the pandemic including their demographics, relationship conflict, coping motives for alcohol use, and drinking behaviour. Their partner completed the same questions in relation to their own demographics, conflict behaviour, and drinking motives and behaviour. All items were completed in early July 2020, and retrospectively queried for the month of April 2020, during which all Canadian provinces were under stay-at-home advisories under Public Health Emergency acts (The Canadian Press, 2020).

Three mechanisms were in place to screen out invalid responding: a question assessing commitment to giving honest answers while completing the survey, filter questions for which participants were instructed to select a specific answer to determine attention and reading of instructions, and a speeder check to ensure adequate time was spent completing the survey. Of those recruited to participate, couples were excluded for the following reasons for at least one partner: partner unwilling to complete the survey or partial completion (n = 1996), failed attention/speeder check (n = 183), or not meeting specific eligibility criteria (n = 355). These exclusions yielded a sample of 758 couples. The current study also required that both members of the couple consumed alcohol at least once in April 2020, yielding our final sample (N = 348 couples). Participants were compensated through Qualtrics according to their guidelines.

Results

Analysis Plan

Given the non-normal distribution and count nature of the drinking variables, we elected to use generalized structural equation models specifying a negative binomial distribution for the outcome variable (drinking) due to the non-normal distribution of the data. The models were run using listwise deletion. No cases were removed from the main analyses due to missing data. Drinking was operationalized as a latent variable comprising drinking frequency, typical quantity, and peak quantity. APIM was used to estimate actor and partner effects of the mediator (coping) on the outcome (drinking) (Kenny et al., 2020). Romantic conflict was operationalized as a between-dyads variable as it was the composite of both partners' reports as in Lambe et al. (Lambe et al., 2015). Data and syntax are available from the corresponding authors on request.

Evidence for mediation is established when the 95% confidence interval from bias-corrected bootstrapping with 1000 resamples does not contain the value 1. This is due to the confidence interval being estimated around the incidence rate ratio which surrounds 1 instead of 0. To be inclusive of all participants regardless of the gender of their partner, we first tested the components of the path model and indirect effects of romantic conflict on drinking through coping motives in the entire sample in indistinguishable dyad analyses (i.e., where partners are not distinguished by gender). Then, using the mixed-gender couples only, we evaluated whether each path, and subsequent indirect effects, differed by binary gender (i.e., whether each path was different for men and women) in distinguishable dyads analyses, with gender as the distinguishing feature.

Specifying a negative binomial distribution for the outcome variable results in the estimates representing log-linked coefficients. One way to return the estimates into an interpretable format is through their exponentiated form: incidence rate ratios (IRRs). IRRs surround the number one and represent a percent higher or lower in the outcome as a function of a one-unit increase in the predictor. For example, an IRR of 1.22 for the effect of conflict on drinking means that every one-unit more in conflict reported corresponds to 22% more drinking. Similarly, an IRR of .95 indicates that every one-unit more in conflict reported corresponds to 5% less drinking. See Tables 5 and 6 for IRRs for the indistinguishable (non-gendered) and distinguishable (gendered) APIM models, respectively.

Demographic information was probed for significant associations with drinking behaviour (outcome variable). Age and income were used as covariates as they had the strongest relationships with drinking behaviour. Other variables that were associated with drinking behaviour in our sample (e.g., relationship length, having children in the home or not, employment status, and education level) were associated less strongly with drinking behaviour and very highly correlated with each other (e.g., age and relationship length; income and employment status). Thus, age and income were selected as covariates for parsimony in possible confounding variables. While age was covaried in the main analysis, income was added as a covariate in a sensitivity analysis due to the power lost when including income, as 6% of our sample opted to not report their income.

Descriptive Statistics

Descriptive statistics are found in Tables 2 and 3 and bivariate correlations are in Table 4. All outcomes were positively and significantly correlated with each other.

Indistinguishable Dyadic Analysis

Conventional fit indices are not calculated for generalized structural equation modelling; however, the significance of paths within the model suggested a strong fit. Standardized path coefficients are presented in Figure 2.1 and indirect effects and IRR values in Table 2.5.

Within the latent variable of drinking, frequency was constrained to load at b = 1.00, while peak quantity loaded at b = .62, *95%CIs [.58, .66]*, p < .001 and typical quantity significantly loaded at b = .43, *95%CIs [.39, .48]*, p < .001. Age was a significant covariate, b = .03, *95%CIs [.03, .03]*, *SE* =.001, p < .001.

Dyadic hostile conflict was significantly associated with greater drinking to cope motives, b = .90, *95%CIs [.77, 1.04]*, *SE* = .07, p < .001. A significant positive actor effect for coping motives to drinking behaviour was observed, b = .12, *95%CIs [.09, .16]*, *SE* = .02, p < .001. No partner effect for coping motives to drinking behaviour was observed, b = -.01, *95%CIs [.-.04, .03]*, *SE* = -.33, p = .741. Additionally, dyadic hostile conflict was directly associated with greater drinking behaviour even after accounting for coping motives, b = .08, *95%CIs [.02, .15]*, *SE* = .03, p = .010. Both partners' drinking behaviours were significantly and positively associated with each other, b = .55, *95%CIs [.43, .67]*, *SE* = .06, p < .001 (Figure 2.1).

The direct, indirect, and total effects are in Table 2.5. The mediation model was significant for actors: one's own coping motives positively mediated the relation between dyadic hostile conflict and one's own drinking behaviour. The partner's coping motives did not significantly mediate the relation between dyadic hostile conflict and the

individual's drinking behaviour. In other words, actor effects were detected but partner effects were not. Overall, the model resulted in an IRR value of 1.22 (Table 2.5).

Distinguishable Dyads Analysis

The significance of paths within the generalized structural equation model suggested a strong fit. Standardized path coefficients are in Figure 2.2 and indirect effects and IRR values in Table 2.6.

Within the latent variable of drinking, drinking frequency was constrained to load at $b = 1.00$ for both genders. For men, peak quantity loaded at $b = .65$, *95%CIs [.60, .69]*, $SE = .02$, $p < .001$, and typical quantity significantly loaded at $b = .44$, *95%CIs [.39, .49]*, $SE = .02$, $p < .001$. For women, peak quantity significantly loaded at $b = .56$, *95%CIs [.51, .61]*, $SE = .03$, $p < .001$, and typical quantity significantly loaded at $b = .35$, *95%CIs [.29, .41]*, $SE = .03$, $p < .001$. Age was a significant covariate for both men, $b = .04$, *95%CIs [.03, .04]*, $SE = .001$, $p < .001$, and women, $b = .03$, *95%CIs [.03, .03]*, $SE = .002$, $p < .001$.

Dyadic hostile conflict was significantly associated with greater drinking to cope motives for both men, $b = .98$, *95%CIs [.81, 1.13]*, $SE = .08$, $p < .001$, and women, $b = .87$, *95%CIs [.69, 1.06]*, $SE = .09$, $p < .001$. One's own coping motives was significantly associated with higher levels of one's own drinking behaviour for both men, $b = .08$, *95%CIs [.03, .12]*, $SE = .02$, $p = .002$, and women, $b = .19$, *95%CIs [.14, .25]*, $SE = .03$, $p < .001$ (actor effects). Notably, the partner paths of coping motives on drinking (i.e., partner's coping motives predicting own drinking behaviour) were significantly associated with women's drinking $b = -.06$, *95%CIs [-.12, -.002]*, $SE = .03$, $p = .041$, and marginal for men's drinking, $b = .05$, *95%CIs [-.002, .11]*, $SE = .03$, $p = .062$. These

associations were opposite in direction in men and women: women partners' coping motives were marginally associated with *greater* drinking by men, while men partners' coping motives were significantly associated with *less* drinking by women. Dyadic hostile conflict was not significantly directly associated with drinking behaviour for men, b = .06, *95%CIs [-.01, .12]*, SE = .03, p = .092, or women, b = .06, *95%CIs [-.01, .14]*, SE = .04, p = .098, after accounting for coping motives.

The direct, indirect, and total effects are in Table 2.6 for men and women. Women's own coping motives significantly mediated the relation between dyadic hostile conflict and their own drinking behaviour but the mediation pathway for their partner's drinking behaviour was only marginally significant. In other words, higher hostile conflict behaviour was positively associated with women's coping motives which in turn were associated with higher rates of women's drinking and marginally more drinking in their male partners. Men's coping motives significantly mediated the relation between dyadic hostile conflict and their own drinking behaviour but significantly mediated the relation between dyadic hostile conflict and their partner's drinking behaviour in the inverse of the expected direction. In other words, higher hostile conflict behaviour was associated with more men's coping motives which in turn was associated with higher rates of men's drinking but lower drinking in their women partners.

While significant partner effects were found for women's drinking and only marginal partner effects were found for men's drinking. However, the difference between these two effects themselves was not statistically as the 95% confidence intervals for the mediation pathways overlap.

Gender differences in actor effects were established by comparing 95% confidence intervals for the mediation pathway of dyadic hostile conflict and own drinking behaviour through one's own coping motives for women versus men (Table 2.6). The direction of the difference was consistent with H2, in which we hypothesized larger effect sizes associated with women's drinking than men's drinking. However, the 95% confidence intervals for IRR values (i.e., exponentiated slope value) for the mediation pathways did overlap for women and men. Thus, while both pathways were independently statistically significant, the effect was not significantly larger for women than for men.

Sensitivity Analysis

The above analyses were also run with income as a covariate. Notably, $n = 24$ couples opted to not report income, resulting in missing data, and those that did not report income were significantly different than those who did in several important ways. Those who did not report income, on average, reported drinking fewer beverages per drinking occasion, reported significantly less drinking to cope with anxiety and drinking to cope with depression motives, and were significantly older. Thus, controlling income may have introduced systemic error into the results, as well as slightly lowered the power of the analyses.

The sensitivity analyses largely replicated the main analyses. For the distinguishable dyad analyses, the significant direct effect from conflict to drinking behaviour when controlling coping motives became marginal when controlling for income ($b = .06$, $SE = .03$, $p = .063$). For the indistinguishable dyad analyses, one component of the mediation pathway from conflict to women's drinking via men's

coping motives (i.e., from men's coping motives to women's drinking) became marginal when controlling for income, b = -.06, SE = .03, p = .054. All other effects remained as reported in the main analyses (see supplementary materials).

Discussion

Our study examined the role of coping motives as a mediator between dyadic hostile conflict and drinking behaviour in cohabitating romantic couples during COVID-19 lockdown, while controlling for age. Overall, both distinguishable and indistinguishable dyadic analyses showed that coping motives mediated the association between conflict and drinking behaviour, such that each one unit increase in conflict would predict a 26-27% increase in drinking behaviour – a small but meaningful effect. The effect sizes found in these analyses are consistent with recent arguments that most psychological phenomena of research interest are complex, in that the causes for such phenomena are highly multifactorial in nature and each individual cause exerts small effects. Therefore, studying and reporting small effects contributes to a cumulative science (Götz et al., 2022).

Actor Effects

Consistent with H1 and pre-pandemic results by Lambe et al. (Lambe et al., 2015), hostile romantic conflict was associated with greater reports of one's own drinking behaviour, mediated through own higher coping motives. We replicated this finding in both indistinguishable dyad analyses with the full sample and in distinguishable (by gender) analyses with mixed-gender couples. This mediation effect would be hypothesized by drinking motives theory (Cooper et al., 2016), providing evidence that individuals in cohabitating romantic relationships may increase their drinking to cope

with negative affect (depression and anxiety) following couples' conflict. This mediation suggests that coping motives could be a mechanism by which hostile conflict may lead to more drinking and possibly to later alcohol problems. It is important to note that coping-related drinking is a particularly risky drinking motive and more strongly associated than other motives with alcohol-related problems (Kuntsche et al., 2005; Park & Levenson, 2002). Lastly, this finding may partially explain increases in drinking during the COVID-19 pandemic (Kim et al., 2020b; Pollard et al., 2020) as increases in couple's conflict have been reported during lockdowns (Balzarini et al., 2020) and in relation to the stressors faced by couples during lockdown (Basso et al., 2023).

Additionally, conflict had a direct effect on drinking behaviour that was not accounted for by (mediated through) coping drinking motives in the indistinguishable dyad analyses. This suggests there are other mechanisms not included in the model that led members of a couple to greater drinking behaviour following conflict (e.g., drinking as a shared activity to repair conflict (Levitt & Cooper, 2010); coping with other forms of negative affect such as anger or shame (Bilevicius et al., 2018; Kelly et al., 2010; Rabinovitz, 2014)). However, it is important to note that this direct effect was neither found in the distinguishable (by gender) analyses nor when controlling the indistinguishable dyad analyses for income (see supplemental materials). This suggests that it may be a spurious finding - at least partially explained by variance in income – and that coping motives may indeed fully mediate the association between romantic conflict and drinking.

Actor effects (ways in which one's own coping motives were associated with one's own drinking behaviour) were significant for both genders. Contrary to H2, the

mediation of conflict on drinking behaviour by coping motives was not significantly stronger in women than men. While past research indicates women are more likely to modulate their drinking behaviour in response to conflict (Lambe et al., 2015; Levitt & Cooper, 2010), this was not supported by our analyses. However, some findings suggest these effects may be more likely for quantity of alcohol consumed, rather than frequency of drinking occasions (Levitt & Cooper, 2010; Rodriguez et al., 2020a). The current analyses combined measures of alcohol use into a single latent construct, which may have obscured gender differences in quantity of alcohol consumed in response to distress. Separating the various indices of alcohol use behaviour in future studies may yield more consistent findings on gender differences in alcohol use in response to romantic conflict.

Overall, these findings replicate previous findings that coping motives mediated the association between romantic conflict and alcohol-related problems and extend the results into a sample across adulthood, particularly with middle and late adulthood represented. However, it is worth noting the ways in which the older age of our sample may impact the variables assessed. There are inconsistent findings on whether verbal aggression decreases with age (Bookwala & Jacobs, 2004; Straus & Sweet, 1992), with more robust findings that physical aggression and intimate partner violence decrease with age (Mouton et al., 2004). Additionally, there are several studies that indicate that mechanisms of conflict (e.g., personality predictors) and consequences of conflict (e.g., impact on health, depressive symptoms) are consistent across the lifespan (Iveniuk et al., 2014; Schreiber & Georgia Salivar, 2021; South et al., 2021; Whisman & Uebelacker, 2009). Age significantly correlated with relationship length and thus both are captured by covarying for age in these analyses; it is possible that aggression decreases with age

and/or that conflict stabilizes over decades of partnership. Nonetheless, while rates of alcohol use and intimate partner violence decrease with age, these remain significant public health problems in older adults (Sorocco & Ferrell, 2006).

Partner Effects

Our third hypothesis [H3] predicting significant and positive partner effects was not supported. Men reported marginally more drinking behaviour associated with their partner's coping motives but this effect did not reach statistical significance. The inverse pattern was true for women, in that women reported significantly *less* drinking associated with their partner's coping motives. However, these two effects were not statistically significantly different from each other in magnitude, and both likely reflected small effects. Effect sizes are typically smaller for partner effects than actor effects in dyadic analyses. Additionally, we did not find observable partner effects in the indistinguishable analyses.

We hypothesized an adverse partner effect for both men and women, in which one partner's coping motives would be associated with the other's drinking behaviour, but the *protective* partner crossover effect observed for women's drinking behaviour was not anticipated. While there is robust evidence of partner influence on drinking behaviour (Mushquash et al., 2013a; Muyingo et al., 2020), there is emerging evidence that one's own drinking behaviour can be influenced by the drinking *motives* of important network members. This research has primarily focused on peers (Hussong, 2003; Kuntsche & Stewart, 2009; Stewart et al., 2014), but a handful of studies have examined and supported this effect in romantic couples (Kehayes et al., 2019). However, the existing literature and the partner influence hypothesis would predict a consistent *positive*

association between a partner's coping drinking motives and an individual's drinking behaviour regardless of gender (Mushquash et al., 2013a). In contrast, our data showed higher coping motives in men was associated with *less* women's drinking behaviour in mixed-gender couples. 'Emotion work' may be one explanation for this unanticipated effect. Emotion work is a broad concept that encompasses activities that enhance a partner's emotional well-being and provide emotional support, which may also explain gender inequities in relationships in other domains (Erickson, 2005). While emotion work enhances marriage satisfaction (Holm et al., 2001), degree and inequity of emotion work is negatively associated with well-being, particularly for individuals married to a man (Duncombe & Marseden, 1993; Umberson et al., 2020). Research and gender role theory converge to suggest that women in mixed-gender relationships tend to be more concerned about and in-tune with emotion work (Elliott & Umberson, 2008).

Thus, it is possible that married/cohabiting women abstain from increased drinking in response to the coping-motivated drinking exhibited by their men partners following romantic conflict to reserve internal resources for emotion work. Indeed, a similar effect has been noted with depressive symptoms during the pandemic: women with depressive symptoms are more likely to be concerned about the impact of their symptoms on their spouse and to perform emotion work to modulate that impact compared to men with depressive symptoms (Calarco et al., 2020). A similar compensatory effect has been reported regarding drinking, where men's distress was associated with a decreased likelihood of binge drinking behaviour in their women partners (Holway et al., 2017). It is important to note that this pattern of decreased consumption in response to men's drinking to cope may be protective for women's

drinking while simultaneously being risky for intimate partner violence. Indeed, one study found that the highest rates of intimate partner violence occurred in couples in which the husband was a heavy-drinker and the wife was not (Quigley & Leonard, 2000). Research is required to directly test the proposed emotion work mechanism, to probe specific motivations by women to drink less in response to their husband exhibiting more coping-motivated drinking, and to examine the beneficial and harmful consequences of this pattern.

Contrary to H3, no significant partner-coping mediation between dyadic hostile conflict and drinking behaviour was found in either the indistinguishable dyadic analyses with the full sample nor for women's coping being associated with men's drinking in the distinguishable dyadic analyses. Nonetheless, the lower limit of the confidence interval for the partner effect on men's drinking included but did not go past zero (or below one for the IRR values, i.e., a marginal effect). This finding begets further investigation, as it is possible that a larger sample or more at-risk sample may yield the hypothesized significant partner effects on men's drinking. The absence of partner effects in the distinguishable dyads analysis may have been due to the gendered partner effects being of similar magnitude but in opposite directions. This may have resulted in the washing out of overall partner effects when collapsing across gender. This possible masking underscores the importance of our following up analyses in the full sample with gendered analyses.

These findings on partner effects also have theoretical implications. Both the partner influence hypothesis and most extant evidence suggests partner influence occurs via one's own drinking motives (i.e., the partner's motives influence one's own motives,

which then are proximally associated with one's own drinking) and that influence occurs in the direction of risk (Mushquash et al., 2013a; Muyingo et al., 2020). However, these results provide preliminary evidence of partner effects being protective. The possible, though currently untested, mechanism of emotion work may add to the existing theory. Additionally, while the current study did not probe the mechanism of individual motives influencing partner motives directly, the marginal effect for men's drinking would be consistent with the partner influence hypothesis. If replicated, and if tested in a serial mediation model (i.e., conflict → partner A coping motives → partner B coping motives → partner B alcohol use), it would further strengthen the extant literature. Furthermore, most of the literature in this area samples emerging adult couples or youth; the present study provides preliminary evidence of drinking motives influencing the behaviour of others in middle adulthood. It is possible that partner influence decreases in strength with age or life stage. Additionally, our larger sample may have been more adequately powered to detect partner effects than the Lambe et al. (Lambe et al., 2015) study, though possibly not large enough to detect significant partner effects for men's drinking, as partner effects overall tend to be small after controlling for actor effects (Kenny et al., 2020). It is also important to consider how COVID-19 lockdown conditions may have influenced partner effects. Lockdown conditions may have led to more partner conflict to begin with (Balzarini et al., 2020) and/or created substantially more opportunity for partner influence, particularly in the relative absence of other social influences (Deacon et al., 2021). Ultimately, more research is required to determine the reliability, size, and direction of partner effects in drinking behaviour via drinking motives, across samples and contexts.

Limitations

There are several limitations of note. Conclusions on temporality and causality are limited by our cross-sectional design. However, our results largely replicate the Lambe et al., (2015) data, which were longitudinal. Additional longitudinal design studies are necessary to strengthen the temporal associations. Lab-based couple studies of elicited romantic conflict (Denson et al., 2009) would allow for the examination of causal effects. The literature would also benefit from daily diary studies to assess the associations between these constructs at a micro level, i.e., drinking the day of or day after a romantic conflict, assessing the intensity of conflict at the event-level, assessing motives for specific drinking episodes.

Research has often distinguished between coping with anxiety and coping with depression drinking motives as seen in the five-factor model of drinking motives (Grant et al., 2007), including in Lambe et al. (Lambe et al., 2015). Future studies could benefit from using multi-item measures of drinking to cope (Grant et al., 2007). The BAMM was selected for this study to minimize participant burden given the other constructs of interest in the larger study, particularly during an already stressful time. But this choice did not allow for the separation of the unique contributions of coping with anxiety and coping with depression motives to the mediation effect observed in the current study. Moreover, our distinguishable dyad analyses only examined mixed-gender couples, excluding gender- and sexuality-diverse relationships. This narrows the generalizability of the gender moderation results to mixed-gendered couples. This limitation is imposed by the nature of the statistical techniques available to date within the APIM framework.

Given numerous known influences on substance use behaviour, such as personality (e.g., impulsivity (Coskunpinar et al., 2013), adverse childhood experiences (Anda et al., 2002; Lee & Chen, 2017), genetic risk (Kendler et al., 2010), it is important to note that this study only examined one possible mechanism predicting alcohol use. Despite well-established distal risk factors, proximal factors (i.e., drinking motives) are often more robust predictors of substance behaviour and may be more suitable for intervention (Canale et al., 2015).

Lastly, the current study conceptualized conflict as a dyadic variable and relied on self-reports. While this is consistent with most studies (Mackinnon et al., 2012) and allowed for a conceptual replication of Lambe et al. (Lambe et al., 2015), it limited exploration of possible effects of directionality of conflict behaviours (e.g., one partner ignoring, getting angry with, embarrassing the other), or divergent perceptions of conflict behaviour, on subsequent coping-motivated drinking behaviour. Self-reported conflict behaviours may result in biases (Mathie & Wakeling, 2011) in under-reporting socially undesirable behaviour such as the perpetration of abusive conflict behaviours (Dutton & Hemphill, 1992). However, there is evidence of conflict predicting subsequent drinking for both directions of conflict behaviour (i.e., perpetration and receipt of conflict). Moreover, some research suggests one's own perception of conflict behaviour may be the stronger predictor of drinking (Derrick et al., 2017). Another notable limitation is that these data relied on retrospective self-reporting. In addition to the possibility of unsystematic error in reporting, retrospective recall may also be susceptible to recall biases (Patrick & Lee, 2010), particularly for socially undesirable behaviours. However, the novelty of lockdowns in April 2020 may have enhanced individuals' memories of that

time period, as novelty reliably enhances memory of behaviours occurring contiguously with, before, or after a novel event (Lorents et al., 2023).

Conclusions

There are several implications of these results for research, theory, and practice. Research found increased drinking during the pandemic, which was consistent with the binge drinking rates in the current sample (Schmits & Glowacz, 2021). Our findings suggest couples' conflict and coping motives are important factors related to greater drinking behaviour during the pandemic for both men and women. These results contribute to the existing evidence to encourage more mental health and social supports being allocated for couples cohabitating during the pandemic or who are otherwise socially isolated. This should include increased supports for those experiencing the extremes of couple's conflict (i.e., intimate partner violence), which has been shown to be elevated in prevalence during the pandemic (Gosangi et al., 2021). Additionally, these data provide support for the allocation of resources to at-risk couples, given that higher rates of both men and women in our sample were observed to be engaged in risky binge drinking during the pandemic compared to pre-pandemic adult norms (CCSA, 2019). Recent research has evidenced the effectiveness in reducing conflict intensity of brief cognitive reappraisal interventions for couples following conflict during the pandemic (Rodriguez et al., 2021); prior research has shown this intervention's effects on reducing alcohol use (Rodriguez et al., 2019). Lastly, the presence of the protective partner effect on women's drinking behaviour via men's drinking motives has implications: undertreated men's distress may have downstream consequences for the well-being of their women partners who may compensate to provide emotional support. These results

underscore the need to consider the relationship context in individual or couples' psychological interventions for risky drinking, in addition to examining individual motives for drinking. Overall, this study adds to the growing evidence of the social influence of drinking motives on other individuals' drinking behaviour, including possible protective effects on drinking behaviour.

Table 2.1 Categorical Demographic Characteristics and Comparisons with Excluded Participants

Sample characteristics	*n* (%)	$\chi 2$	*p*
Gender		1.04	.793
Women	340 (48.9)		
Men	355 (51.0)		
Other	1 (0.1)		
Ethnicity		37.36	<.001
White	563 (80.9)		
East Asian	49 (7.0)		
South Asian	24 (3.4)		
Arab/West Asian	6 (0.9)		
Black	11 (1.6)		
Latin American	3 (0.4)		
Indigenous	1 (0.1)		
Multiracial	19 (2.7)		
Other	14 (2.0)		
Unknown	5 (0.7)		
Education level		14.35	.045*†
Elementary or some high school	40 (4.9)		
High school graduate	144 (17.5)		
Some college/university	130 (15.8)		
University graduate	371 (45.0)		
Some post-graduate	31 (3.8)		
Post-graduate degree	106 (12.9)		
Prefer not to answer	2 (0.2)		
Income		54.24	.001*†
$25,000 or less per year	9 (1.3)		
Between $26,000 and $50,000	62 (8.9)		
Between $51,000 and $75,000	108 (15.5)		
Between $76,000 and $100,000	156 (22.4)		
Between $101,000 and $125,000	114 (16.4)		
Between $126,000 and $150,000	72 (10.3)		
$151,000 or more per year	124 (17.8)		
Prefer not to answer	51 (7.3)		
Employment status		15.46	.001*†
Unemployed	292 (42.0)		
Student	5 (0.7)		
Employed part-time	83 (11.9)		
Employed full-time	268 (38.5)		
Relationship status		0.12	.734
Married or common law	688 (98.9)		
Non-married	8 (1.1)		
Living with children		3.05	.081
Yes	170 (24.4)		

Relationship composition		3.01	.222
Mixed-gender	658 (94.5)		
Same-gender	34 (4.9)		
Unknown or other	4 (0.6)		

Note. Demographic characteristics of the sample were compared with excluded couples (i.e., those where one or both partners did not consume alcohol in April 2020). *p <.05; † = indicates the given characteristic is significantly higher/larger in the sample used in the present analyses than in excluded couples.

Table 2.2 Continuous Sample Characteristics and Comparisons with Excluded Participants.

Sample characteristics	*M*	*SD*	*Mdn*	Range	*t*	*p*
Age	54.55	13.72	57.00	25 – 87	-0.01	.990
Relationship length	27.1	14.5	25.20	1.1 – 62.8	0.01	.993
Conflict	16.76	12.70	12.00	7 – 63	-1.59	.112
Coping motives	2.16	2.88	0.68	0 – 10	-1.75	.081
Drinking frequency	12.37	9.85	8.00	1 – 30	-6.40	<.001
Peak quantity	4.63	5.57	3.00	1 – 25.5	-1.12	.262
Typical quantity	2.79	3.64	2.00	1 – 25.5	-1.85	.064

Note. Independent samples *t*-tests were used to compare drinkers (included in main analyses) vs non-drinkers (couples where one or both members did not drink in April 2020 and were excluded from main analyses) on continuous sample characteristics. A significant and negative *t*-value indicates the given variable was higher/larger in the sample used in the present analyses.

Table 2.3 Alcohol Use by Gender

Sample characteristics	Men			Women		
	M	*SD*	Binge drinking (%)	*M*	*SD*	Binge drinking (%)
Drinking frequency	13.66	10.02	n/a	11.03	9.42	n/a
Peak quantity	5.27	5.91	33.3	3.97	5.13	29.8
Typical quantity	3.15	3.77	16.9	2.43	3.46	13.5

Note. Drinking frequency = number of drinking occasions in April 2020; peak quantity = number of drinks consumed on heaviest drinking occasion in April 2020; typical quantity = typical number of drinks consumed per drinking occasion in April 2020. Binge drinking was defined as drinking 5 or more drinks in a single occasion for men and 4 or more drinks in a single occasion for women in April 2020 (CCSA, 2019). n/a = not applicable since binge drinking prevalence can only be calculated from quantity variables. Pre-pandemic, Canadian adults (age 25+) engaged in binge drinking (peak quantity; single occasion in a given month) at rates of 27.1% for men and 19.6% for women (CCSA, 2019).

Table 2.4 Correlation Matrix

		1	2	3	4	5
1.	Conflict	--	.50**	.08*	.11**	.20**
2.	Drinking to cope		--	.17**	.15**	.28**
3.	Drinking frequency			--	.28**	.21**
4.	Peak quantity				--	.49**
5.	Typical quantity					--
Internal consistency (α)		.95	.91	-	-	-

Note. **p <.01, *p <.05. Internal consistency in column 2 treats drinking to cope with anxiety and drinking to cope with depression as two items of the single measure of drinking to cope. Drinking frequency = number of drinking occasions in April 2020; peak quantity = number of drinks consumed on heaviest drinking occasion in April 2020; typical quantity = typical number of drinks consumed per drinking occasion in April 2020.

Table 2.5 Direct and Indirect Effects of Conflict on Drinking in Indistinguishable Dyads

Effect	Path	*b*	*SE*	*p*	IRR	LCI	UCI
Direct	Conflict → A Drinking	0.08	0.03	.010	1.08	1.02	1.16
Indirect	Conflict → A Coping → A Drinking	0.11	.02	<.001	1.12	1.08	1.16
Indirect	Conflict → P Coping → A Drinking	-.006	0.02	.740	0.99	0.96	1.03
Total	Conflict → A Drinking	0.20	0.02	<.001	1.22	1.15	1.27

IRR = Incident Rate Ratio. LCI and HCI are lower and upper 95% confidence intervals from bias-corrected bootstrapping with 1000 resamples. A = actor; P = partner.

Table 2.6 Direct and Indirect Effects of Conflict on Men and Women Partners' Coping and Drinking

Effect	Path	*b*	*SE*	*p*	IRR	LCI	UCI
Direct	Conflict → M Drinking	0.06	0.03	.092	1.06	0.99	1.13
Indirect	Conflict → M Coping → M Drinking	0.07	0.02	.002	1.07	1.03	1.13
Indirect	Conflict → W Coping → M Drinking	0.05	0.03	.070	1.05	1.00	1.09
Total	Conflict → M Drinking	0.18	0.03	<.001	1.20	1.14	1.26
Direct	Conflict → W Drinking	0.06	0.04	.108	1.06	0.99	1.15
Indirect	Conflict → W Coping → W Drinking	0.17	0.03	<.001	1.19	1.12	1.26
Indirect	Conflict → M Coping → W Drinking	-0.06	0.03	.033	0.94	0.89	1.00
Total	Conflict → W Drinking	0.17	0.02	<.001	1.19	1.12	1.27

IRR = Incident Rate Ratio. LCI and HCI are lower and upper 95% confidence intervals from bias-corrected bootstrapping with 1000 resamples. M = men; W = women.

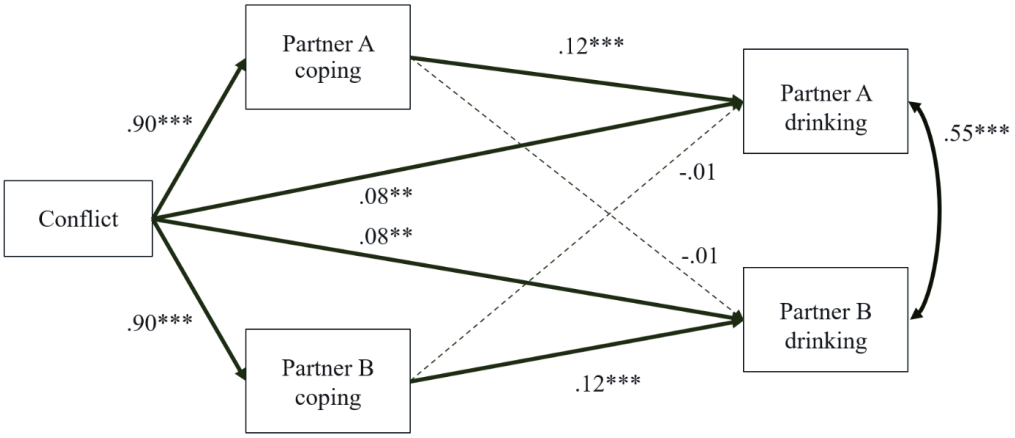

Figure 2.1 Generalized SEM Model with Indistinguishable Dyads

Note. Values indicate standardized *b* coefficients ***p <.001, **p <.01, *p <.05*, †p <.10.

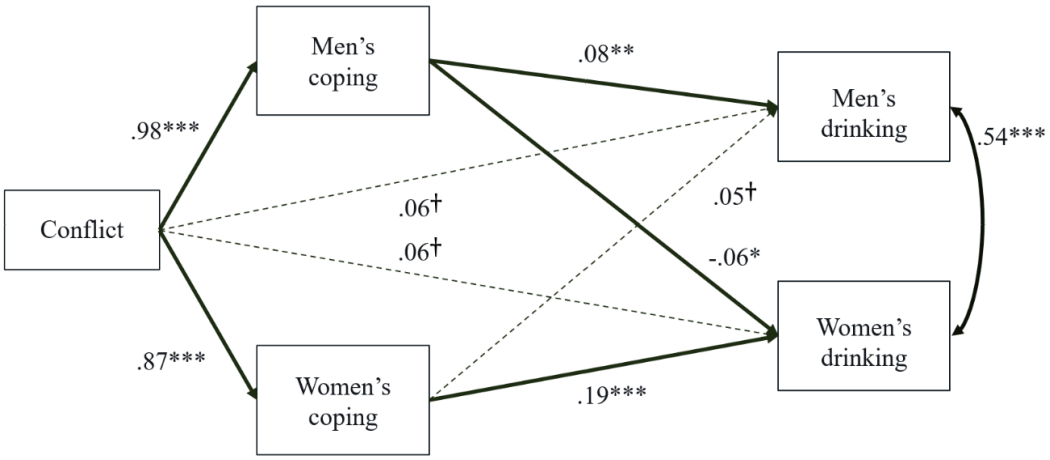

Figure 2.2 Generalized SEM Model with Distinguishable Dyads

Note. Values indicate standardized *b* coefficients. ***p <.001, **p <.01, *p <.05*, †p <.10.

CHAPTER 3. TRANSITION FROM STUDY 1 TO STUDY 2

Study 1 (Chapter 2) found support for the mediational model of dyadic hostile conflict being associated with alcohol use via coping motives during the pandemic. Additionally, this pathway appeared to be particularly risky for women. As discussed in Chapter 1, gambling problems are also highly associated with romantic conflict. The pandemic context may have been risky for the exacerbation of gambling problems in those already vulnerable (Brodeur et al., 2021; Håkansson, 2020; Machado et al., 2021; Price, 2022). However, most of the extant research examining these associations measures the degree to which gambling is a risk factor in predicting aggressive conflict behaviour, with little research examining conflict as a risk factor for problem gambling (Dowling et al., 2016a). Preliminary qualitative evidence suggests that gamblers experiencing aggressive conflict may engage in gambling behaviour to escape or avoid the emotional consequences of conflict (Suomi et al., 2019). Conflict has also been shown to predict other addictive behaviours and associated problems (Ahmadabadi et al., 2019). Furthermore, gambling and other addictive behaviours share several common risk factors, as discussed in Chapter 1 in introducing the transdiagnostic models of addictive behaviours. Aligned with this, coping motives may be a final common pathway through which conflict exerts its effects on a variety of addictive behaviours (Cooper et al., 2016), including gambling.

Study 1 (Chapter 2) extended Lambe et al. (2015) into a sample of adults, during the pandemic, with a larger sample size, and into the pandemic context. Study 1 (Chapter 2) found support of the hypothesized mediation model via coping motives on alcohol use behaviour, predicted by dyadic hostile conflict. However, the link between conflict and

coping motives conceptually must be occurring due to some degree of unpleasant internal reaction to conflict, i.e., if conflict felt joyful or the experience was characterized by a feeling of closeness, it would not likely lead to higher coping motives. However, Study 1 (Chapter 2) did not examine this "invisible mediator" between conflict and coping motives.

Study 2 sought to fill this gap by including a measure of negative affect and to piece together the full serial mediation model discussed in Chapter 1. Additionally, Study 2 sought to extend the model from Study 1 (Chapter 2) into examining gambling problems, while retaining some of the novel qualities: sampling from adults, rather than young adults, and sampling during the COVID-19 pandemic. This was both an extension into a separate addictive behaviour, and from use behaviour to problems associated with use.

CHAPTER 4. STUDY 2: WHAT EXPLAINS THE LINK BETWEEN ROMANTIC CONFLICT AND GAMBLING PROBLEMS? TESTING A SERIAL MEDIATIONAL MODEL

The manuscript prepared for this study is presented below. Mandy Hagen, under the supervision of Dr. Sherry Stewart, was responsible for developing the research questions and hypotheses, preparing the dataset for analyses, conducting analyses, and interpreting study findings. Co-authors (listed below) secured funding, selected materials and measures, and collected data. The study was approved by the Dalhousie University Health Sciences Research Ethics Board (approval #: 2020-5368). Mandy also wrote the manuscript, incorporating feedback from co-authors. The manuscript underwent peer review. Mandy incorporated reviewer feedback, responded to reviewers, and resubmitted the manuscript. The manuscript was accepted for publication in 2023. The published article is licensed under an open access Creative Comments CC BY 4.0. The published article is reproduced below, with changes only made to formatting for consistency with APA 7th edition formatting guidelines. The full reference is as follows:

Hagen, A. E. F., Nogueira-Arjona, R., Sherry, S. B., Rodriguez, L. M., Yakovenko, I., & Stewart, S. H. (2023). What explains the link of romantic conflict with gambling problems? Testing a serial mediation model. *Frontiers in Psychology-Psychopathology, 14.* https://doi.org/10.3389/fpsyg.2023.1018098.

Abstract

Introduction: While individuals have many motives to gamble, one particularly risky motive for gambling is to cope with negative affect. Conflict with one's romantic partner is a strong predictor of negative affect, which may elicit coping motives for gambling and, in turn, gambling-related problems. Support for this mediational model was demonstrated in relation to drinking-related problems (Study 1, Chapter 2, Hagen et al., 2023b; Lambe et al., 2015). We extended this model to gambling. **Method:** Using a cross-sectional design, we examined links between hostile romantic conflict behaviours (Partner-Specific Rejecting Behaviours Scale), negative affect (Depression, Anxiety, and Stress Scales-21), coping gambling motives (Gambling Motives Questionnaire, coping subscale), and gambling-related problems (Problem Gambling Severity Index [PGSI]) in 206 regular gamblers (64% men; mean age = 44.7 years; mean PGSI = 8.7) who were in a romantic relationship and recruited through Qualtrics Panels in July 2021. **Results:** Results supported our hypotheses that the model would explain a significant amount of variance in gambling-related problems, $\beta = 0.35$, 95% CI [0.24, 0.47], and that the association between hostile romantic conflict and gambling-related problems would be sequentially mediated through negative affect and coping gambling motives, $\beta = 0.07$, 95% CI [0.03, 0.11], and also showed a strong single mediation pathway through negative affect alone, $\beta = 0.24$, 95% CI [0.16, 0.35]. **Discussion**: Negative affect and coping gambling motives partially explain the link between hostile romantic conflict and gambling-related problems. Interventions should target both negative affect and coping gambling motives in response to hostile romantic conflict to reduce gambling-related problems in partnered gamblers.

Keywords: gambling, problem gambling, dyadic conflict, coping motives, negative affect.

Introduction

Problem gambling refers to difficulties in one or more major domains of life (i.e., financial, interpersonal, academic, and/or occupational) and associated distress as the result of gambling behaviour. Problem gambling includes, at the extreme level of severity, gambling disorder (Eby et al., 2016), a diagnosis included in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) as an addictive disorder (American Psychiatric Association; American Psychiatric Association, 2013). While gambling behaviour is common (66-80%; Williams et al., 2021), only a subset of gamblers go on to develop problem gambling: estimated rates of past-year problem gambling vary from 0.6 to 5.0% and show considerable stability across time, despite overall population reductions in gambling frequency (Welte et al., 2015; Williams et al., 2021).

According to a large-scale epidemiological study by Kessler et al. (2008), most problem gamblers (96%) report comorbidity with another DSM-5 diagnostic category, most commonly substance use (76%), anxiety (60%), and/or mood (56%) disorders. Additional evidence supports the association between gambling disorders with trauma, stress, and related disorders (Moore & Grubbs, 2021). For specific comorbid disorders, following alcohol and nicotine use disorders, major depressive disorder is the next most commonly co-occurring disorder (39%) reported amongst problem gamblers, with a significantly greater than chance occurrence (15%) of posttraumatic stress disorder (PTSD) as well (Kessler et al., 2008). Among the sub-population with both depression and problem gambling, 74% report an earlier onset of major depression, followed by onset of problem gambling, which is similar (82%) for those with both an anxiety

disorder and problem gambling, while about half of those with PTSD report the PTSD preceding the onset of problem gambling (Kessler et al., 2008). Emotional disorders, such as depression, can also be a consequence of problem gambling (Dussault et al., 2011). Cross-lagged analyses support the suggestion of depressive and anxiety disorders as an etiological risk factor and possible maintenance factor for problem gambling (Kessler et al., 2008), although this finding has not always been consistent (Chinneck et al., 2016). Of note, while reviews consistently find a higher prevalence of gambling problems in men compared to women (Hing et al., 2016), findings are mixed on significant gender differences in comorbidity rates among problem gamblers, wherein some report higher comorbidity rates in women and others report no gender differences in problem gambler comorbidity (Desai & Potenza, 2008; El-Guebaly et al., 2006; Yakovenko & Hodgins, 2018).

Romantic relationships are one of the most influential interpersonal relationships in adulthood (Umberson et al., 2010; Whisman et al., 2000) and romantic relationship satisfaction is a robust predictor of overall life satisfaction (Roberson et al., 2018). Although romantic conflict is inevitable and normative, both conflict quantity and a negative or rejecting conflict style (i.e., interruption, contempt, rejection, condemnation, communication avoidance) are associated with decreased relationship satisfaction (Cramer, 2000; Murray et al., 2003; Ortzel & Ting-Toomey, 2006). Additionally, conflict quantity and style are related to a host of clinically relevant variables, such as depressive affect, anxious affect, stress, suicide ideation, and poor sleep quality (Aloia & Solomon, 2015; El-Sheikh et al., 2013; Mackinnon et al., 2012; Till et al., 2017).

While problem gambling is defined by negative consequences of the gambling experienced by the gambler, evidence attests that the adverse consequences of excessive gambling are also experienced by those in close relationships with the individual engaging in problem gambling (Kalischuk et al., 2006). Indeed, romantic partners of problem gamblers report more romantic conflict, lower relationship satisfaction, and more distress compared to partners of non-problem gamblers (Ponti et al., 2021). Overall, compared to base rates, partnerships with a problem gambler involve more romantic conflict, including a significantly increased risk of intimate partner violence (an extreme form of relationship conflict; Dowling et al., 2016). Mixed-methods and cross-sectional quantitative data suggest a bidirectional relationship between problem gambling and romantic conflict, i.e., both problem gambling leading to conflict and conflict leading to problem gambling (Afifi et al., 2010a; Suomi et al., 2019). More research has been conducted on the former: ways in which problem gambling leads to or provokes romantic conflict. For instance, cross-lagged analyses of longitudinal data provide strong evidence for problem gambling as a predictor of subsequent decreases in relationship functioning (Cowlishaw et al., 2016). Furthermore, the mechanisms underlying the problem gambling to conflict path are widely discussed and largely intuitive (e.g., the stress associated with gambling problems may be an antecedent to conflict behaviours; or adverse financial consequences resulting from problem gambling create sources of conflict for couples) (Suomi et al., 2019). On the other hand, much less is known about ways in which romantic conflict may precede or exacerbate gambling problems.

Due to high rates of comorbidity with anxiety, trauma and stress-related (e.g., PTSD), and mood disorders in samples of problem gamblers (Chou & Afifi, 2011; El-

Guebaly et al., 2006; Kessler et al., 2008; Moore & Grubbs, 2021), one possible link between romantic conflict and problem gambling may be negative affect. Evidence suggests controlling for mental disorders partially attenuated the link between intimate partner violence and problem gambling, suggesting symptoms of mental disorders like depressive, anxiety, and trauma/stress disorders may partially mediate the link between intimate partner violence and problem gambling (Afifi et al., 2010a). Since mood deterioration follows conflict (Choi & Marks, 2008; Prager et al., 2015) and precedes problem gambling (Coman et al., 1997; Gomes & Pascual-Leone, 2014; Morasco et al., 2007; Richard et al., 2020), it is possible that negative affect may provide an important link in explaining romantic conflict's association with problem gambling (i.e., conflict leading to gambling problems, mediated by negative affect).

Another possible explanation for the link from romantic conflict to problem gambling is via coping gambling motives. As with other addictive behaviours (Grant et al., 2007), individuals may learn to expect certain reinforcing outcomes from gambling, which may motivate future gambling behaviour (Stewart & Zack, 2008). A variety of distinct motives appear to underlie gambling behaviour including social, enhancement, coping (Stewart & Zack, 2008), and financial motives (Schellenberg et al., 2016). This four-factor motivational model overall accounts for 31% of the variance in gambling frequency and 64% of the variance in problem gambling severity (Schellenberg et al., 2016). While enhancement motives (gambling motivated by the desire for excitement) predict gambling frequency, coping motives (gambling motivated by the desire to alleviate unpleasant internal states) uniquely predict gambling problems (Stewart & Zack, 2008; Wardell et al., 2015). Indeed, coping gambling motives are considered a primary

pathway to problem gambling (Blaszczynski & Nower, 2002). Motives are believed to be a strong predictor of addictive behaviours because of their proximal temporal relationship to the behaviour, as opposed to more temporally distal predictors such as personality or outcome expectancies (Cooper, 1994). Given the central role of gambling to cope with negative affect in problem gambling, coping gambling motives may be another potential mediator to explain the link between romantic conflict (which tends to produce negative affect) and problem gambling.

The link between conflict and addictive behaviour via coping motives has been demonstrated in the alcohol literature, where coping drinking motives were shown to mediate the association between dyadic conflict and alcohol-related problems, both cross-sectionally and longitudinally (Lambe et al., 2015). However, the prior study did not examine gambling problems, and was conducted in a young (M_{age} = 22.13 years old, *SD* = 5.67) and age-restricted sample which limits generalizability to other stages of adulthood. Moreover, this 2015 study did not directly test a pathway from conflict to coping motives via negative affect, although motivational and learning theory would predict it in the model (i.e., that romantic conflict triggers negative affect in the gambler which motivates gambling to cope with that negative affect). Indeed, a serial mediational model (see Chinneck et al., 2018a) from conflict to addictive behaviour, via negative affect, and in turn coping motives, remains to be tested for any form of addictive behaviour. It has yet to be determined if this effect with alcohol problems will generalize to gambling problems.

Keough et al. (2018) probed a chained mediational pathway from interpersonal difficulties to problem gambling, using attachment problems as the measure of

interpersonal difficulties. They found that insecure and anxious attachment were both linked to problem gambling via depressive symptoms and, in turn, coping motives. This suggests the possibility that a similar chained mediation model might help explain the link of another form of interpersonal difficulty (i.e., romantic conflict) with problem gambling. There are several differences between this study and the present study: for instance, the authors used attachment style as a predictor and a global measure of depressive symptoms (i.e., that included depressive affect as well as other symptoms of depression such as insomnia, weight changes, etc.) as the first mediator, while the current study examined conflict behaviour and negative affect (depressive affect, anxious affect, and stress), respectively. Attachment style and depressive symptoms are both quite stable across time, relative to interpersonal behaviours and negative affect, which both have an important state-like component (McCormick et al., 2017), as well as more temporally proximal predictors of subsequent coping-motived gambling.

The present study sought to expand our understanding of coping gambling motives in response to romantic conflict. This would both extend this body of knowledge from the alcohol literature (i.e., Lambe et al., 2015) to the gambling literature and additionally directly test the mediating role of negative affect in a sample of adult partnered gamblers. Specifically, we examined if romantic conflict was positively associated with gambling problems, and, whether negative affect and coping motives sequentially mediated this relationship. Each individual link in this chain has been tested and supported by the literature; however, the current study is the first to link all components together in a single model. It was hypothesized that the total indirect effects would explain a significant amount of the variance in reported gambling problems, in

which more severe gambling problems associated with higher rates of romantic conflict would be partly explained by the serial pathway from more severe negative affect and endorsed coping motives. Additionally, specific indirect effects (each single mediation and the chained mediation pathways) were probed to examine their relative magnitude in explaining the links of romantic conflict to problem gambling. We hypothesized that the serial mediation pathway will be significant, in which the link between romantic conflict to gambling is partially explained by negative affect to coping motives.

Method

Participants

A total of $N = 206$ partnered gamblers were recruited via Qualtrics Panels. To be included in the study, participants had to be regular gamblers (i.e., report gambling at least once a week), be 19 years of age or older (legal drinking and gambling age in the jurisdiction in which REB approval was obtained; gambling is legalized in this jurisdiction), currently be in Canada or the United States, be currently in a romantic relationship of at least three months' duration and in which they reported seeing their partner in person at least three times per week. These last two inclusion criteria were used to help recruit only couples in more serious relationships and with a sufficient frequency of in-person contact to allow for in-person conflict behaviours, as there is evidence of different conflict styles and consequences in long-distance relationships (Lee et al., 2016). Recruited participants had a mean age of 44.72 years ($SD = 15.26$), with an age range of 19 – 78 years. The sample consisted of a majority of men (64%, $n = 132$).

A majority identified as White (80.6%; $n = 166$). A total of $n = 19$ identified as Arab, South Asian, or East Asian (9.2%). Eleven (5.3%) individuals identified as Black.

Four (1.9%) identified as Latin American and *n* = 3 (1.4) identified as Indigenous. Six individuals identified multiple ethnicities (White and one other, counted in the non-White category endorsed) and *n* = 3 (1.5%) identified as other/prefer not to answer regarding ethnicity.

Most of the sample reported being in mixed-gender relationships, *n* = 193 (93%), and reported living with their current romantic partner at the time of study, *n* = 181 (88%). Over half the sample (*n* = 123, 59.7%) reported being married to their current partner, and the remaining participants were mostly engaged (*n* = 11, 5.3%), common law (*n* = 15, 7.3%), or exclusively dating (*n* = 42, 20.4%), with a minority reporting casually dating (*n* = 15, 7.3%). The mean duration of the participants' current relationship was 15.29 years, *SD* = 13.83.

Measures

The following scales were administered to all participants as part of a larger study and used in the presented analyses. See Table 4.1 for descriptive statistics, internal consistencies, and bivariate correlations. Hostile romantic conflict, negative affect, and problem gambling were all measured by querying the prior seven days, whereas the original validated versions query discrepant intervals of time (e.g., 12 months vs 30 days vs seven days). Both versions (original versions and seven-day versions) of the negative affect and problem gambling measures were included in the battery for the present study, though the seven-day versions were used for analyses for consistency across measures. The original versions were included to validate the seven-day versions. A seven-day version of hostile conflict has already been validated (Lambe et al., 2015), and coping

motives was not assessed in a specific timeframe, as is typical for motives assessment (e.g., Cooper, 1994).

Partner-Specific Rejecting Behaviours Scale

Hostile romantic conflict was assessed using the 7-item Partner-Specific Rejecting Behaviours Scale (Murray et al., 2003). Participants were asked to report on their rejecting, critical, or dismissive behaviour towards their partner in the last week (e.g., "I was angry or irritated with my partner") on a Likert scale from *1-strongly disagree* to *9-strongly agree*. Items were summed, with higher scores (out of 63) indicating more severe conflict behaviour. The seven-day timeframe was validated (e.g., convergent validity with the original scale) in Lambe et al. (2015)). This scale has shown strong psychometric properties, including excellent internal consistency ($\alpha = .93$; Mackinnon et al., 2012), which was supported in our sample, $\alpha = .95$.

Depression, Anxiety, and Stress Scale

Negative affect was measured using the short form Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995). This scale is comprised of 21 items that ask participants to rate how much each statement (e.g., '*I felt I had nothing to look forward to'*, '*I found myself getting agitated'*) applied to them over the specified timeframe on a 4-point scale from *0-did not apply to me at all* to *3-applied to me very much, or most of the time.* The scale is comprised of three subscales, assessing depression, anxiety, and stress. The subscales have strong psychometric properties, $\alpha = .94$ for depression, $\alpha = .87$ for anxiety, $\alpha = .91$ for stress, and demonstrated factor structure and concurrent validity (Antony et al., 1998) . As per author recommended scoring, scores were summed and doubled to be comparable to the original 42 item

measure, producing a range from 0-126 (see Table 4.1 for cut scores and sample means). The seven-day version of the combined scale significantly correlated with the original 30-day version in our sample, $r = .95$, $p < .001$, and had excellent internal consistency, $\alpha = .98$. Subscales, used in supplemental analyses, also significantly correlated with the original 30-day versions, as follows: depression $r = .92$, anxiety $r = .93$, stress $r = .90$, ps $< .001$. The subscales also had excellent internal consistency, αs $> .95$.

Gambling Motives Questionnaire-Revised

Gambling to cope was measured using the coping subscale of the four factor Gambling Motives Questionnaire (Schellenberg et al., 2016) – an adapted version of the 15-item GMQ (Stewart & Zack, 2008), which itself was originally adapted from the Drinking Motives Questionnaire (Cooper et al., 1992). This scale includes four gambling motives: coping, enhancement, social, and financial motives. Only the coping gambling motives subscale was utilized in the present study due to the theorized link between conflict and gambling problems. The coping gambling motives subscale has five items assessing how often participants gamble for each of the reasons given, rated on 4-point scales from *1-almost never/never* to *4-almost always/always*, yielding a sum score from 5-20. Coping items include *'to forget your worries'* and *'to cheer you up when you're in a bad mood'*. The GMQ-R shows a strong factor structure and good psychometric properties in samples of gamblers and problem gamblers, including an acceptable internal consistency of the coping motives subscale ($\alpha = .71$; Schellenberg et al., 2016). The coping subscale showed good internal consistency in our sample, $\alpha = .89$.

Problem Gambling Severity Index

Problem gambling severity was assessed using the Problem Gambling Severity Index (PGSI), a nine-item self-report measure assessing various gambling problems, such as betting more than one could afford, experiencing tolerance, and guilt over one's gambling behaviour. Items are rated on a 4-point Likert scale from *0-Never* to *3-Almost always.* Scores from the nine items were summed for a total score, which produced a possible range from 0-27, where higher scores indicated more problem gambling. The PGSI assessing problem gambling over the last year shows good internal reliability, α = .84, and strong sensitivity and specificity in detecting DSM-IV pathological gambling diagnoses – a precursor to DSM-5's gambling disorder diagnosis (American Psychiatric Association, 2013; Ferris & Wynne, 2001). Additionally, the seven-day version of the PGSI significantly correlated with the original 12-month version in our sample, r = .96, p <.001, and had excellent internal consistency, α = .97.

Procedure

Qualtrics Panels, a survey management service, was used to recruit and gather the current data from a large pool of potential participants. A total of 206 participants were recruited in July 2021 and deemed eligible for the larger study based on our inclusion and exclusion criteria. An additional 623 individuals attempted to participate in the study but were excluded for a variety of reasons: not being in a relationship (n = 185); not gambling at least once per week in the last year (n = 182); not being 19 years of age or older (n = 147); failing validity checks (such as highly improbable responses, highly improbable survey completion time, n = 35); duplicate entries (n = 33); not being in Canada or the United States (n = 24); relationship shorter than three months (n = 11); and

seeing their romantic partner face-to-face fewer than three times per week *(n* = 6). Eligible participants who provided informed consent and were subsequently administered a brief computerized battery of questionnaires including, but not limited to those employed in the present study (total duration of thirty minutes). The study was approved by the Dalhousie University Health Sciences Research Ethics Board (approval #: 2020-5368).

All analyses were conducted using IBM SPSS Statistics 27. The serial multiple mediation model was tested using PROCESS, a regression-based tool that tests for both direct and indirect effects (Hayes, 2014). The mediation model was run using PROCESS Model 6 to test the impact of negative affect and, in turn, coping motives as serial mediators of the association between hostile romantic conflict and gambling problems. Additionally, age and relationship length were added as covariates to the model due to their significant correlations with most variables in the serial mediation model and the substantial variability in relationship length and age in our sample. All indirect effects were run with follow-up bootstrap analyses with 5,000 resamples from which 95% bias-corrected and accelerated confidence intervals (CIs) were estimated.

Results

Bivariate correlations between variables of interest can be found in Table 4.1. All variables were significantly correlated with each other, with correlations ranging from *r* = .46 to .97 in magnitude, indicating moderate to large effect sizes. On average, the current sample reported: mild to moderate depressive affect, moderate levels of anxious affect, below the mild cut-off of stress, coping motives consistent with a problem gambling sample, and moderate gambling problems in comparison to established norms or clinical

cut-offs on these scales (Table 4.1). Additionally, the sample reported spending a mean of 33.5% (*SD* = 30.4) of their income (after taxes) on gambling. Participants also reported on their frequency of various gambling activities; the most commonly reported gambling activities were lotteries (*n* = 144), scratch tickets, (*n* = 123), internet gambling (*n* = 88), daily lotteries (*n* = 85), cards or board games (*n* = 75), games of skill such as pool or bowling (*n* = 71), at casinos (*n* = 69), slot machines or VLTs (*n* = 65), and sports lottery (*n* = 61). For those who engaged in each activity, the mean days per week in which participants spent money on that activity ranged from – 5.72 - 6.06 (out of 7). On average, participants gambled for 38.41 (*SD* = 49.19) minutes per gambling day.

While the authors originally intended to examine the DASS-21 subscales individually within the same model, the data revealed that the subscales overlapped too highly to permit this. Pairwise correlations and variance inflation factor (VIF) values were calculated to assess for multicollinearity. Correlation coefficients between the DASS-21 subscales ranged from .90 - .93 (Table 4.1). VIF values ranged from 6.1 – 9.3. While there exists no single consensus cut-off value to avoid problems with multicollinearity, most experts suggest cut-offs of *r*s > .80 and VIF > 5 (Vatcheva & Lee, 2016). These values suggest that multicollinearity would be an issue if the DASS-21subscales were used as separate variables in a multiple-mediators model. Thus, we combined the three DASS-21subscales into a single score, measuring general negative affect. While a three-factor model was shown to be a better fit than a single-factor model in the original psychometric validation of this scale, the current sample's responses yielded meaningfully higher correlations between the subscales compared to the original data, which ranged from *r*s = .54 - .65, suggesting a less meaningful distinction between

these negative affective states in this sample of regular gamblers (Lovibond & Lovibond, 1995). Additionally, some studies have found comparable clinical utility (i.e., sensitivity and specificity for mood and anxiety disorders) of the combined scale to the subscales (e.g., Dahm et al., 2013). Additional sensitivity analyses were conducted with each DASS-21 subscale separately (Table 4.3).

Age, relationship length, and gender were included in the serial mediation model as covariates due to their significant correlations with several variables included in the serial mediation model. Despite age and relationship length being strongly correlated with each other (Table 4.1), these variables were found to have a VIF = 2.02, suggesting low risk of multicollinearity by including both in the same model.

The serial mediation model was run using the combined negative affect scores and coping gambling motives as mediators between hostile romantic conflict and problem gambling. Regarding direct effects observed in

Figure 4.1, conflict had a significant and positive effect on negative affect, a_1, β =.59, p <.001, and non-significant effect on coping motives, a_2, β =.11, p = .20. Negative affect had a positive effect on coping gambling motives when the effects of conflict were controlled, d_{21}, β =.33, p <.001, as did negative affect on gambling problems when conflict was controlled, b_1, β =.42, p <.001, and as did coping gambling motives on gambling problems when conflict and negative affect were controlled, b_2, β =.34, p <.001. The total effect of conflict on gambling problems was significant, c, β =.50, p <.001. Additionally, the direct effect of conflict on gambling problems remained significant when negative affect and coping motives were controlled, c', β =.15, p = .008, although its magnitude was much reduced.

Relationship length significantly and negatively covaried with negative affect, β = -.22, p = .004, but not with coping motives, β =.05, p = .58, gambling problems, β =.01, p

= .87, or the total effect, β = -.09, p = .25. Age significantly and negatively covaried with both coping motives, β = -.36, p < .001, and the total effect, β = -.23, p = .004. However, age did not significantly covary with negative affect, β = -.07, p = .40 or with gambling problems, β = -.07, p = .25. Gender did not significantly covary with negative affect, β = -.08, p = .14, or coping motives, β = -.06, p = .37. Gender covaried with both gambling problems, β = -.13, p = .003, wherein identifying as a man was associated with more gambling problems, and with the total effect, β = -.19, p <.001, wherein identifying as a man was associated with a significantly stronger *c* path in the model.

Mediation effects were also observed (Table 4.2). As hypothesized, the total indirect effect of hostile romantic conflict on gambling problems via negative affect and coping motives was significant, $a_1*b_1 + a_1*d_{21}*b_2 + a_2*b_2$, β = .35, 95% CI [.24, .46]. Additionally, two of the three component mediator indirect effects were significant. The fully standardized indirect effect between conflict and gambling problems through negative affect was positive and significant, a_1*b_1, β = .25, 95% CI [.16, .35], although the single mediator indirect effect through coping gambling motives was not significant, a_2*b_2, β = .04, 95% CI [-.02, .11]). Additionally, the fully standardized serial indirect effect from conflict to gambling problems via negative affect and, in turn, coping motives was positive and significant, $a_1*d_{21}*b_2$, β = .07, [.03, .11]. These standardized coefficients represent amount of explained variance in gambling problems per standard deviation increase in conflict via the mediating variable. For example, with the total mediation effect, for every SD increase in conflict, gambling problems increased by .35 SD units via negative affect and coping motives. In other words, per SD increase in hostile

romantic conflict, gambling problems increase by .50 SD units; however, this is reduced to .15 SD units after controlling for both negative affect and coping motives.

Contrasts were run to compare the relative magnitude of each indirect effect (Table 4.2). The single mediation between conflict and gambling problems via negative affect was significantly larger than the other two indirect effects (single mediation via coping motives and serial mediation through both mediators). The single mediation via coping motives and serial mediation effects were not significantly different from one another. Overall, the model significantly predicted 52% of the variance in gambling problems, $F(1, 173) = 46.69$, $R = .72$, $R^2 = .52$, $p < .001$.

The above model was also re-run three times with each of depressive affect, anxious affect, and stress (DASS-21 subscales) in place of the combined negative affect sum score (Table 4.3) to examine whether one or more of the specific forms of negative affect were carrying the mediational findings. The results were virtually unchanged for each model with the same significant paths, mediational findings, and significant contrasts (relative magnitude of mediational paths) as reported for the main model using general negative affect as the first mediator. Additionally, the main analyses were re-run without the covariates of age, relationship length, and gender, and the results were not meaningfully different (see Table 4.1).

Discussion

The current study provided evidence for one possible explanation for the link between hostile romantic conflict and gambling problems, namely serial mediation via negative affect and, in turn, coping gambling motives. As hypothesized, indirect effects via negative affect (single mediation) were significant in predicting gambling problems;

however, indirect effects via coping gambling motives (single mediation) were non-significant in predicting gambling problems while controlling for other variables in the serial mediation model. Additionally, the model indicated that a direct effect between conflict and gambling problems remained after controlling for negative affect and coping gambling motives, suggesting the presence of other mediators not accounted for in the current model. Overall, the model explained almost half of the variance in problem gambling in our sample. The present study continues to highlight the interpersonal context in which gambling problems are embedded (Cowlishaw et al., 2016; Kalischuk et al., 2006).

Consistent with our primary hypothesis, the significant chained mediational pathway suggests regular gamblers may respond to negative affect following hostile romantic conflict by gambling to cope, which in turn puts them at risk for gambling problems. Our findings are consistent with research that shows strong associations between conflict and gambling problems (Dowling et al., 2016b), that conflict behaviours robustly predict negative affect (El-Sheikh et al., 2013; Liu & Chen, 2006), and that coping gambling motives are an important predictor of gambling problems (Stewart & Zack, 2008). However, previous literature has suggested a stronger link between depressive affect and gambling than between anxious affect and gambling (Barrault et al., 2019), while comparably strong links between different forms of negative affect (i.e., depression, anxiety, and stress) were supported by additional analyses with the present data. Indeed, the current data suggests that the specific type of negative affect makes little difference in terms of its strength of association to gambling problems. Despite the clear bidirectional link between relationship functioning and mental health, meta-analysis

suggests the stronger effect is actually relationship functioning predicting mental health variables (Braithwaite & Holt-Lunstad, 2017), the direction tested in and supported by our study. Our study also adds to the extant coping gambling motives literature by expanding our understanding of what individuals who gamble to cope may be responding to, specifically by testing the associations between hostile romantic conflict and gambling to cope via resultant negative affect. This study also extends the findings from Lambe et al.'s (2015) study, which established mediation from romantic conflict to alcohol problems via coping drinking motives, in important ways. Primarily, this study extends our understanding from drinking motives and alcohol problems to gambling motives and problem gambling. The current study also used a sample of adults representing a broad age range drawn from the general population rather than a narrower college-aged sample. Lastly, the present analyses included and directly tested negative affect, an assumed mediator in Lambe et al. (2015). The inclusion of negative affect strengthens the theoretical construct of coping motives (that individuals engage in gambling to cope with distressing affective states) by directly testing for negative affective states as a mediator between a stressor (hostile romantic conflict) and coping motives.

Coping gambling motives were not a significant single mediator between hostile romantic conflict and gambling problems in the serial mediation model, despite significant serial mediation. The non-significant pathway via coping gambling motives suggests that coping motives requires the presence of negative affect to help explain the link from conflict to gambling problems. It appears that coping motives only contributes to gambling problems associated with hostile romantic conflict insofar as coping motives are predicted by negative affect. This also suggests that negative affect sufficiently

mapped onto the measure of coping motives to explain the variance in coping motives. On the other hand, negative affect appeared as a significant single mediator even when accounting for the effects of coping motives. Notably, the coping motives measure remained a non-significant mediator in each of the models with the DASS-21 subscales separately (see sensitivity analyses). This suggests that the measure of coping motives was unable to explain much of the variance in negative affect predicting problem gambling. It is possible that a coping motives measure that includes items tapping into coping-with-stress in addition to coping-with-depression and coping-with-anxiety, an extension of the factor structure found in the alcohol motives literature (Grant et al., 2007), may better capture the range of negative affect associated with hostile romantic conflict. It may also be that a measure of negative affect that could more effectively distinguish between different negative affective states may better map onto coping motives sub-scales (e.g., coping-with-depression), with overall greater specificity between measures. This may reduce the variance explained by negative affect alone without coping gambling motives.

Another possibility is that negative affect is associated with gambling problems via another serial mediator, such as enhancement motives. Despite less overall evidence and a less clear theoretical link, the alcohol literature has indeed demonstrated an association between negative affect and drinking frequency in those high in enhancement motives using daily diary methodology (Armeli et al., 2010). Additionally, some research has found that negative urgency (impulsive behaviour in response to negative mood states) is associated with drinking behaviour via enhancement motives (Anthenien et al., 2017). Subtyping research on gambling motives has also suggested that coping-based

gamblers tend to gamble mostly for negative reinforcement (i.e., coping) but in conjunction with enhancement-motivated gambling, distinct from a subtype of gamblers who primarily gamble for enhancement purposes (Stewart et al., 2008). Lastly, gamblers may respond to negative affect following conflict in other ways to attempt to cope that lead to further gambling problems that are not captured by the coping motives scale of the GMQ (Stewart & Zack, 2008). For instance, individuals may gamble as a strategy to avoid their partner or further conflict. Additionally, some problem gamblers have reported gambling as a source of meaning-making or to feel "normal"; feeling negative mood states following conflict may drive individuals to gamble to feel "normal" (Yakovenko et al., 2016).

Overall, a significant direct effect between conflict and problem gambling remained after accounting for the mediated pathways through negative affect and coping motives, suggesting other mediating mechanisms besides those tested in the current model. One possibility is the role of anger, which was not included in the present model or captured in our measure of negative affect. Prior research has evidenced clinically significant anger problems in many problem gamblers (i.e., 65%), as well as a strong association between perpetration of intimate partner violence (an extreme form of relationship conflict) and anger in problem gamblers (Dowling et al., 2016b; Korman et al., 2005; Korman et al., 2008). Additionally, in a large sample of individuals seeking treatment for substance use disorders, those with problem gambling reported significantly more anger problems than their non-problem gambling treatment-seeking counterparts (Collins et al., 2005). Another study similarly found that substance abusers who endorsed violent tendencies were three times more likely to be problem gamblers (Cunningham-

Williams et al., 2007). These findings suggest that problem gamblers may experience angry affect to a greater degree than other populations, including those who abuse substances, and thus that anger and gambling to cope with anger may play unique roles in the link between hostile romantic conflict to gambling problems that may not be captured by the negative affect measure used in this study (i.e., the DASS-21) or by coping motives measures adapted from alcohol motives. This suggests the need for the development and validation of a measure of coping with anger as a motivation for gambling, and for the inclusion of measures of anger in future studies of the links of hostile romantic conflict to problem gambling.

Another possible mediator between conflict and gambling problems are financial motives. Indeed, financial problems are associated with increased family conflict for gamblers (Carr et al., 2018). Moreover, conflict about money was among the most common negative impacts reported by family members of a problem gambler (Dowling et al., 2016b), highlighting one possible contributing factor to the high rates of conflict reported among couples where one is a problem gambler. Although not yet directly tested, it is possible that individuals have heightened motivation to gamble for financial reasons or to chase losses (Blaszczynski & Nower, 2002) following conflict about finances as a form of "problem solving" (albeit maladaptive problem solving). This would be consistent with the association between deprivation and gambling problems (Lloyd et al., 2021).

Regarding covariates, relationship length negatively predicted all negative affect variables, which is consistent with the widely reported protective effects of marriage (Uecker, 2012). Inconsistent with the original validation of the Gambling Motives

Questionnaire (Stewart & Zack, 2008), our model indicated a significant negative relationship between age and coping motives; this may be due to the present study having recruited an older sample on average. Further research would be required to probe whether this finding replicates and the possible mechanism underlying this association. Additionally, the total effect path between conflict and gambling problems was negatively predicted by age, suggesting that hostile romantic conflict may be a more significant problem gambling risk factor for younger vs older adults. Gender also significantly predicted gambling problems, consistent with epidemiology indicating more gambling problems in men than women (Hing et al., 2016). Additionally, gender predicted the total effect, suggesting that conflict may be particularly risky for exacerbating gambling problems for men. The total effect size was not meaningfully different in analyses not controlling for gender (see Supplemental materials). Notably, gender did not significantly predict negative affect, despite consistent evidence of women typically reporting more negative affect and disorders associated with negative affect than men (Leach et al., 2008). However, as some studies report equivalent rates of depressive and anxiety disorders by gender in problem gamblers, this may explain why women in this sample did not report higher levels of depression, anxiety, and stress (Yakovenko & Hodgins, 2018).

The present study findings are limited by cross-sectional design and thus cannot be used to draw causal interpretations. Some have argued that mediation models should not be tested with cross-sectional data (Maxwell et al., 2011). However, other statisticians have argued that cross-sectional mediation is entirely acceptable, as long as it is interpreted accurately based on the inherent limitations, and can play an important role in

providing a preliminary foundation for a novel theoretical mediation model to then justify longitudinal research to corroborate the putative causal chain (Hayes & Rockwood, 2020). Additionally, our hypothesized model was informed by strong empirical evidence on the temporal effects of relationship functioning on various forms of psychopathology (Braithwaite & Holt-Lunstad, 2017). Future research is necessary to confirm these findings by incorporating longitudinal designs; specifically, four waves of cross-lagged panel analysis could demonstrate if these pathways are contributing to exacerbated problem gambling over time (e.g., Mushquash et al., 2013b). Additionally, ecological momentary assessment would provide rich data into the event-level mechanisms (Votaw & Witkiewitz, 2021), i.e., if individuals experience negative affect after specific hostile romantic conflict events and endorse gambling to cope later the same day or on the day following a hostile romantic conflict. Additionally, this cross-sectional data was collected following the COVID-19 pandemic, making it difficult to draw conclusions about how these results may compare to pre-pandemic gambling problems. While evidence is mixed (Hodgins & Stevens, 2021), the most reliable finding is that those with pre-pandemic gambling problems were more likely than others to increase their gambling behaviour or experience worsened problems associated with gambling with the onset of the pandemic (Brodeur et al., 2021). Additionally, reports of intimate partner violence roughly doubled in both frequency and severity during the pandemic (Gosangi et al., 2021). However, how the link between these variables may have changed during the pandemic is unclear.

While the present study only included the gambler's perception of hostile romantic conflict, conflict is often conceptualized as a dynamic and dyadic variable (e.g., Lambe et al., 2015; Mackinnon et al., 2012). Additionally, these data only include

measures of self-reported conflict behaviours enacted by the participants onto their partners, e.g., yelling at their partner. However, problem gamblers report both higher conflict perpetration and conflict victimization compared to the general population (Dowling et al., 2016b). Furthermore, these reports tend to go together—three quarters of problem gamblers who report any intimate partner violence report bidirectional violence (Suomi et al., 2019). Some studies have suggested that victimization acts as an antecedent to gambling problems, which may involve coping motives not captured by the GMQ, such as gambling to escape a violent home situation or to cope with the traumatic experience (Afifi et al., 2010a; Dowling et al., 2016b; Echeburúa et al., 2011). Future studies may wish to include both partners' perceptions of conflict and/or contributions to the conflict (i.e., conflict enacted toward and received from the partner; (Basso et al., 2023)), to get a fuller understanding of the impact of conflict on gambling problems). Future studies may also want to examine gender moderated mediation, as prior work with conflict, coping motives, and alcohol problems has demonstrated a stronger coping mediation pathway in women than men (Lambe et al., 2015). As with all self-reported behaviour, but particularly for self-reports of undesirable behaviours such as enacting conflict toward one's partner, response bias may interfere with the validity of the measure (Mathie & Wakeling, 2011). However, much research has reliably demonstrated hypothesized findings from self-reported conflict behaviour, and that one's own perception of conflict may be the stronger predictor of addictive behaviours (Derrick et al., 2017); additionally, respondent participation was anonymous, which may reduce response bias.

We used a measure of negative affect as a mediator. Nonetheless, it is possible that regular gamblers gamble to cope with symptoms beyond affect. Indeed, another study by Keough *et al*. (2018) used a global measure of depressive symptoms that went beyond depressed affect (e.g., insomnia, anhedonia, cognitive symptoms) and found mediation of the link of another interpersonal difficulty (attachment issues) to gambling to cope. Future studies of the conflict to problem gambling link should include measures of emotional disorder symptoms that go beyond negative affect.

These data have important clinical implications. These findings further underscore the need to screen for conflict behaviour in those seeking treatment for problem gambling – not merely due to the high prevalence rate in this population, but also due to the possible role of conflict in maintaining problem gambling observed here. Clinicians may also wish to target both negative affect and coping gambling motives in both individual treatment with a partnered gambler and in couples-based treatments for gamblers experiencing hostile romantic conflict (Nilsson et al., 2019). Additionally, the significant direct effect of conflict on problem gambling after controlling for negative affect and coping motives suggests the importance of directly targeting conflict behaviour as well (e.g., through communications training or perspective taking interventions (Rodriguez et al., 2021). This is further supported by evidence that improving relationships has a stronger effect on improving mental health than the other way around (Braithwaite & Holt-Lunstad, 2017). These findings additionally have implications for relapse prevention. Indeed, problem gamblers cite experiencing negative emotions like depressive affect as a primary antecedent to relapse (11% of relapses; Hodgins & El-Guebaly, 2004). Our findings suggest that management of negative emotions following

hostile romantic conflict may be an important relapse prevention skill in mitigating relapse to problem gambling.

Table 4.1 Correlations and Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10
1. Conflict[1]	-									
2. Negative affect[2]	.667***	-								
3. Depression[2]	.633***	.963***	-							
4. Anxiety[2]	.674***	.973***	.902***	-						
5. Stress[2]	.657***	.974***	.902***	.933***	-					
6. Coping motives[3]	.455**	.524***	.536***	.559***	.517***	-				
7. Gambling problems[4]	.636***	.757***	.728***	.784***	.718***	.716***	-			
8. Age	-.319***	-.431***	-.383***	-.431***	-.408***	-.461***	-.437***	-		
9. Relationship length	-.236***	-.404***	-.402***	-.400***	-.380***	-.375***	-.386***	.711***	-	
10. Gender [5]	-.162*	-.226**	-.200**	-.242***	-.199**	-.161*	-.272***	.082	.060	-
Range (in sample)	7 – 63	0-126	0 – 42	0-42	0-42	5 – 20	0-24	19-78	3-642	
Mean	22.40	39.34	13.27	12.91	13.86	11.61	6.77	44.72	183.5	64%
(*SD*)	(15.20)	(38.11)	(13.53)	(13.33)	(12.89)	(4.48)	(8.05)	(15.26)	(166.00)	men
Internal consistency	.95	.98	.96	.95	.95	.89	.97	-	-	-
Clinical cut-off	-	-	10-13 – mild 14-20 – moderate 21+ – severe[2]	8-9 – mild 10-14 – moderate 15+ – severe[2]	15-18 – mild 19-25 – moderate 26+ – severe[2]	*M* = 11 in a sample of problem gamblers[4]	3 – 7 – moderate 8+ – problem[4]	-	-	-

Notes: [1]Partner-Specific Rejecting Behaviours Scale (Murray *et al.*, 2003); [2]Negative affect measured by combining the subscales from the Depression, Anxiety, and Stress Scale (DASS-21; Lovibond and Lovibond, 1995); [3]Gambling Motives Questionnaire, coping motives subscale (Stewart and Zack, 2008); [4]Problem Gambling Severity Index (PGSI; Ferris and Wynne, 2001); [5]Negative correlation indicates higher levels in men; positive correlation indicates higher levels in women. p <.05*, p < .01**, p <.001***.

Table 4.2 Comparison of the Indirect Effects of Conflict on Gambling Problems Through Negative Affect and Coping Motives and the Specific Indirect Effects

Effects	*β*	SE	LL	UL
Total indirect*	.35	.06	.24	.47
1) Conflict → negative affect → problem gambling*	.24	.05	.16	.35
2) Conflict → coping motives → problem gambling	.04	.03	-.02	.11
3) Conflict → negative affect → coping motives → problem gambling*	.07	.02	.03	.11
Contrasts				
Model 1 vs model 2*	.21	.06	.09	.34
Model 1 vs model 3*	.18	.05	.09	.30
Model 2 vs model 3	-.03	.04	-.11	.06

Notes: Indirect effects where the LL (lower limit) and UL (upper limit) do not cross zero are considered significant indirect effects and are indicated with an asterisk (*). Model comparisons where the 95% CI LL and 95% CI UL do not cross zero are considered significant contrasts and are indicated with an asterisk (*). Analyses were run with age, relationship length, and gender as covariates.

Table 4.3 Comparison of the Indirect Effects of Conflict on Gambling Problems Through Depression, Anxiety, and Stress Subscales of the DASS-21 and Coping Motives and the Specific Indirect Effects

Effects	β	SE	LL	UL
Depression				
Total indirect*	.34	.05	.24	.45
1) Conflict → depression → problem gambling*	.22	.04	.14	.31
2) Conflict → coping motives → problem gambling	.05	.03	-.01	.12
3) Conflict → depression → coping motives → problem gambling*	.07	.02	.03	.11
Contrasts				
Model 1 vs model 2*	.17	.06	.06	.28
Model 1 vs model 3*	.15	.05	.06	.24
Model 2 vs model 3	-.02	.04	-.10	.07
Anxiety				
Total indirect*	.39	.06	.28	.51
1) Conflict → anxiety → problem gambling*	.27	.05	.18	.39
2) Conflict → coping motives → problem gambling	.04	.04	-.02	.12
3) Conflict → anxiety → coping motives → problem gambling*	.07	.02	.03	.12
Contrasts				
Model 1 vs model 2*	.23	.07	.10	.37
Model 1 vs model 3*	.20	.06	.10	.32
Model 2 vs model 3	-.03	.05	-.13	.08
Stress				
Total indirect*	.32	.05	.21	.42
1) Conflict → stress → problem gambling*	.21	.05	.12	.30
2) Conflict → coping motives → problem gambling	.05	.04	-.01	.13
3) Conflict → stress → coping motives → problem gambling*	.06	.02	.02	.10
Contrasts				
Model 1 vs model 2*	.16	.06	.04	.27
Model 1 vs model 3*	.15	.05	.06	.25
Model 2 vs model 3	-.01	.05	-.10	.10

Notes: Indirect effects where the LL (lower limit) and UL (upper limit) do not cross zero are considered significant indirect effects and are indicated with an asterisk (*). Model comparisons where the 95% CI LL and 95% CI UL do not cross zero are considered significant contrasts and are indicated with an asterisk (*). Analyses were run with age, relationship length, and gender as covariates.

Table 4.4 Comparison of the Indirect Effects of Conflict on Gambling Problems through Depression, Anxiety, and Stress Subscales of the DASS-21 and Coping Motives and the Specific Indirect Effects without Covariates

Effects	β	SE	LL	UL
Depression				
Total indirect*	.42	.05	.33	.52
1) Conflict → depression → problem gambling*	.24	.04	.15	.33
2) Conflict → coping motives → problem gambling*	.08	.03	.01	.15
3) Conflict → depression → coping motives → problem gambling*	.11	.02	.07	.16
Contrasts				
Model 1 vs model 2*	.16	.06	.03	.29
Model 1 vs model 3*	.13	.05	.03	.22
Model 2 vs model 3	-.03	.05	-.13	.07
Anxiety				
Total indirect*	.49	.05	.40	.60
1) Conflict → anxiety → problem gambling*	.32	.05	.23	.43
2) Conflict → coping motives → problem gambling	.05	.04	-.01	.13
3) Conflict → anxiety → coping motives → problem gambling*	.12	.02	.07	.18
Contrasts				
Model 1 vs model 2*	.27	.07	.13	.42
Model 1 vs model 3*	.20	.06	.10	.32
Model 2 vs model 3	-.07	.05	-.18	.04
Stress				
Total indirect*	.43	.05	.33	.53
1) Conflict → stress → problem gambling*	.25	.05	.16	.35
2) Conflict → coping motives → problem gambling	.07	.04	-.003	.15
3) Conflict → stress → coping motives → problem gambling*	.11	.03	.06	.17
Contrasts				
Model 1 vs model 2*	.18	.07	.04	.32
Model 1 vs model 3*	.13	.05	.03	.25
Model 2 vs model 3	-.04	.06	-.15	.07
Negative affect				
Total indirect*	.47	.05	.37	.58
1) Conflict → negative affect → problem gambling*	.30	.05	.20	.41
2) Conflict → coping motives → problem gambling	.04	.03	-.02	.13
3) Conflict → negative affect → coping motives → problem gambling*	.12	.03	.07	.17
Contrasts				
Model 1 vs model 2*	.24	.07	.11	.40
Model 1 vs model 3*	.18	.06	.07	.31
Model 2 vs model 3	-.07	.06	-.18	.04

Notes: Indirect effects where the LL (lower limit) and UL (upper limit) do not cross zero are considered significant indirect effects and are indicated with an asterisk (*). Model comparisons where the 95% CI LL and 95% CI UL do not cross zero are considered significant contrasts and are indicated with an asterisk (*). Analyses were run without covariates.

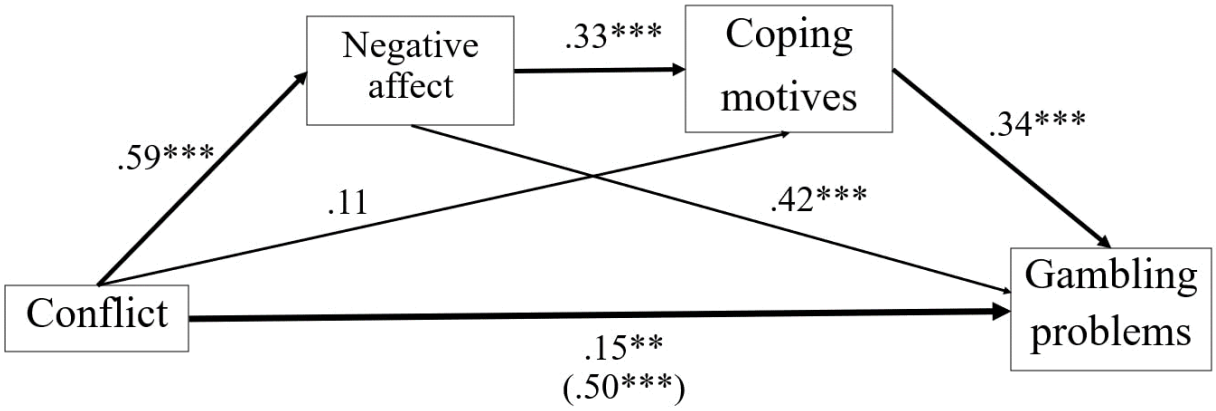

Figure 4.1 Serial Mediation Model

Note. Path values indicate standardized coefficients (β). p <.05*, p < .01**, p <.001***.

CHAPTER 5. TRANSITION FROM STUDY 2 TO STUDY 3

Study 2 (Chapter 4) found robust support for the serial mediation model in which aggressive conflict behaviours predicted one's own negative affect and, in turn, one's own coping motives for gambling, which predicted gambling problems. These results confirm the "invisible mediator" between hostile romantic conflict behaviours and coping motives: emotional distress. Additionally, the results extend the findings from Lambe et al. (2015), which examined alcohol-related problems, to now gambling problems (whereas Study 1, Chapter 2 examined alcohol *use*). Analyses of gender effects indicated that hostile romantic conflict may be riskier for men's gambling problems than for women's.

However, there are several limitations of Study 2 (Chapter 4). First and foremost, Study 2 recruited individuals (gamblers) who are in romantic relationships, rather than recruiting couples. This meant that Study 2 (Chapter 4) was unable to examine partner influence in this serial mediation model or partner influences on gamblers during the pandemic. Additionally, Study 2 (Chapter 4) used a measure of negative affect. Chapter 1 introduced findings that individuals may engage in addictive behaviours to cope with symptoms of emotional disorders beyond negative affective states. Additionally, studying a range of emotional disorder symptoms may help explain the high rates of comorbidity between emotional disorders and addictive disorders.

Thus, Study 3 sought to examine emotional disorder symptoms in the same serial mediation model as Study 2 (Chapter 4), but this time recruiting couples. Study 3 also used the same measure of hostile romantic conflict as Study 2 (Chapter 4). Recruiting couples allowed for the examination of actor and partner effects, as well as a closer

examination of the effects of gender in this model. Additionally, cannabis has been under-researched in this area. Study 3 sought to examine alcohol use *and* cannabis use, again during the peak of a pandemic viral wave. However, restrictions were not as strict as during the first wave lockdowns in the spring of 2020, and thus results may or may not generalize to other stages of the pandemic (CIHI, 2022).

CHAPTER 6. STUDY 3: ROMANTIC CONFLICT AND COPING-MOTIVATED SUBSTANCE USE: AN ACTOR-PARTNER INTERDEPENDENCE SERIAL MEDIATION MODEL

The manuscript prepared for this study is presented below. Funding was provided for this study with the following grant: SSHRC Individual Partnership Engage (PEG) Grant Covid-19 Special Initiative. *Covid-19 pandemic: Factors that support and impede family well-being during mandatory homeschooling.* Drs. Stewart, S.H., Abbass, A., Wilson, E.A., Rodriguez, L., Corkum, P.V., Nogueira Arjona, R.R., Meier, S.M., Deacon, S.H., & Sherry S.B. These coauthors secured funding, selected study measures, gained ethics approval, and collected data. The study was approved by the Social Sciences and Humanities Research Ethics Board at Dalhousie University (REB# 2020-5336). Mandy Hagen, under the supervision of Dr. Sherry Stewart, was responsible for designing the analyses, preparing the data for analyses, conducting the analyses, interpreting the results, and writing the initial draft of the manuscript. Dr. Clayton Neighbors and Dr. Lindsey Rodrigeuz provided assistance in conducting the analyses. Additionally, Mandy incorporated feedback from the coauthors.

Abstract

Romantic conflict is a risk factor for emotional disorders (i.e., anxiety, depression) and substance use (e.g., alcohol, cannabis). Coping motives may partially explain this link. Research has supported components of this serial mediation pathway (conflict to substance use via emotional disorder symptoms and coping motives), but this study is the first to examine the full pathway. Research has mostly examined young adults and not yet examined cannabis in this model. Data from 493 couples in which both members used alcohol or both used cannabis were included from a larger study. All participants (mean age = 37.98; *SD* = 6.90) completed online surveys to assess conflict behaviours enacted (PSRB; partner reports averaged), emotional disorder symptoms (PHQ-ADS), coping motives (BAMM, BCAMM), measures of alcohol frequency, peak use, and binge drinking, and measures of cannabis use frequency and quantity. Four actor-partner interdependence models were run: indistinguishable and distinguishable dyads (by gender) for each of alcohol and cannabis use as outcomes. The actor serial mediation pathway was supported for greater dyadic hostile conflict to higher emotional disorder symptoms to coping motives to both greater alcohol and cannabis use. Partner effects were found for cannabis use, in which conflict predicted cannabis use via one's partner's emotional disorder symptoms and coping motives, but not alcohol use. Some gender differences were detected but these differences were themselves not statistically significant. Results support one mechanism by which conflict is associated with substance use, namely via emotional disorder symptoms and coping motives. Partners appear to influence each other's cannabis use more so than for alcohol use. Implications are discussed.

Keywords: alcohol, cannabis, romantic conflict, coping motives, emotional disorders

Introduction

Cannabis and alcohol are the most widely used substances, other than nicotine (Substance Abuse and Metal Health Services Administration; SAMHSA, 2020). Most adults use alcohol (e.g., 78-82%), and while rates for cannabis use are lower (15%), rates of cannabis problems are high among cannabis users (Compton et al., 2019; White, 2020). Both substances are associated with considerable harm; heavy alcohol use is a leading cause of preventable death in the United States and Canada and cannabis use is associated with a wide array of concerning health consequences, such as cognitive dysfunction, stroke, and adverse pregnancy outcomes (Esser et al., 2020; Memedovich et al., 2018; Rehm, 2011).

Romantic Conflict and Emotional Disorders

Romantic conflict behaviours, particularly hostile, critical, and rejecting behaviours towards one's partner, are associated with poor relationship and life satisfaction (Carroll et al., 2010; Holman & Jarvis, 2003; Hui & Constantino, 2021; Roberts, 2000). Romantic conflict is not only strongly associated with relationship-related outcomes (e.g., relationship satisfaction) but also with individual changes, such as distress and negative affect (Lemmens et al., 2007; Roberson et al., 2018). Additionally, conflict style (e.g., aggressive or hostile conflict) has been found to partially mediate the link between relationship satisfaction and depressive symptoms, indicating this mechanism may be an important etiological factor in the development of emotional disorders (Du Rocher Schudlich et al., 2011; Knobloch & Basinger, 2020).

Emotional disorders (ED) is an umbrella term, usually referring to anxiety and unipolar depressive disorders (Barlow et al., 2020; Bullis et al., 2019). This framework is

used due to the high comorbidity rates among these disorders (Belzer & Schneier, 2004; Gorman, 1997), shared genetic and psychosocial etiological risk factors (Mineka et al., 1998; Waszczuk et al., 2017), overlapping maintaining mechanisms such as emotional dysregulation, automatic negative thinking, avoidance (Barlow et al., 2020), and common effective treatment components (Barlow et al., 2020). Emotional disorder symptoms (EDS) encompass negative affect, such as depressive affect, anxious affect, and associated symptoms, such as fatigue, irritability, and insomnia (Waszczuk et al., 2017).

In discussing this literature, it is important to distinguish between types of conflict (e.g., attacking behaviours vs adaptive conflict resolution) and who is engaging in the behaviours in question (e.g., enacting conflict behaviours on your partner vs being the recipient of those behaviours). The literature has disproportionately examined the consequences of hostile conflict victimization/receiving hostile conflict behaviours. Overall, there is a robust association between romantic conflict and EDS (Whisman et al., 2000). There is evidence that the deleterious effects of conflict are stronger for more aggressive, destructive, reactive, or critical conflict behaviours (Kurdek, 1995; Londahl et al., 2005). Interestingly, these effects of aggressive conflict behaviours are often found to be similar for the recipients and the perpetrators of those behaviours, explaining significant variance in depressive symptoms in both young adults and middle adulthood (e.g., Marchand-Reilly, 2012; Marchand & Hock, 2000; Salinger et al., 2021).

A review found that marital discord (which included couple's conflict) predicted EDS (Whisman, 2013). These associations are likely bidirectional (e.g., Mackinnon et al., 2012), with evidence that EDS predict unhelpful conflict behaviours (e.g., Papp et al., 2007) and a meta-analysis demonstrating that negative conflict behaviours longitudinally

predict anxiety symptoms (Postler et al., 2022). While no meta-analysis currently exists for the specific link of conflict to depressive symptoms, a review has concluded there is strong evidence of a bidirectional relationship between conflict and depression, with stronger evidence that conflict precedes depression than depression preceding conflict (Goldfarb & Trudel, 2019). Indeed, a wide range of studies have demonstrated this effect of conflict on EDS longitudinally, using daily diary methodology, and experimentally (Du Rocher Schudlich et al., 2011; Whisman et al., 2002; Wilson & Marini, 2022). In fact, one longitudinal study found that marital conflict predicted depressive symptoms at a two year follow-up even when controlling for baseline depressive symptoms (Liu & Chen, 2006). Interestingly, these findings have been observed at the event-level for both anxiety (Laurenceau et al., 2005) and depression (Wilson & Marini, 2022).

Romantic Conflict and Substance Use

In addition to affective changes, romantic conflict is strongly associated with substance use. Meta-analysis has shown substance use (both alcohol and cannabis use) to have a reliably moderate association with conflict in the form of IPV (Cafferky et al., 2018), corroborated by more recent work, though data collection was prior to the pandemic (Cunradi et al., 2022). Additionally, this association has been shown to be bidirectional (Keller et al., 2009), with longitudinal, daily diary, and experimental evidence that alcohol and/or cannabis use increases rates of conflict (Flanagan et al., 2020b; Haydon & Salvatore, 2022; Leonard & Roberts, 1998; Quigley & Leonard, 2000; Reingle et al., 2011), and longitudinal, daily diary, and qualitative evidence that conflict is a predictor of substance use (Derrick et al., 2017; Levitt & Cooper, 2010; Shorey et al., 2016a). Overall, most of the extant research on conflict as a predictor of substance use

has focused on alcohol use, with fewer studies examining cannabis use, despite the important public health consequences of cannabis use and associated problems (Fergusson & Boden, 2008; Lowe et al., 2019).

Coping Motives

While there is evidence of a bi-directional relationship between ED and substance use (Garey et al., 2020), much research has focused on ways in which ED are risk factors for initiating, maintaining, or exacerbating substance use (e.g., Feingold et al., 2015; Garey et al., 2020). Two dominant (and compatible) theories exist to explain the link between ED and substance use: self medication, which posits that individuals may use substances for relief of distressing or unpleasant symptoms (Khantzian, 1997), and operant learning with posits that individuals are more likely to use a substance if provided negative reinforcement via alleviation of unpleasant states (Blume, 2001).

Building off the theoretical basis of the self-medication hypothesis and operant learning, an empirical and reinforcement-based model of drinking motives has been developed. Drinking motives are proposed to be motivations to use alcohol to obtain specific valued outcomes (Cooper, 1994; Cooper et al., 2016). This model consists of four motives, organized in a two-by-two structure, in which rewards may be internal or external, and in which use may result in positive reinforcement or negative reinforcement. While this theory was developed for alcohol, it has since been extended to other substances, including cannabis (Cooper et al., 2016; Simons et al., 1998). Coping motives mostly closely map onto the self-medication hypothesis and operant learning via negative reinforcement, in which individuals are theorized to drink for internal negative reinforcement – that is, to remove or reduce unpleasant internal states. Consistent with

self-medication, coping motives have reliably been found to be strongly associated with alcohol problems across a range of methodologies (Bresin & Mekawi, 2021; Mackinnon et al., 2014; Stevenson et al., 2019). The findings mirror those from the drinking motives research: cannabis coping motives predict cannabis quantity (Bonar et al., 2017), cannabis problems (Benschop et al., 2015; Bonn-Miller & Zvolensky, 2009; Fox et al., 2011; Lee et al., 2007), and more negative affect or EDS (Fox et al., 2011; Zvolensky et al., 2007). However, it is worth noting that the cannabis coping motives research has disproportionately been conducted with young adults or adolescents, including a meta-analysis (Bresin & Mekawi, 2019). Although there is some specificity found with coping with anxiety vs coping with depression motives (Chinneck et al., 2018a; Lambe et al., 2015), there is also sufficient work to suggest examining mediation collapsed across specific EDS and specific coping motives (Bravo & Pearson, 2017), consistent with the model of emotional disorders (Barlow et al., 2020).

Given the established associations between conflict and substance use, conflict and EDS, between EDS and coping motives, and coping motives and substance use, it is possible coping motives associated with EDS may explain the link between conflict and substance use.

Gender Effects

There are some notable gender differences in this literature. Overall, evidence suggests the harmful effects of conflict disproportionately affect women's EDS, particularly for attacking conflict behaviours (Kiecolt-Glaser & Newton, 2001; Levitt & Cooper, 2010; Marchand & Hock, 2000). Additionally, studies often show gendered effects in the impact of conflict on substance use; for example, conflict perpetration has

stronger associations with heavy drinking in men than women, particularly when the partner exhibits less heavy drinking (Quigley & Leonard, 2000). Less research has been conducted on cannabis use, but evidence suggests that men partner's perception of conflict may be a stronger predictor of changes in cannabis use for either partner (Testa et al., 2018b). The effect of distress predicting cannabis-related problems via coping motives has been found to be stronger for women than men (Bujarski et al., 2012) and women overall tend to report more coping motives for cannabis use (Foster et al., 2016). While at the extreme end of hostile conflict, in a sample of individuals recruited from an emergency department, one's risky cannabis use and alcohol use were independently associated with IPV perpetration for women but not for men – interestingly, one's substance use also predicted their male partner's IPV perpetration and victimization (Cunradi et al., 2022). However, gender effects on conflict behaviours and cannabis have not yet been examined in association with EDS and coping motives.

Partner Influence

It is well established that one's romantic partner influences one's own drinking behaviour (Muyingo et al., 2020). While no equivalent meta-analysis exists for partner influence on cannabis use, there is evidence that romantic partners adapt their use to match their partners (Liebregts et al., 2013). The study of one's drinking motives influencing a close other's drinking behaviour – partner influence – is more novel (e.g., Kehayes et al., 2019). Another study specifically examined couple's conflict and alcohol problems via coping motives (Lambe et al., 2015). This study recruited 100 couples in emerging adulthood and found that one's coping motives mediated the link between conflict and their own alcohol-related problems but not their partner's alcohol-related

problems. When examining mixed-gender couples, this finding was true for women but non-significant for men. In other words, this study evidenced actor effects but not partner effects. However, the sample size was possibly too small to detect partner effects, which tend to be smaller (Kenny et al., 2020). Additionally, a more recent study recruited a larger sample of adults during the first-wave lockdown in April 2020 and found actor effects in couple's conflict predicting one's own drinking behaviour via coping motives. When examining mixed-gendered couples, this study additionally found that women's coping motives were associated with more drinking in their partners (marginally significant) but men's coping motives were associated with *less* drinking in their partners (Study 1, Chapter 2; Hagen et al., 2023b).

When comparing these two studies, it is possible that partner effects were detected in one but not the other due to increased influence of one's partner during lockdown. While lockdown was an important time to study such effects, it is unknown the degree to which these findings would be found in later pandemic stages which may have decreased public health measures. Indeed, evidence suggests IPA increased during initial lockdown measures, but may not have persisted into later pandemic stages (Parrott et al., 2022). Additionally, partner influence may differ based on the alcohol-related outcome; while the Lambe (2015) paper examined alcohol-related problems, the Hagen et al. (2023b) paper (Study 1, Chapter 2) examined alcohol use. Behaviour may be more amenable to partner effects as the more proximal and directly influenced outcome.

Further, neither paper examined cannabis use, although other studies demonstrated high rates of using cannabis associated with anxiety and depression during the pandemic (Mehra et al., 2023). Lastly, EDS was considered in the extant literature,

which would theoretically link conflict and coping motives, i.e., coping motives would only be linked to conflict to the degree that conflict results in anxious or depressive symptoms that result in coping motives for alcohol and cannabis use.

Purpose of the Present Study

The current study recruited couples and cross-sectionally assessed their conflict behaviours, EDS, coping motives, and substance use behaviour. The purpose of the present study was to examine couple's conflict as a predictor of alcohol use and cannabis use as serially mediated through EDS and, in turn, coping motives using dyadic analyses to assess actor and partner effects.

Hypotheses

H1b. We hypothesized a significant serial mediation pathway from one's own conflict behaviours to alcohol use via EDS and, in turn, alcohol coping motives (actor effects) for both indistinguishable and distinguishable dyads analyses, see Figure 6.1, purple highlighted pathway.

H1b. We hypothesized a significant serial mediation pathway from one's own conflict behaviours to cannabis use via EDS and, in turn, cannabis coping motives (actor effects) for both indistinguishable and distinguishable dyads analyses, see Figure 6.1, purple highlighted pathway.

H2a. We hypothesized significant partner effects for both indistinguishable and distinguishable analyses, specifically from own motives to partner alcohol use, (Kehayes et al., 2019), see Figure 6.1, yellow highlighted pathway. However, the direction of effects (particularly gendered partner effects) were exploratory in nature due to mixed findings in the literature (Study 1, Chapter 2, Hagen et al., 2023b; Lambe et al., 2015).

H2b. We hypothesized significant partner effects for both indistinguishable and distinguishable analyses, specifically from own motives to partner cannabis use (Kehayes et al., 2019), though the direction of effects were exploratory in nature due to a dearth of similar literature.

Method

Participants

A total of 962 couples (1,924 individuals) were recruited from Canada and the United States using Qualtrics Panel for a larger study. Eligibility criteria to participate in the original study were both partners being at least 19 years of age, having at least one child in grades 1-5 (due to the aims of the larger study; Elgendi et al., (2022)), and being in the romantic relationship for at least three months. Participants were recruited and data were collected between March – June 2021. Participants were asked to retrospectively report on their behaviour and experiences during the period from January 15th – February 15th, 2021, which occurred during the "second wave" of the COVID-19 pandemic. Validity checks were included in the survey to remove invalid responses (i.e., failed attention checks, bot detection, duplicates). A total of 542 couples were removed on the basis of the validity checks (n = 429 for failing attention checks, n = 45 potential bots, n = 28 duplicate responses, n = 40 indicated they could not commit to providing thoughtful and honest answers). Additionally, 13 couples were removed through data cleaning due to improbable responses (i.e., an unlikely age for the grade of a child, discrepancies in ages reported). These couples were *not* included in the N = 962 considered eligible. See previously published work from the larger dataset for full descriptive statistics (Elgendi et al., 2022).

A subsample of 493 couples (986 individuals) was included in the current analyses. These couples were selected based on the criteria that both participants must have used either alcohol and/or cannabis during the January 15th – February 15th, 2021, reporting period. References to the "study participants" and "the sample" will be referring to this subsample for the remainder of the paper.

Individuals in the sample had an average age of 37.98 (*SD* = 6.90) years, were predominately White (77.2%), were fairly evenly split by gender (women = 52.1%) and were predominantly in mixed-gender relationships (94.3%). Additionally, the sample was highly educated, with 77.2% of individuals reporting at least a college/university degree.

Additional descriptives statistics for the current subsample and the excluded subsample can be found in Table 6.1Table 6.1 Comparison of Continuous Demographic Variables by Included vs. Excluded Participants , including comparison of continuous demographic variables by subsample. Overall, those included (in any of the present analyses) were significantly more educated and reported higher income than those from the larger study who were excluded (Table 6.3). Additionally, *t*-tests were run on continuous demographic variables to compare the included couples and excluded couples (Table 6.1). Those included reported significantly more conflict behaviours, and more emotional disorder symptoms than those who were excluded. Additionally, those included also reported higher rates of virtually all substance use variables except for coping motives, which is not surprising as frequency of substance use was the basis for inclusion.

Measures

Demographics Questionnaire

Participants reported demographic information, such as age, gender and sex, education level, income, and ethnicity. See Table 6.1, Table 6.2, and Table 6.3 for a summary of demographics information.

Dyadic Hostile Conflict

Dyadic hostile conflict was assessed with the Partner-Specific Rejecting Behaviours Scale (Murray et al., 2003). Participants self-reported their own hostile conflict behaviour (e.g., aggressive, critical behaviours) towards their partner on a 9-point Likert scale, from *1-strongly disagree* to *9-strongly agree.* This 7-item measure includes items like "I snapped or yelled at my partner," and "I insulted my partner." Partner reports of those included in the current analyses were highly correlated with each other, $r = .78$, $p < .001$, and thus were averaged. Table 6.4 contains the internal consistency for the current sample.

Emotional Disorder Symptoms

Emotional disorder symptoms (EDS) were measured using the Patient Health Questionnaire – Anxiety and Depression Scale (PHQ-ADS; Kroenke et al., 2016).[1] This

[1] The current battery included the Short Form Perceived Stress Scale Warttig, S. L., Forshaw, M. J., South, J., & White, A. K. (2013). New, normative, English-sample data for the Short Form Perceived Stress Scale (PSS-4). *Journal of Health Psychology, 18*(12), 1617-1628. https://doi.org/10.1177/1359105313508346 . It contains four items assessing the frequency of indices of stress (e.g., *'how often have you felt difficulties were piling up so high that you could not overcome them?'*), two of which are reverse coded. Items are queried in the last month and rated on a 5-point scale from *0-never* to *4-very often*. This scale has demonstrated adequate psychometric properties, e.g., $\alpha = .77$. However, when these properties were probed in the current sample, they were found to be unacceptable, $\alpha = .54$. Additionally, the scale was found to have a two-factor structure, wherein the two positively and two negatively coded items loaded onto separate factors, inconsistent with the original validation which found a single factor structure. Moreover, a factor analysis was run on the GAD-7, PHQ-9, and PSS scale in the current sample. A CFA yielded a two-factor structure. The first factor included all items from the GAD-7 and the PHQ-9 and the two negatively-

measure combines a validated measure of depressive symptoms, the Patient Health Questionnaire – 9 (PHQ-9), and a validated measure of anxiety symptoms, the Generalized Anxiety Disorder Screener (GAD-7), using a sum score (Kroenke et al., 2001; Löwe et al., 2008). These two measures showed strong correlation in the current sample ($r = .86$, $p < .001$) and uni-dimensionality in a factor analysis. For both questionnaires, each item is a symptom of major depressive disorder or generalized anxiety disorder in the DSM-5 (American Psychiatric Association, 2013) and is scored on a 4-point scale of the frequency of each symptom in the prior two weeks, where in *0 – not at all, 1 – several days, 2 – more than half of days, 3 – nearly every day*. Combining them yields total scores from 0 – 48 wherein higher scores indicate more severe EDS. The PHQ-ADS has demonstrated strong psychometric properties, e.g., $\alpha = .917$, convergent validity, construct validity (Kroenke et al., 2016). Psychometric properties in the current sample can be found in Table 6.4.

Coping Motives

Coping motives were assessed using the validated coping items from the Brief Alcohol Motive Measure and the Brief Cannabis Motive Measure (BAMM & BCAMM; Bartel et al., 2023). These two brief measures were adapted from validated full measures of drinking motives and cannabis motives (Grant et al., 2007; Simons et al., 1998). For those who reported using alcohol and/or cannabis during the response period, participants were prompted to report how often they drank or used cannabis, respectively, for coping with anxiety (i.e., *to help me cope when feeling nervous, anxious, or tense*) and coping

scored items from the PSS while the second factor consisted of the two reverse-scored items from the PSS. Due to this factor structure and low internal consistency, we opted to not include the PSS in the current analyses, and thus it will not be considered further.

with depression (i.e., *to help me cope when feeling sad, down, or blue*) motives on a visual analogue scale from *never (scored as 0)* to *always (scored as 100)*. The two scores were averaged and divided by ten. Coping items correlated at $r = .707$ for cannabis coping motives and at $r = .811$ for alcohol coping motives, ps $<.001$. Psychometric properties are reported below.

Alcohol Use

The Quantity/Frequency/Peak Alcohol Use Index (Dimeff, 1999) was used to measure alcohol use, yielding several variables. Frequency was assessed via 11 discrete response options for the specified period, ranging from "I did not drink at all" to "every day" and translated into corresponding values (i.e., drinking days per month) from 0 – 30. Peak alcohol was measured by asking participants to indicate the number of drinks consumed on the day that they drank the most in the specified period, with options ranging from 1 to 25+. Binge drinking was measured by asking participants to indicate the number of days in the specified period in which they consumed more than 4 drinks (for those assigned female at birth) or 5 drinks (for those assigned male at birth) within two hours, with options ranging from 0 to 8. Instructions for what to consider as a standard drink were provided. See Table 6.4 for mean alcohol use in the current sample. All three variables were combined in a latent variable for analyses.

Cannabis Use

Cannabis use was assessed using the frequency and quantity items from the Daily Sessions, Frequency, Age of Onset, and Quantity of Cannabis Use Inventory (Cuttler & Spradlin, 2017). The frequency question provides 16 options, ranging from "I did not use cannabis" to "15+ times a day." For simplicity of analyses and interpretation, these

responses were transformed (see Bernusky et al., 2023) to be consistent with the frequency categories from the Cannabis Use Disorder Identification Test (CUDIT) – *0 – never*, *1 – monthly or less*, *2 – 2-4 times a month, 3 – 2-3 times per week, 4 – 4 or more times per week* (Adamson & Sellman, 2003). Cannabis quantity was assessed by asking participants to indicate the number of grams of cannabis used in a typical session (in the reporting period) between 0-100 grams on a sliding scale. A conversion chart between fractions to decimal places (in grams) and between ounces to grams was provided. Cannabis quantity was winsorized (top and bottom 20%) due to the prevalence of outliers, resulting in an upper limit of 30 grams, consistent with previous reports of heavy cannabis users (Caulkins et al., 2020). Cannabis use was calculated by taking the product of cannabis quantity and frequency.

Procedure

Participants were recruited, compensated, and completed measures using Qualtrics Panels. A subset of the sample of voluntary homeschoolers (n =191 couples) were recruited from homeschooling organizations due to low recruitment from Qualtrics Panels for this group for the purposes of the larger study (Elgendi et al., 2022). Interested participants were screened for eligibility; those who were eligible and indicated their partner would be interested in completing the survey then provided informed consent to participate. Both members answered the same measures within 48 hours of each other, except for the screening questions (only the original respondent). The study was approved by the Social Sciences and Humanities Research Ethics Board at Dalhousie University (REB# 2020-5336).

Data analysis

Data were analyzed using Stata 17.0 and SPSS version 26. The hypothesis tests consisted of four Actor-Partner Interdependence Models (APIM), examining alcohol use and cannabis use as outcome variables, using both non-gendered (indistinguishable dyads) and gendered (distinguishable dyads) analyses for each outcome (Kenny et al., 2020). All four models examine a serial mediation pathway from dyadic hostile conflict to the substance-related variable via EDS and, in turn, coping motives. All models covaried age.

APIM estimates actor (degree to which one's own predictor is associated with one's own outcome) and partner effects (degree to which one's partner's predictor is associated with one's own outcome). First, APIM analyses were run in which each partner's effects (component and mediational pathways) were constrained to be equal (i.e., between Partner A and Partner B). Next, the same models were run with only those in mixed-gender relationships, in which women were assigned to be Partner A and men to be Partner B (i.e., distinguishing by gender), allowing for the examination of gendered effects in the component and mediational pathways. For the distinguishable (by gender) dyads analysis, individuals were included in these analyses if one member of the couple identified as a man and the other member of the couple identified as a woman, regardless of sex assigned at birth.[2]

[2] In the cases where one or more member of a couple identified as non-binary, the couple was not included in the distinguishable (by gender) dyads analyses, even if the individuals reported different sexes assigned at birth (i.e., one male and one female) and even if the couple reported being in an mixed-gendered relationship.

Both outcome variables had non-normal distributions (positively skewed) and consisted of integers.[3] Cannabis use was multiplied by 1000 to yield only integers. Thus, generalized structural equation models using a negative binomial distribution for the outcome variables were employed. The models were run using listwise deletion; however, no cases were removed during analyses due to the subsample used and no missing data (see above).

Mediational pathways were run using bootstrapping with 1000 resamples. Due to the negative binomial distribution resulting in log-linked beta coefficients, the coefficients were exponentiated for interpretation. This results in incidence rate ratios (IRRs), which indicate the percent change in the outcome variable (i.e., alcohol or cannabis use) per one unit increase in the predictor (i.e., dyadic hostile conflict). IRR values surround the number one; thus, the coefficient is significant if the 95% confidence intervals do not cross one. For instance, an IRR of 1.15 would indicate that drinking behaviour increases by 15% per one unit increase in dyadic hostile conflict.

Results

Alcohol Use – Indistinguishable Analyses (*N* = 437 couples)

Within the latent variable of drinking, frequency was constrained to load at $b = 1.000$, while peak quantity loaded at $b = 1.387$, *95%CIs* [1.127, 1.646], $SE = .132$, $p < .001$ and binge frequency significantly loaded at $b = 1.383$, *95%CIs* [1.080, 1.687], $SE = .155$, $p < 0.001$. Age was a not significant covariate, $b = 0.005$, *95%CIs* [-.004, 0.015], $SE = 0.005$, $p = .243$. See

Figure 6.2 for all standardized path coefficients.

Dyadic hostile conflict significantly predicted one's own EDS, $b = 0.437$, *95%CIs* [0.388, 0.487], $SE = 0.025$, $p < .001$. In turn, one's own EDS significantly predicted one's own coping motives, $b = 0.105$, *95%CIs* [0.082, 0.128], $SE = 0.012$, $p < .001$, and one' own coping motives significantly predicted one's own alcohol use, $b = 0.075$, *95%CIs* [0.049,

[3] Integers are required for a negative binomial distribution Hilbe, J. M. (2012). Negative binomial regression. In J. M. Hilbe (Ed.), *Negative binomial regression* (pp. 77-98). Cambridge University Press.

0.102], *SE* = 0.014, *p* < .001. Additionally, after controlling EDS, dyadic hostile conflict significantly predicted coping motives, *b* = 0.032, *95%CIs* [0.010, 0.053], *SE* = 0.011, *p* = .004. All other paths were non-significant, including all partner effect paths (

Figure 6.2).

The direct and indirect mediational pathways appear in Table 6.5. The mediation model was significant for actor effects: dyadic hostile conflict predicted one's own alcohol use as serially mediated via one's EDS and, in turn, one's own coping motives. Additionally, each component part of this serial mediation pathway was found to be significant (i.e., conflict to EDS to coping motives; EDS to coping motives to alcohol use). Lastly, dyadic hostile conflict also predicted alcohol use via one's own coping motives, even when EDS were controlled; however, the single mediational pathway via EDS was not significant. No other mediational pathways were significant, including all partner effect pathways. The direct effect of conflict to alcohol use was not significant after accounting for the other paths. Overall, including direct and indirect pathways, this model resulted in a total effect IRR value of 1.11. In other words, every unit increase in conflict predicted an 11% increase in alcohol use both directly and via the mediators.

Alcohol Use – Distinguishable Analyses (*N* = 364 mixed-gender couples)

Within the latent variable of drinking, drinking frequency was constrained to load at *b* = 1.00 for men and women. For women, peak quantity significantly loaded at *b* = 0.741, *95%CIs* [0.689, 0.793], *SE* = 0.027, *p* < .001, and binge drinking frequency significantly loaded at *b* = 0.341, *95%CIs* [0.284, 0.398], *SE* = 0.029, *p* <.001. For men, peak quantity significantly loaded at *b* = 0.797, *95%CIs* [0.724, 0.810], *SE* = 0.022, *p* < .001, and binge drinking frequency significantly loaded at *b* = 0.423, *95%CIs* [0.381, 0.466], *SE* = 0.022, *p* < .001. Age was a significant covariate for both men, *b* = 0.040, *95%CIs* [0.039, 0.044], *SE* = 0.002, *p* < .001, and women, *b* = 0.032, *95%CIs* [0.027, 0.037], *SE* = 0.003, *p* < .001. See

Figure 6.2 for all standardized path coefficients.

Dyadic hostile conflict significantly predicted both women's EDS, *b* = .385, *95%CIs* [.321, .448], *SE* = .032, *p* < .001, and men's EDS, *b* = .486, *95%CIs* [.427,

0.545], *SE* = .030, $p < .001$. Surprisingly, EDS did not significantly predict one's own coping motives for either women $b = .099$, *95%CIs* [-.028, .225], *SE* = .065, $p = .127$, or men, $b = .125$, *95%CIs* [-.086, .336], *SE* = .108, $p = .247$. However, coping motives were found to be a significant predictor of one's own drinking behaviour for both women, $b = .102$, *95%CIs* [.056, .147], *SE* = .023, $p < .001$, and men, $b = .129$, *95%CIs* [.089, .167], *SE* = .020, $p < .001$. Lastly, EDS was a significant predictor of drinking behaviour, even after accounting for coping motives, for women only, $b = .015$, *95%CIs* [.0002, .030], *SE* = .007, $p = .046$. All other paths were non-significant (

Figure 6.2).

The direct and indirect mediational pathways appear in Table 6.6. The full serial mediation pathway for actors (from dyadic hostile conflict to one's own EDS to one's own coping motives to one's own drinking) was significant for both women and men. Additionally, the component pathways (i.e., conflict to EDS to coping motives; EDS to coping motives to alcohol use) of this serial mediation were significant for both women and men. Notably, the single mediational pathway from dyadic hostile conflict to one's own coping motives to one's own drinking (i.e., not including EDS) was significant for women but not men. Additionally, the direct path from dyadic hostile conflict to coping motives was significant for women but not men. No other mediational pathways were significant, including all partner effect pathways. Overall, including direct and indirect pathways, this model resulted in a total effect IRR value of 1.12 for women's alcohol use and 1.13 for men's alcohol use. In other words, every unit increase in dyadic hostile conflict predicted an 12% (women) -13% (men) increase in alcohol use.

Cannabis Use – Indistinguishable Analyses (*N* = 184 couples)

Dyadic hostile conflict significantly predicted one's own EDS, *b* = .400, *95%CIs* [.322, .479], *SE* = .040, *p* < .001. Additionally, one's own EDS significantly predicted one's own coping motives, *b* = .106, *95%CIs* [.070, .142], *SE* = .018, *p* < .001, and one's own coping motives predicted one's own cannabis use, *b* = .125, *95%CIs* [.071, .179], *SE* = .028, *p* < .001. Further, one's own coping motives also predicted one's partner's cannabis use, *b* = .113, *95%CIs* [.065, .160], *SE* = .024, *p* < .001. All other effects were non-significant (

Figure 6.3**Error! Reference source not found.**).

The direct and indirect mediational pathways appear in Table 6.7. Overall, the hypothesized serial mediational pathway for actor effects (dyadic hostile conflict to one's own EDS to one's own coping motives to one's own cannabis use) was significant, as well as the pathway's component parts (i.e., dyadic hostile conflict to EDS to coping motives; EDS to coping motives to cannabis use). Additionally, this model found evidence of partner effects, in which dyadic hostile conflict predicted one's own EDS, which in turn predicted one's own coping motives, which in turn predicted one's *partner's* cannabis use. The novel component pathway (i.e., own EDS to own coping motives to partner's cannabis use) was also significant.

Overall, including direct and indirect effects, this model resulted in a total effect IRR value of 1.08. In other words, every unit increase in dyadic hostile conflict predicted an 8% increase in cannabis use both directly and via the mediators.

Cannabis Use – Distinguishable Analyses (*N* = 133 mixed-gender couples[4])

Dyadic hostile conflict predicted own EDS for both women, *b* = .349, *95%CIs* [.253, .444], *SE* = .049, *p* < .001, and men, *b* = .446, *95%CIs* [.349, .543], *SE* = .049, *p* < .001. For women, own EDS predicted their own coping motives, *b* = .152, *95%CIs* [.104,

[4] A disproportionate number of same-gender couples in the overall sample are concordant cannabis users (i.e., both members reported cannabis use). This is particularly the case for same-gender couples in which both members are men; these couples make up 7% of the total dataset but 20% of the sub-sample for the indistinguishable cannabis model, whereas couples made up of two women account for 6% of the total dataset and 8% of the sample in the indistinguishable model. This makes the indistinguishable cannabis analyses made up of disproportionately men relative to the whole sample.

.199], *SE* = .024, $p < .001$, and own coping motives predicted their own cannabis use, *b* = .202, *95%CIs* [.089, .316], *SE* = .058, $p < .001$. Contrary to hypothesis, the equivalent pathways for men were not significant, i.e., EDS to coping motives, *b* = .054, *95%CIs* [-.039, .147], *SE* = .048, *p* = .258, or coping motives to cannabis use, *b* = .043, *95%CIs* [-.084, .170], *SE* = .065, *p* = .506. Additionally, two partner effects were detected. Men's EDS predicted women's coping motives, *b* = .044, *95%CIs* [.011, .078], *SE* = .017, *p* = .011, and women's coping motives predicted men's cannabis use, *b* = .153, *95%CIs* [.050, .255], *SE* = .052, *p* = .003. All other pathways were non-significant (

Figure 6.3**Error! Reference source not found.**).

The direct and indirect mediational pathways appear in Table 6.8. The serial mediation actor pathway from dyadic hostile conflict to cannabis use via EDS and coping motives was significant for women but, unexpectedly, not for men. The difference between these gendered mediational pathways was itself non-significant, however. The component pathways (conflict to EDS to coping; EDS to coping to cannabis use) were also significant for women, non-significant for men, but non-significantly different from each other. Additionally, partner effects were found. While the chained mediational pathway from dyadic hostile conflict to men's cannabis use via women's EDS and in turn women' coping motives was marginally significant (*p* = .050), the component mediational pathway from women's EDS to men's cannabis use via women's coping motives was significant. Lastly, men's EDS predicted women's cannabis use; the opposite pathway (women's EDS to men's cannabis use) was non-significant.

Overall, including direct and indirect pathways, this model resulted in a total effect IRR of 1.10 for women's cannabis use and 1.09 for men's cannabis use. In other words, every unit increase in dyadic hostile conflict predicted a 9% (men) - 10% (women) increase in cannabis use both directly and via the mediators.

Discussion

The current study examined dyadic hostile conflict as a predictor of alcohol and cannabis use sequentially via EDS and coping motives. Overall, we found support for this serial mediation model for actors, predicting both alcohol and cannabis use. Additionally, partner effects were detected for cannabis, but not alcohol, use. Some gender differences were found as discussed below.

Alcohol Use

The hypothesized serial mediational pathway (H1a) for actors from dyadic hostile conflict to one's own alcohol use via one's own EDS and coping motives was supported in the indistinguishable dyads model and for both men and women in the distinguishable dyads model. This is consistent with previous findings in this area (Study 1, Chapter 2, Hagen et al., 2023b; Lambe et al., 2015); however, the current findings build upon this literature in several important ways. Namely, literature has examined coping motives as a mediator but has not examined EDS, nor the serial mediation pathway. Additionally, the current study was not limited to young adults, which was the case in the Lambe et al. (2015) study. Furthermore, this study extends findings to a period of the pandemic with less severe restrictions relative to an earlier pandemic study (Study 1, Chapter 2, Hagen et al., 2023b). The current findings support coping motivated use as an important link to explain the associations between dyadic hostile conflict, EDS, and alcohol use. This is consistent with the theory of substance use motives in that motives are the final common pathway to substance use, through which other distal factors exert effects – dyadic hostile conflict, in this case (Cooper et al., 1995).

Additionally, the component pathway from EDS to coping motives to alcohol use was also significant in both models. This is consistent with the aims of this study – to examine one possible stressor that activates or exacerbates EDS. Thus, it is to be expected that important variance remains in this pathway after accounting for the role of dyadic hostile conflict as many antecedents other than dyadic hostile conflict may also activate or exacerbate EDS.

Unexpectedly, a single mediational pathway was significant in the indistinguishable dyads model – from dyadic hostile conflict to alcohol use via coping motives, after controlling for EDS. This implies that individuals were experiencing distress associated with conflict, and that this distress drove coping motivated use that is not captured by the measures used for EDS. One possibility is that individuals drink to cope more so with negative affect related to conflict than nonaffective EDS (e.g., insomnia, negative self-thinking), and thus the variance from EDS did not load onto coping motives as strongly as had been expected. However, given the extensive literature linking aggressive conflict behaviours and EDS, it seems likely that conflict is associated with EDS beyond negative affect. Another possibility is a mismatch between our measure of EDS, which included a wide range of symptoms, and our measure of coping motives. The items used for coping motives in the current study only includes affect-related items (i.e., "nervous, anxious, or tense," and "sad, down, or blue"), whereas the full DMQ-R includes cognitive items that overlap more with the range of EDS, such as "to forget my worries" and "to turn off negative thoughts about myself" (Grant et al., 2007).

This single mediator pathway (conflict to coping motives to alcohol use) was significant for women but not for men. This is consistent with previous findings that

women may engage in more coping motivated alcohol use related to relationship distress (Levitt & Cooper, 2010). However, we caution against over-interpretation of this women-specific finding as the current data did not support a significant gender difference in the magnitude of this mediated effect.

Notably, particularly when interpreting the individual effect paths, the standard errors in the distinguishable dyads model were larger than in the indistinguishable dyads model, which may explain why similar betas were non-significant in the former but significant in the latter (e.g., between EDS and one's own coping motives for both women and men). No significant partner effects were found predicting alcohol use, which will be discussed further below.

Cannabis Use

Consistent with our hypothesis (H1b), the serial mediational actor pathway from dyadic hostile conflict to cannabis use via one's own EDS and coping motives was significant. Additionally, the two component pathways (conflict to EDS to coping motives; EDS to coping motives to cannabis use) were both significant.

These results help link the association between romantic conflict and cannabis use – specifically suggesting romantic conflict may be a risk factor for cannabis use due to EDS following conflict and subsequent coping motives for use. This novel finding extends the alcohol literature and suggests shared mechanisms for alcohol and cannabis use, consistent with other substance use risk factors such as personality (Woicik et al., 2009). This study is the first to examine cannabis in this pathway. During the stressors of the pandemic, in the context of which cannabis use increased (Cousijn et al., 2021;

Schauer et al., 2021), dyadic hostile conflict was associated with higher cannabis use via higher EDS and, in turn, more coping motives for cannabis use.

The component pathways suggest that individuals experience distress and associated motivation to use cannabis to cope with conflict that may not necessarily translate into increased overall cannabis use behaviour. Additionally, it suggests, as one would expect, that individuals are experiencing EDS and coping motives associated with cannabis use above and beyond the degree to which that is influenced by conflict. This would be expected, since conflict is one of several stressors that may activate this chain (e.g., pandemic stressors may similarly activate EDS; Rossi et al., 2020).

The serial mediation pathway and two component pathways were significant for women but not for men; however, the magnitude of each pathway for men and women was not significantly different from each other, suggesting that any gender differences in this effect may be small. Gender differences are somewhat consistent with previous studies, which have demonstrated that women are significantly more likely to use cannabis to self-medicate than men in samples of young adults (Terry-McElrath et al., 2010; Wallis et al., 2022) and that women overall experience more deleterious consequences due to relationship disharmony than men (Kiecolt-Glaser & Newton, 2001; Wanic & Kulik, 2011). The current study extends these findings to a sample of middle-aged cannabis users and by linking these relevant variables in a serial mediational pathway and demonstrating that this pathway was only significant for women.

Partner Effects

Contrary to Hypothesis (H2a), but consistent with Lambe et al. (2015), no partner effects were found predicting alcohol use. It is possible that partner effects, if present, are

small, and thus only likely to be detected during times of heightened partner influence (e.g., lockdown measures in the spring of 2020), as seen in an earlier pandemic study (Study 1, Chapter 2, Hagen et al., 2023b).

However, consistent with hypotheses (H2b), partner effects were detected for cannabis use . Specifically, a serial mediation partner effect was found in which conflict was associated with one's own EDS and coping motives which predicted one's *partner's* cannabis use. This was only significant in the indistinguishable dyads model; however, the pathway via women's EDS and coping motives predicting men's cannabis use was marginally significant ($p = .050$) in the less powered distinguishable dyads model. This suggests that conflict to women's EDS and coping motives predicting men's cannabis use may have been driving the significant pathway in the indistinguishable dyads model. This additionally suggests that partner influence may be strongest via motives for use, i.e., one's partner's motives influencing the other's substance behaviour. In terms of how such a partner influence effect might operate, prior research suggests it is through partners influencing one another's motives for drinking and, in turn, own motives influencing own substance use behaviour (Kehayes et al., 2019).

Additionally, a significant partner single mediator pathway was found from EDS to coping motives to one's *partner's* cannabis use, and this appeared to be significant in predicting men's cannabis use but not women's. The difference between the two gendered pathways was itself nonsignificant, however. Women's distress and coping motives being risky for their men partner's substance use is consistent with previous findings collected earlier in the pandemic during lockdown (Study 1, Chapter 2, Hagen et al., 2023b). However, a component path, from men's EDS to women's cannabis use, was

positive and significant, and this pathway was not significant for either women's EDS to men's cannabis use or in the indistinguishable dyads model that did not consider gender. Additionally, this pathway was marginally significant (p = .055) when dyadic hostile conflict was included as a predictor. Thus, it appears that men's *symptoms of emotional disorders* were risky for women's cannabis use (and to a lesser degree, when men's EDS were associated with conflict). However, men's *coping motives* (associated with their own symptoms) had a minimal effect on women's cannabis use. The opposite appears to be true for men: women's EDS had minimal effect on men's cannabis use, but women's coping motives (associated with their own EDS) were a strong predictor of men's cannabis use. Thus, it appears that women may be more responsive to their partner's distress, but that men may be more sensitive to women's motives for cannabis use.

Overall, the above results suggest that women's cannabis coping motives are robust predictors of both partners' cannabis use, whereas men's cannabis coping motives are not. One's own coping motives being a stronger predictor of addictive behaviours in women compared to men has been established with other addictive behaviours, such as gambling and alcohol (Hussong, 2007; Stewart & Zack, 2008), as well as cannabis (Bujarski et al., 2012). These findings extend this phenomenon to women's mixed-gendered partners as well.

These results suggest that among partners who both use the same substance, partner influence may be stronger for cannabis than for alcohol use, though no direct statistical comparisons were made between the two models.[5] One explanation may be

[5] Direct comparisons between alcohol use and cannabis use were not conducted as the two samples have a combination of overlapping and non-overlapping couples, which would result in a combination of between-subjects and within-subjects comparison. Analysing only the couples in both models would be too underpowered to allow for meaningful comparison.

substance-use partnerships. Drinking partnerships are well established, in which couples have more similar drinking profiles when they engage in more drinking behaviour together (Kehayes et al., 2017; Roberts & Leonard, 1998). Less is known about cannabis-use partnerships, though there is evidence that using cannabis with others may be more negatively reinforcing of negative affect than using alone (Denson et al., 2023), that using alone vs with others is associated with more severe EDS (Spinella et al., 2019), and that discrepant use between partners is associated with more individual and couple-level adverse consequences (Crane et al., 2016; Leonard et al., 2014; Testa et al., 2018b).[6] It is possible that couples experience cannabis-use partnerships and that those in such partnerships exert stronger partner influence than drinking partnerships.

Limitations and Future Directions

There are several important limitations to note. Primarily, the current data are cross-sectional, preventing causal or even temporal interpretations. However, some statisticians have argued that cross-sectional mediation can be justified as long as findings are interpreted with appropriate caution, and particularly as an iterative contribution to the literature (Hayes & Rockwood, 2020). Thus, while interpretations are limited, the findings in this study provide an important basis to next confirm these hypotheses with longitudinal designs such as cross-lagged panel analysis, longitudinal APIMs, or daily diary studies. The data is also self-report, which may be a particular limitation with socially undesirable behaviour (i.e., enacting hostile conflict behaviours). However, self-reported survey methods with assurances of confidentiality have been

[6] Some findings conversely suggest less harm associated with discrepant use Tucker, J. S., Troxel, W. M., Rodriguez, A., Seelam, R., & D'Amico, E. J. (2023). Alcohol and cannabis use within emerging adults' committed romantic relationships: Associations with relationship functioning and quality of life. *Emerging Adulthood, 11*(3), 698-703. https://doi.org/10.1177/21676968221149079 .

found to be the most effective way to reduce socially desirable reporting bias, as done in the current study (Tourangeau & Yan, 2007).

Due to statistical limitations, the distinguishable (by gender) dyad analyses excluded same-gendered couples. This resulted both in a lack of generalizability to important populations (e.g., those susceptible to higher rates of IPV; Rolle et al., 2018) and in lower statistical power relative to the more inclusive indistinguishable dyads analyses. Further, limiting our gendered analyses to mixed-gender couples also confounded our gendered interpretations: for instance, our finding that women reported higher rates of alcohol use in response to their men partner's EDS could reflect that women engage in more alcohol use when their partners have greater EDS and/or that the partners of men with greater EDS engage in more alcohol use. Larger samples that over-recruit same-gender couples would be required to elucidate this (see Umberson et al. (2020) for an example).

Due to our desire to examine coping motives as the most proximal mediator (and the inability to meaningfully measure coping motives for those not using substances in the period of interest), our analyses were also limited to couples in which *both* partners use the same substance (that is, both using alcohol or both using cannabis). Thus, these results may not generalize to couples in which one partner uses and the other abstains or where one uses one substance and the other uses the other substance; additionally, our analyses may have missed important effects in such couples. Prior research has shown higher rates of conflict in couples with discordant substance use (Crane et al., 2016; Testa et al., 2018b), though some evidence has found that concordant high cannabis use is additionally risky (Cunradi et al., 2015). Additionally, previous research has shown

couples with mismatched substance use to be particularly at risk for aggressive conflict behaviours (Quigley & Leonard, 2000).

There are also measurement limitations to note. Our measure of coping motives (Bartel et al., 2023) was brief and thus may have missed variance associated with coping with EDS other than negative affect. Future studies would need to use the long-forms of drinking and cannabis motives measures (Grant et al., 2007; Simons et al., 1998) to ascertain if the effects found in this study are driven by motives to cope with affect or a range of symptoms associated with emotional disorders. Additionally, the way cannabis quantity was measured, although previously used (Adamson & Sellman, 2003; Bernusky et al., 2023), likely introduced error. Measurement of cannabis dose is difficult due to the lack of standardization of product, multiple routes of administration, and varying concentrations of psychoactive ingredients. Despite these challenges, many criticize the predominance of assessing frequency but not quantity (Asbridge et al., 2014). Indeed, research has shown that quantity is an important predictor of cannabis-related problems, even after controlling for frequency (Zeisser et al., 2011). Some newer methods of measuring cannabis appear promising, such as the Cannabis Engagement Assessment (Schluter & Hodgins, 2022); additionally, the Timeline Follow-Back has been validated to measure cannabis quantity accurately (Hjorthoj et al., 2012; Sobell & Sobell, 1992). However, both measures are relatively time consuming, which was not possible given the need to collect data quickly during the pandemic timeframe of interest.

These results have important implications for public health as well as individual and couples' interventions. Overall, dyadic hostile conflict is an important risk factor for individual substance use behaviour – both for alcohol and cannabis. The chained

mediational results suggests that among individuals experiencing dyadic hostile conflict, targeting EDS and coping motives in treatment may be helpful in preventing or treating risky alcohol and/or cannabis use. The gendered findings suggest that women experiencing dyadic hostile conflict may particularly benefit from interventions that target coping motives for substance use. It appears that substance use may be more likely to result from additional dyadic processes (i.e., one's cannabis use associated with their partner's coping motives or EDS), particularly for cannabis use and particularly for women's cannabis coping motives specifically. Thus, intervening at the level of the couple (as opposed to individual level intervention) may be most effective due to the dyadic processes.

Table 6.1 Comparison of Continuous Demographic Variables by Included vs. Excluded Participants

	Included sample	Excluded sample	*t*	*p*
Age	37.98 (6.90)	38.55 (6.62)	1.87	.062
Dyadic hostile conflict	22.40 (15.07)	18.61 (13.32)	-5.82	<.001
Emotional disorder symptoms	13.01 (10.45)	10.66 (10.16)	-5.01	<.001
Alcohol coping motives	3.48 (3.03)	3.04 (2.98)	-1.86	.064
Cannabis coping motives	5.18 (2.80)	4.72 (3.10)	-.131	.192
Alcohol frequency	7.55 (7.15)	1.44 (4.30)	-20.90	<.001
Alcohol peak	5.01 (5.02)	4.08 (4.90)	-2.38	.017
Alcohol binge	2.20 (2.27)	1.43 (1.89)	-4.54	<.001
Cannabis frequency (CUDIT)	1.20 (1.48)	.23 (.83)	-17.64	<.001
Cannabis quantity (winsorized)	7.98 (9.66)	5.29 (7.72)	-2.30	.022
Cannabis use combined variable	21.93 (30.34)	15.32 (25.59)	-1.79	.073

Note. CUDIT = Cannabis Use Disorder Identification Test.

Table 6.2. Ethnicity of Individuals in Included Participants

	n (%) that identified only as that group	*n* (%) that identified as multiple ethnicities and identified as that group	Total *n* (%)
White	761 (77.19)	27 (2.74)	788 (79.93)
Latin American	36 (3.66)	8 (0.81)	44 (4.47)
South Asian	30 (3.04)	3 (0.3)	33 (3.34)
Chinese	30 (3.04)	6 (0.61)	36 (3.65)
Indigenous	26 (2.64)	19 (1.93)	45 (4.57)
Black	23 (2.33)	7 (0.71)	30 (3.04)
Filipino	12 (1.22)	3 (0.3)	15 (1.52)
Arab/West Asian	6 (0.61)	1 (0.1)	7 (0.71)
Southeast Asian	6 (0.61)	3 (0.3)	9 (0.91)
Japanese	5 (0.51)	3 (0.3)	8 (0.81)
Korean	2 (0.2)	5 (0.51)	7 (0.71)
Jewish	3 (0.3)	0 (0)	3 (0.3)
West Indian	1 (0.1)	0 (0)	1 (0.1)
Prefer not to say	8 (0.81)	0 (0)	8 (0.81)
Identified multiple ethnicities	37 (3.72)	n/a	n/a

Note: six individuals identified as “other: Canadian”, who were coded as “White”. Total column will add up to more than 100%.

Table 6.3. Comparison Included vs. Excluded Couples for Categorical Demographic Variables

Characteristic	*n* (%)	Chi square	*p*-value
Gender		5.58	.135
Women	514 (52.1)		
Men	471 (47.8)		
Other	1 (0.1)		
Education Level		37.05	<.001
Some high school	24 (2.4)		
High school graduate	86 (8.7)		
Some college/university	115 (11.7)		
College/university graduate	488 (49.5)		
Some post-graduate	63 (6.39)		
Post-graduate degree	210 (21.3)		
Income		66.31	<.001
< $25,000	35 (3.6)		
$26,000 - $50,000	96 (9.7)		
$51,000 - $75,000	161 (16.3)		
$76,000 - $100,000	186 (18.9)		
$101,000 - $125,000	132 (13.4)		
$126,000 - $150,000	165 (16.7)		
$150,000 +	175 (17.8)		
Prefer not to answer	36 (3.7)		
Lives with children		1.06	.303
Yes	771 (78.2)		
No	215 (21.8)		

Table 6.4. Correlations Table

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Dyadic hostile conflict	-									
2. Emotional disorder symptoms	.580***	-								
3. Alcohol coping motives	.390***	.491***	-							
4. Cannabis coping motives	.210***	.395***	.641***	-						
5. Alcohol frequency	.044	.105**	.232***	.100*	-					
6. Alcohol peak	.106**	.134***	.247***	.201***	.343***	-				
7. Alcohol binge frequency	.246***	.258***	.425***	.223***	.300***	.402***	-			
8. Cannabis frequency (1-4 scale)	.345***	.359***	.343***	.288***	.058	.165***	.327***	-		
9. Cannabis quantity (winsorized)	.131**	.158***	.327***	.342***	.105*	.229***	.223***	.129**	-	
10. Cannabis use (freq*quant)	.139**	.186***	.281***	.368***	.186***	.307***	.257***	.376***	.902***	-
M (SD)	22.40 (15.07)	13.01 (10.45)	3.48 (3.03)	5.18 (2.80)	7.59 (7.98)	5.01 (5.02)	2.20 (2.27)	1.20 (1.48)	7.98 (9.91)	21.93 (31.00)
Range	7-63	0-48	0-10	0-10	0-30	0-25	0-8	0-4	.15-28	.15-112
Cronbach's alpha	.955	.951	.896	.828	n/a	n/a	n/a	n/a	n/a	n/a

Note. Correlation matrix for $n = 986$ individual participants included in any of the GSEM models; $p < .05$*, $p < 0.01$**, $p < .001$***.

Table 6.5. Mediation Pathways for Indistinguishable Dyads Model Predicting Alcohol Use (N = 437 Couples)

Linear paths

	Path		Symmetric path	*b*	SE	*p*	LCI	UCI
Direct	**Conflict →A CM**	**=**	**Conflict →B CM**	**0.032**	**0.011**	**.003**	**0.010**	**0.052**
Indirect	**Conflict →A EDS→A CM**	**=**	**Conflict →B EDS→B CM**	**0.046**	**0.006**	**<.001**	**0.035**	**0.058**
	Conflict →A EDS→B CM	=	Conflict →B EDS→A CM	0.006	0.005	.209	-0.003	0.017

Non-linear paths

	Path		Symmetric path	*b*	SE	*p*	IRR	LCI	UCI
Direct	Conflict →A AU	=	Conflict →B AU	0.000	0.002	.918	1.000	0.995	1.004
	A EDS→A AU	=	B EDS→B AU	0.000	0.003	.896	1.000	0.995	1.005
	A EDS→B AU	=	B EDS→A AU	0.004	0.002	.105	1.004	0.999	1.009
Indirect	Conflict →A EDS→A AU	=	Conflict →B EDS→B AU	0.000	0.001	.896	1.000	0.998	1.002
	Conflict →A EDS→B AU	=	Conflict →B EDS→A AU	0.002	0.001	.107	1.002	1.000	1.004
	Conflict →A CM→A AU	**=**	**Conflict →B CM→B AU**	**0.002**	**0.001**	**.012**	**1.002**	**1.001**	**1.005**
	Conflict →A CM→B AU	=	Conflict →B CM→A AU	0.000	0.000	.549	1.000	0.999	1.000
	A EDS→A CM→A AU	**=**	**B EDS→B CM→B AU**	**0.008**	**0.002**	**<.001**	**1.008**	**1.005**	**1.012**
	A EDS→B CM→A AU	=	B EDS→A CM→B AU	-0.0001	0.0002	.666	1.000	0.999	1.000
	A EDS→A CM→B AU	=	B EDS→B CM→A AU	-0.001	0.001	.513	0.999	0.997	1.001
	A EDS→B CM→B AU	=	B EDS→A CM→A AU	0.001	0.001	.247	1.001	1.000	1.003
	Conflict →A EDS→A CM→A AU	**=**	**Conflict →B EDS→B CM→B AU**	**0.003**	**0.001**	**<.001**	**1.004**	**1.002**	**1.005**
	Conflict →A EDS→B CM→A AU	=	Conflict →B EDS→A CM→B AU	0.00004	0.0001	.668	1.000	1.000	1.000
	Conflict →A EDS→A CM→B AU	=	Conflict →B EDS→B CM→A AU	-0.0003	0.0004	.515	1.000	0.999	1.001
	Conflict →A EDS→B CM→B AU	=	Conflict →B EDS→A CM→A AU	0.001	0.0004	.247	1.001	1.000	1.002

Notes: A/B EDS = partner A/B emotional disorder symptoms. A/B CM = partner A/B coping motives. A/B AU = partner A/B latent alcohol use. IRR= Incident rate ratio. Standard errors and confidence intervals were based on 10000 bootstrapped replicates.

Table 6.6. Mediation Pathways for Distinguishable Dyads Model Predicting Alcohol Use (*N*=364 Mixed-Gender Couples)

Linear paths

		Path	*b*	SE	*p*	LCI	UCI
1	Direct	**Conflict →W CM**	**.044**	**.018**	**.011**	**.010**	**.079**
5	Indirect	**Conflict →W EDS→W CM**	**.039**	**.011**	**<.001**	**.017**	**.060**
6		Conflict →W EDS→M CM	.006	.009	.524	-.012	.024
19	Direct	Conflict →M CM	.020	.016	.228	-.012	.052
23	Indirect	**Conflict →M EDS→M CM**	**.061**	**.016**	**<.001**	**.030**	**.092**
24		Conflict →M EDS→W CM	.001	.012	.913	-.02	.026

Non-linear paths

		Path	*b*	SE	*p*	IRR	LCI	UCI
2	Direct	Conflict →W AU	0.006	0.006	.306	1.006	0.994	1.018
3		W EDS→W AU	0.015	0.008	.050	1.015	1.000	1.030
4		W EDS→M AU	0.010	0.006	.110	1.010	0.998	1.023
7	Indirect	Conflict →W EDS→W AU	0.006	0.003	.057	1.006	1.000	1.012
8		Conflict →W EDS→M AU	0.004	0.003	.124	1.004	0.999	1.009
9		**Conflict →W CM→W AU**	**0.005**	**0.002**	**.033**	**1.005**	**1.000**	**1.009**
10		Conflict →W CM→M AU	-0.001	0.001	.210	0.999	0.996	1.001
11		**W EDS→W CM→W AU**	**0.010**	**0.004**	**.007**	**1.010**	**1.003**	**1.018**
12		W EDS→M CM→W AU	-0.0001	0.001	.870	1.000	0.999	1.001
13		W EDS→W CM→M AU	-0.003	0.002	.165	0.997	0.992	1.001
14		W EDS→M CM→M AU	0.002	0.003	.527	1.002	0.996	1.008
15		**Conflict →W EDS→W CM→W AU**	**0.004**	**0.001**	**.008**	**1.004**	**1.001**	**1.007**
16		Conflict →W EDS→M CM→W AU	0.00004	0.000	.871	1.000	0.999	1.000
17		Conflict →W EDS→W CM→M AU	-0.001	0.001	.169	0.999	0.997	1.001

18		Conflict →W EDS→M CM→M AU	0.001	0.001	.534	1.001	0.998	1.003
20	Direct	Conflict →M AU	0.0001	0.005	.867	1.000	0.991	1.011
21		M EDS→M AU	-0.003	0.007	.716	0.997	0.984	1.011
22		M EDS→W AU	-0.009	0.007	.238	0.991	0.977	1.006
25	Indirect	Conflict →M EDS→M AU	-0.001	0.003	.716	0.999	0.992	1.005
26		Conflict →M EDS→W AU	-0.004	0.004	.239	0.996	0.989	1.003
27		Conflict →M CM→M AU	0.003	0.002	.248	1.003	0.998	1.007
28		Conflict →M CM→W AU	-0.0001	0.001	.811	1.000	0.999	1.001
29		**M EDS→M CM→M AU**	**0.016**	**0.005**	**.001**	**1.016**	**1.006**	**1.026**
30		M EDS→W CM→M AU	-0.0001	0.010	.926	1.000	0.998	1.002
31		M EDS→M CM→W AU	-0.001	0.003	.756	0.999	0.993	1.005
32		M EDS→W CM→W AU	0.0003	0.003	.915	1.000	0.995	1.006
33		**Conflict →M EDS→M CM→M AU**	**0.008**	**0.002**	**.002**	**1.008**	**1.003**	**1.013**
34		Conflict →M EDS→W CM→M AU	0.00004	0.005	.926	1.000	0.999	1.001
35		Conflict →M EDS→M CM→W AU	-0.0005	0.001	.756	1.000	0.997	1.002
36		Conflict →M EDS→W CM→W AU	0.0001	0.001	.915	1.000	0.998	1.003

Notes: W/M EDS = women's/men's emotional disorder symptoms. W/M CM = women's/men's coping motives. W/M AU = women's/men's latent alcohol use. IRR = Incident rate ratio. Standard errors and confidence intervals were based on 1000 bootstrapped replicates.

Table 6.7. Mediation Pathways for Indistinguishable Dyads Model Predicting Cannabis Use *(N* =184 Couples)

Linear paths

	Path		Symmetric path	*b*	SE	*p*	IRR	LCI	UCI
Direct	Conflict→A CM	=	Conflict→B CM	-0.017	0.014	.245	-0.044	0.011	-0.017
Indirect	**Conflict→A EDS→A CM**	=	Conflict→B EDS→B CM	0.043	0.009	**< .001**	0.025	0.060	0.043
	Conflict→A EDS→B CM	=	Conflict→B EDS→A CM	0.004	0.006	.552	-0.009	0.016	0.004

Non-linear paths

	Path		Symmetric path	*b*	SE	*p*	IRR	LCI	UCI
Direct	Conflict→A CU	=	Conflict→B CU	-0.005	0.009	.540	0.995	0.978	1.012
	A EDS→A CU	=	B EDS→B CU	0.005	0.012	.675	1.005	0.981	1.029
	A EDS→B CU	=	B EDS→A CU	0.009	0.010	.351	1.009	0.990	1.030
Indirect	Conflict→A EDS→A CU	=	Conflict→B EDS→B CU	0.002	0.005	.677	1.002	0.992	1.012
	Conflict→A EDS→B CU	=	Conflict→B EDS→A CU	0.004	0.004	.349	1.004	0.996	1.012
	Conflict→A CM→A CU	=	Conflict→B CM→B CU	-0.002	0.002	.274	0.998	0.994	1.002
	Conflict→A CM→B CU	=	Conflict→B CM→A CU	-0.002	0.002	.298	0.998	0.995	1.002
	A EDS→A CM→A CU	**=**	**B EDS→B CM→B CU**	0.013	0.004	**<.001**	1.013	1.006	1.021
	A EDS→B CM→A CU	=	B EDS→A CM→B CU	0.001	0.002	.577	1.001	0.997	1.005
	A EDS→A CM→B CU	**=**	**B EDS→B CM→A CU**	0.012	0.004	**.002**	1.012	1.005	1.020
	A EDS→B CM→B CU	=	B EDS→A CM→A CU	0.001	0.002	.574	1.001	0.997	1.005
	Conflict→A EDS→A CM→A CU	**=**	**Conflict→B EDS→B CM→B CU**	0.005	0.002	**.001**	1.005	1.002	1.008
	Conflict→A EDS→B CM→A CU	=	Conflict→B EDS→A CM→B CU	0.0004	0.001	.583	1.000	0.999	1.002
	Conflict→A EDS→A CM→B CU	**=**	**Conflict→B EDS→B CM→A CU**	0.005	0.002	**.004**	1.005	1.002	1.008
	Conflict→A EDS→B CM→B CU	=	Conflict→B EDS→A CM→A CU	0.0005	0.001	.577	1.000	0.999	1.002

Notes: A/B EDS = partner A/B emotional disorder symptoms. A/B CM = partner A/B coping motives. A/B CU = partner A/B cannabis use (quantity x frequency). IRR = Incident rate ratio. Standard errors and confidence intervals were based on 10000 bootstrapped replicates.

Table 6.8. Mediation Pathways for Distinguishable Dyads Model Predicting Cannabis Use (*N*=133 Mixed-Gender Couples)

		Path	*b*	SE	*p*	IRR	LCI	UCI
1	Direct	Conflict→W CM	-0.008	0.021	.713	0.992	-0.049	0.033
5	**Indirect**	**Conflict→W EDS→W CM**	0.053	0.011	<.**001**	1.054	0.031	0.075
6		Conflict→W EDS→M CM	0.011	0.011	.300	1.011	-0.010	0.032
	Direct	Conflict→M CM	-0.001	0.028	.974	-0.001	-0.056	0.054
	Indirect	Conflict→M EDS→M CM	0.024	0.023	.290	1.024	-0.020	0.068
		Conflict→M EDS→W CM	-0.015	0.013	.259	0.985	-0.041	0.011

Non-linear paths

		Path	*b*	SE	*p*	IRR	LCI	UCI
2	Direct	Conflict→W CU	0.005	0.013	.690	1.005	0.980	1.031
3		W EDS→W CU	-0.022	0.025	.388	0.978	0.931	1.028
4		W EDS→M CU	-0.018	0.023	.435	0.982	0.939	1.027
7	Indirect	Conflict→W EDS→W CU	-0.008	0.009	.410	0.992	0.974	1.011
8		Conflict→W EDS→M CU	-0.006	0.008	.452	0.994	0.978	1.010
9		Conflict→W CM→W CU	-0.002	0.005	.751	0.998	0.989	1.008
10		Conflict→W CM→M CU	-0.001	0.004	.767	0.999	0.991	1.007
11		**W EDS→W CM→W CU**	0.031	0.012	.**010**	1.031	1.007	1.056
12		W EDS→M CM→W CU	-0.001	0.004	.707	0.999	0.991	1.006
13		**W EDS→W CM→M CU**	0.023	0.011	.**040**	1.023	1.001	1.046
14		W EDS→M CM→M CU	0.001	0.004	.714	1.001	0.994	1.009
15		**Conflict→W EDS→W CM→W CU**	0.011	0.004	**.016**	1.011	1.002	1.020
16		Conflict→W EDS→M CM→W CU	-0.001	0.001	.707	0.999	0.997	1.002
17		*Conflict→W EDS→W CM→M CU*	0.008	0.004	*.050*	1.008	1.000	1.016
18		Conflict→W EDS→M CM→M CU	0.0005	0.001	.719	1.000	0.998	1.003
20	Direct	Conflict→M CU	0.004	0.015	.783	1.004	0.976	1.033
21		M EDS→M CU	0.030	0.025	.229	1.031	0.981	1.083

22		**M EDS→W CU**	**0.044**	**0.022**	**.045**	**1.045**	**1.001**	**1.091**
25	Indirect	Conflict→M EDS→M CU	0.014	0.012	.249	1.014	0.991	1.037
26		*Conflict→M EDS→W CU*	0.020	0.010	*.055*	1.020	1.000	1.041
27		Conflict→M CM→M CU	-0.00004	0.003	.988	1.000	0.995	1.005
28		Conflict→M CM→W CU	0.00004	0.003	.988	1.000	0.995	1.005
29		M EDS→M CM→M CU	0.002	0.007	.726	1.002	0.989	1.015
30		M EDS→W CM→M CU	-0.005	0.006	.385	0.995	0.984	1.006
31		M EDS→M CM→W CU	-0.003	0.007	.720	0.997	0.984	1.011
32		M EDS→W CM→W CU	-0.007	0.007	.342	0.993	0.979	1.007
33		Conflict→M EDS→M CM→M CU	0.001	0.003	.735	1.001	0.995	1.007
34		Conflict→M EDS→W CM→M CU	-0.002	0.003	.372	0.998	0.993	1.003
35		Conflict→M EDS→M CM→W CU	-0.001	0.003	.734	0.999	0.992	1.005
36		Conflict→M EDS→W CM→W CU	-0.003	0.003	.332	0.997	0.991	1.003

Notes: W/M EDS = women's/men's emotional disorder symptoms. W/M CM = women's/men's coping motives. W/M CU = women's/men's cannabis use (quantity x frequency). IRR= Incident rate ratio. Standard errors and confidence intervals were based on 1000 bootstrapped replicates

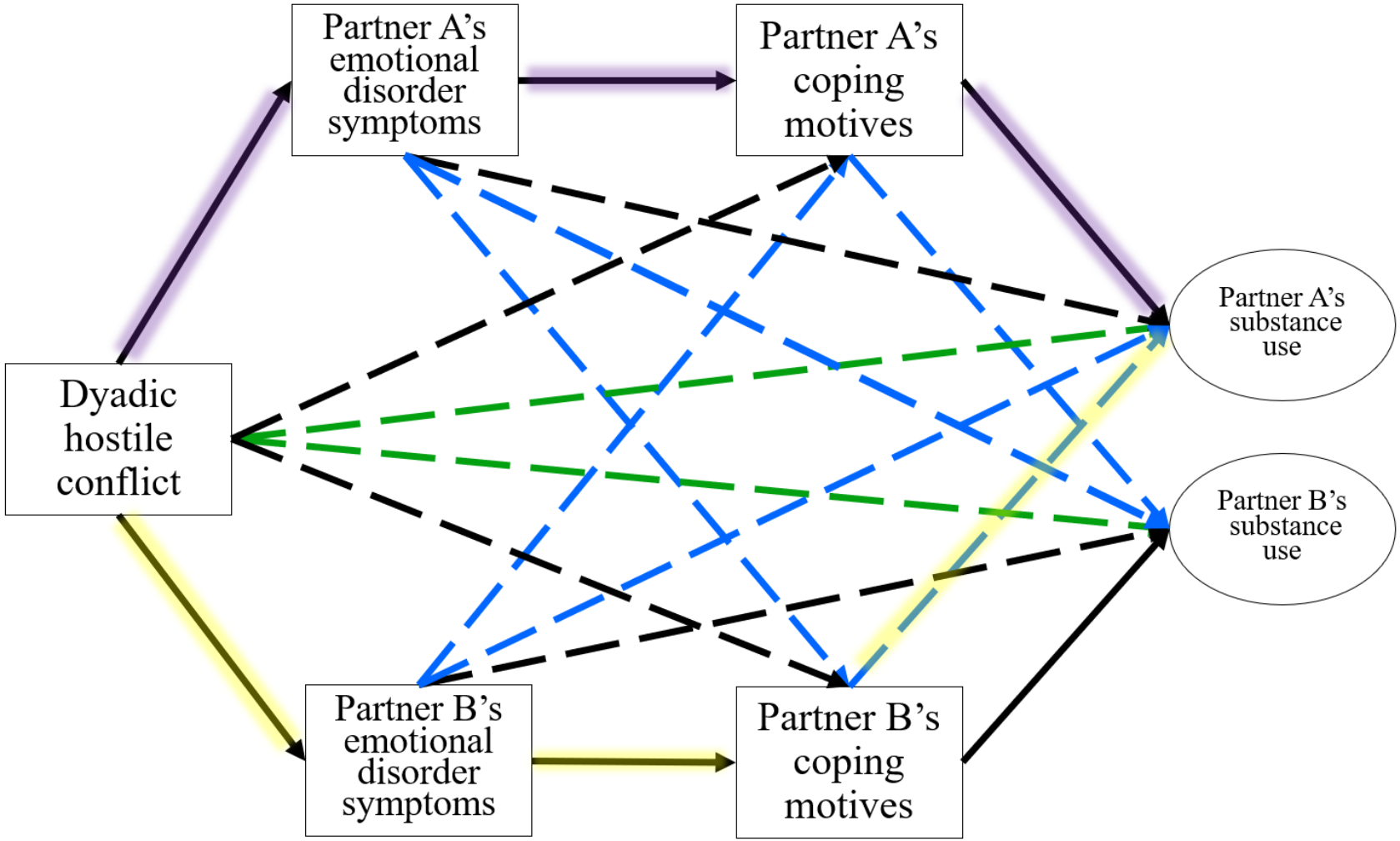

Figure 6.1 Proposed Actor-Partner Interdependence Model with Hypothesized Serial Mediation Pathways

Notes. Purple highlighted pathway represents Hypotheses 1 and 2; yellow highlighted pathway represents Hypothesis 3. Black lines are actor effects; blue lines are partner effects; green lines are direct effects.

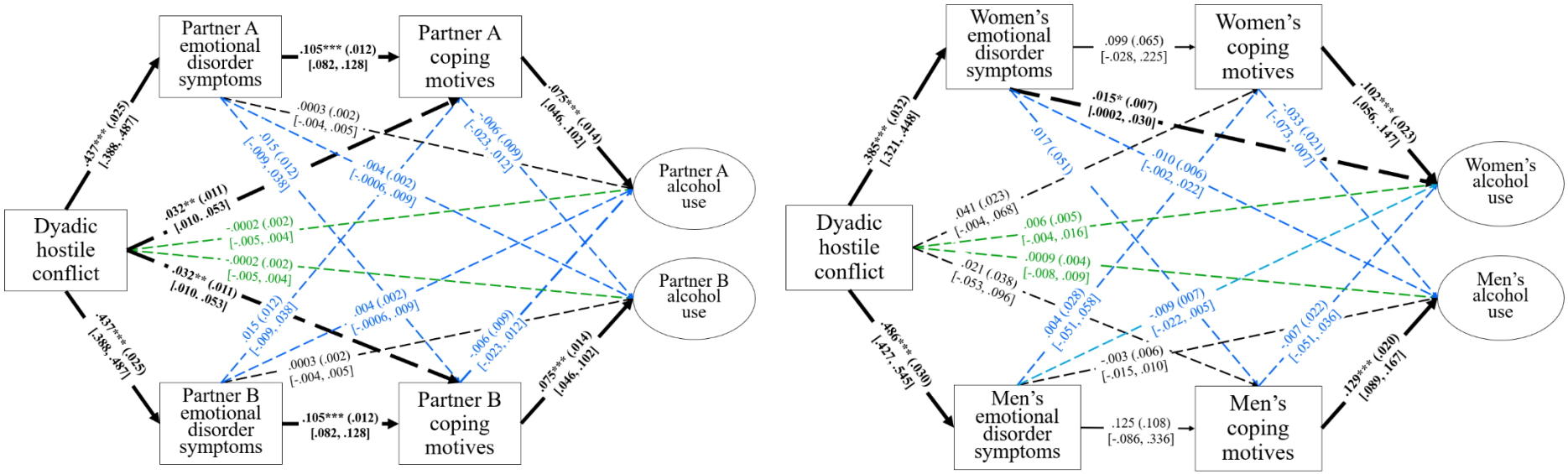

Figure 6.2. Indistinguishable Dyad (left) and Distinguishable Dyad (right) Actor-Partner Interdependence Models Predicting Alcohol Use

Notes. Values indicate standardized *b* coefficients. Thick lines indicate significant effects. Black lines are actor effects; blue lines are partner effects; green lines are direct effects. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

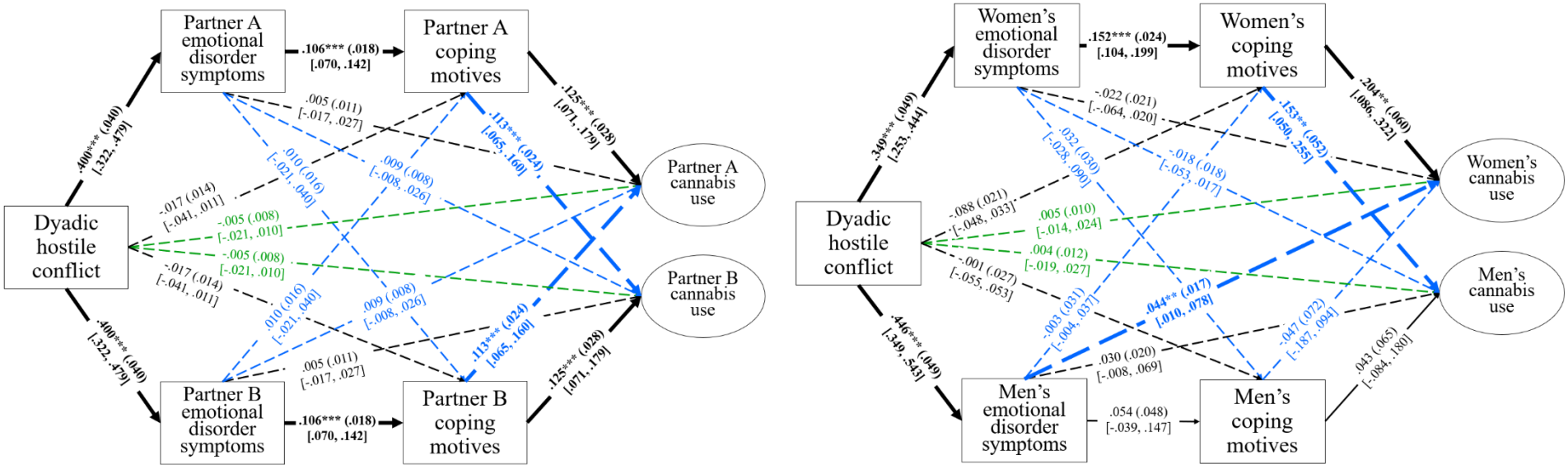

Figure 6.3 Indistinguishable Dyad (left) and Distinguishable Dyad (right) Actor-Partner Interdependence Models Predicting Cannabis Use

Notes. Values indicate standardized *b* coefficients. Thick lines indicate significant effects. Black lines are actor effects; blue lines are partner effects; green lines are direct effects. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

CHAPTER 7. TRANSITION FROM STUDY 3 TO STUDY 4

Study 3 (Chapter 6) examined substance use behaviour, specifically alcohol and cannabis use. Study 3 (Chapter 6) found support for the actor serial mediation effect for alcohol and cannabis use. In contrast to Study 1 (Chapter 2), Study 3 (Chapter 6) did not find any partner effects for alcohol use. However, partner effects were detected for cannabis use, significantly adding to the literature on conflict, coping motives, and cannabis use.

Using the same measures of emotional disorder symptoms (PHQ-ADS) and dyadic hostile conflict and the same dataset as Study 3, Study 4 sought to examine *problems* related to substance use, specifically alcohol and cannabis use. While closely related, differential effects are often found for use behaviour vs problems associated with use. Specifically, coping motives are stronger predictors of problems related to substance use than of frequency or quantity of use (Bresin & Mekawi, 2019). Further, by combining alcohol and cannabis related problems, the models would be more adequately powered compared to the cannabis use only models in Study 3 (Chapter 6). Combining alcohol and cannabis related problems has the additional benefit of examining conflict as a transdiagnostic risk factor. Lastly, examining substance-related problems adds clinical relevance to the results, as not all substance use is problematic or of clinical relevance. Understanding the similarities and differences in the findings on use vs problems (comparing Studies 3 and 4) is important for targeted intervention, to not pathologize substance use, and to understand when use is risky. Ultimately, this dissertation aimed to better understand vulnerabilities and risk factors for psychopathology during the

pandemic, and thus Study 4 directly addressed this aim in the most fulsome models of the dissertation.

CHAPTER 8. STUDY 4: DYADIC CONFLICT, EMOTIONAL DISORDERS, COPING MOTIVES, AND SUBSTANCE-RELATED PROBLEMS: A SERIAL MEDIATION MODEL

The manuscript prepared for this study is presented below. Funding was provided for this study with the following grant: SSHRC Individual Partnership Engage (PEG) Grant Covid-19 Special Initiative. *Covid-19 pandemic: Factors that support and impede family well-being during mandatory homeschooling.* Drs. Stewart, S.H., Abbass, A., Wilson, E.A., Rodriguez, L., Corkum, P.V., Nogueira Arjona, R.R., Meier, S.M., Deacon, S.H., & Sherry S.B. These coauthors secured funding, selected study measures, gained ethics approval, and collected data. The study was approved by the Social Sciences and Humanities Research Ethics Board at Dalhousie University (REB# 2020-5336). Mandy Hagen, under the supervision of Dr. Sherry Stewart, was responsible for designing the analyses, preparing the data for analyses, conducting the analyses, interpreting the results, and writing the initial draft of the manuscript. Dr. Clayton Neighbors and Dr. Lindsey Rodrigeuz provided assistance in conducting the analyses. Additionally, Mandy incorporated feedback from the coauthors.

Abstract

Romantic conflict, emotional disorders (i.e., anxiety and depressive disorders), and substance-related problems co-occur. Coping motivated substance use may partially explain romantic conflict as a predictor of substance-related problems (SRP) via coping with emotional disorder symptoms (EDS). Previous work has supported this pathway, but gaps remain – namely including EDS in a serial mediation model. Additionally, there is mixed evidence of partner effects, i.e., own coping motives influencing a partner's SRP. A sample of $N = 493$ couples, mean age = 37.98 ($SD = 6.90$) where both members use alcohol and/or cannabis were recruited as part of a larger study. Each partner completed online measures of their own conflict behaviours toward their partner (PSRB), emotional disorder symptoms (PHQ-ADS), coping motives for alcohol and cannabis use (BAMM and BCAMM), and substance-related problems (SIP-AD). Partners' conflict reports were averaged, and the PHQ-9 and GAD-7 were combined for a measure of EDS for each partner. Actor-partner interdependence models were run to examine actor effects and partner effects. The hypothesized serial mediation pathway (dyadic hostile conflict to EDS to coping motives to SRP) was supported for actor effects and for partner effects (conflict to EDS to coping motives to *partner's* SRP) in the non-gendered model. A single mediator actor effect pathway via EDS was observed. Additionally, the distinguishable model suggests that women's EDS and coping motives associated with conflict may be more involved in both member's SRP than men's, and that conflict may be more implicated in women's outcomes. Findings suggest that romantic conflict is risky for substance-related problems and highlight the role of coping motives in this effect.

Keywords: dyadic conflict, depression, anxiety, coping motives, substance problems

Introduction

Alcohol and cannabis use disorder (AUD, CUD) are the most common substance use disorders (SAMHSA, 2020). Twelve-month prevalence rates for AUD are high (4-7%). While rates for CUD (1.5%) are lower, meta-analysis shows that 22% of regular cannabis users develop CUD (Compton et al., 2019; White, 2020). AUD and CUD are highly comorbid with the "emotional disorders" (Barlow et al., 2020; Bullis et al., 2019) of anxiety and depression – those with emotional disorders are 2.1-3.8 times more likely than those without to develop a substance use disorder (Dierker et al., 2018; Hasin et al., 2007; Lai et al., 2015; Swendsen et al., 2010).

Furthermore, this comorbidity is associated with more severe presentations and poorer prognosis than either disorder alone (Brière et al., 2014; Kessler, 2004). Additionally, while there is some evidence that substance-related problems (SRP) precede the development of emotional disorders (Boschloo et al., 2012; Gilman & Abraham, 2001), there is stronger evidence that emotional disorders precede the development of AUD and CUD (Boschloo et al., 2013; Feingold et al., 2015; Wittchen et al., 2007).

Romantic Conflict and Substance Related Problems

Romantic relationships are one of the most important relationships of adulthood; indeed, relationship satisfaction and conflict are important predictors of life satisfaction (Carroll et al., 2010; Hawkins & Booth, 2005; Hui & Constantino, 2021). Further, specific conflict behaviours, such as hostile or rejecting behaviours toward a romantic partner, have a particularly deleterious effect on well-being (Holman & Jarvis, 2003; Roberts, 2000). Along with overall changes in life and relationship satisfaction, romantic

conflict is strongly associated with clinically relevant outcomes, such as SRPs (Cafferky et al., 2018), as well as symptoms of anxiety and depressive disorders which will be discussed below (Lemmens et al., 2007; Roberson et al., 2018). The range of problematic conflict behaviours – IPV at the extreme end – is often studied by examining the effects of enacting and receiving these behaviours (i.e., conflict perpetration and victimization).

Meta-analysis has shown SRP are strongly associated with conflict (Cafferky et al., 2018; Cunradi et al., 2022). There is strong evidence of alcohol- and/or cannabis-related problems being longitudinally associated with increases in conflict (Cerda et al., 2016; Farrelly et al., 2019). There is also qualitative, longitudinal, and experimental evidence that conflict is a predictor of alcohol- and cannabis-related problems (Fairbairn & Cranford, 2016; Feingold et al., 2008; Flanagan et al., 2020b; Kimball et al., 2021; Kraanen et al., 2014), indicating the association between conflict and SRP is bidirectional (Keller et al., 2009; Rodriguez et al., 2014). Notably, most of this literature examines alcohol-related problems, with significantly less emphasis on cannabis-related problems.

Additionally, these studies often show gendered effects, e.g., men's heavy drinking having stronger associations with aggression, particularly when their women partners exhibit less heavy drinking (Roberts & Leonard, 1998). Lastly, conflict may be an important variable in the development of alcohol problems, particularly for women (Windle & Windle, 2019), underscoring the importance of examining these mechanisms by gender.

Romantic Conflict and Emotional Disorders

Overall, there is a robust association between romantic conflict and EDS (Whisman et al., 2000). Further, conflict style (e.g., angry or aggressive conflict) partially mediates the association between relationship satisfaction and depressive symptoms (Du Rocher Schudlich et al., 2011; Knobloch & Basinger, 2020). These effects appear to be stronger for more aggressive or critical conflict behaviours (Kurdek, 1995; Londahl et al., 2005). Moreover, aggressive conflict behaviour appears to explain significant variance in depression across the lifespan for both those receiving and those enacting these behaviours (e.g., Marchand-Reilly, 2012; Marchand & Hock, 2000; Salinger et al., 2021).

There is strong evidence that hostile romantic conflict is a risk factor for EDS. For instance, meta-analysis has shown that that negative conflict behaviours predict later anxiety symptoms (Postler et al., 2022). While no commensurate meta-analysis currently exists for hostile romantic conflict and depressive symptoms, one review found that relationship discord (i.e., conflict, tension, poor relationship functioning) predicted EDS (Whisman, 2013) and another found IPV was a robust predictor of depressive symptoms (Devries et al., 2013). This effect of conflict has been evidenced for both anxiety and depressive symptoms longitudinally, using daily diary methodology, and experimentally (Du Rocher Schudlich et al., 2011; Laurenceau et al., 2005; Whisman et al., 2002; Wilson & Marini, 2022). Overall, the extant literature indicates that the deleterious consequences of marital discord and aggressive conflict behaviours on EDS are stronger for women than for men (Kiecolt-Glaser & Newton, 2001; Levitt & Cooper, 2010; Marchand & Hock, 2000). Though there is a clear bidirectional relationship between conflict and depression (e.g., Devries et al., 2013; Papp et al., 2007; Saunders et al., 2023), a recent

review demonstrated that the link from conflict to depression has stronger evidence (Goldfarb & Trudel, 2019).

Coping Motives

The self-medication hypothesis is the dominant theory to explain the link between ED and SRP; this hypothesis proposes that individuals use substances to alleviate distressing mental health symptoms (Khantzian, 1997). More recently, an empirical model of substance use motives has been developed – a four-factor model of specific motivations to use substances which are theorized to be proximal predictors of substance use behaviour – originally alcohol use(Cooper, 1994), but expanded to substances including cannabis (Cooper, 1994; Cooper et al., 2016; Simons et al., 1998). This model consists of a two-by-two organizational structure, in which motives for use can be internal or external as well as positively- or negatively-reinforcing. Coping motives (substance use to manage EDS like anxiety and depression) are internally driven and negatively reinforcing and are consistent with the self-medication hypothesis. Additionally, coping motives are considered the riskiest of the substance use motives as they are associated with alcohol-related problems, a robust finding that has been demonstrated longitudinally and using ecological-momentary assessment (Bresin & Mekawi, 2021; Mackinnon et al., 2014; Stevenson et al., 2019). Similar findings have been established for cannabis-related problems (Benschop et al., 2015; Bonn-Miller & Zvolensky, 2009; Bonn-Miller et al., 2014; Fox et al., 2011; Lee et al., 2007) and corroborated by a meta-analysis (Bresin & Mekawi, 2019), though the literature disproportionately samples young adults.

Indeed, the association between negative affect and alcohol-related problems has been shown to be mediated by coping motives (Bravo & Pearson, 2017). Notably, this mediation was not affect-specific; that is, coping motives globally was a stronger predictor than drinking to cope with specific affective states and their associated affective states, consistent with the model of ED (Barlow et al., 2020).

It is possible coping motives may explain the associations between hostile romantic conflict, EDS, and SRP. Indeed, recent evidence suggests that depression mediates the association between victimization and alcohol-related problems, and that those with more anxiety endorsed more drinking to cope and alcohol-related problems, particularly when conflict was high (DiBello et al., 2017; Rodriguez et al., 2020a).

Serial Mediation

The hypothesized link between a stressor (such as conflict) to substance-related variables via EDS and, in turn, coping motives (Khantzian, 1997) has been assessed in a variety of contexts. For instance, several studies have examined racial discrimination as a predictor of binge drinking and alcohol-related problems in a similar serial mediation model and found evidence for this serial mediation pathway (e.g., Desalu et al., 2019; Keum & Choi, 2022); similarly, one study found support for childhood maltreatment predicting alcohol-related problems via PTSD symptoms and, in turn, coping motives (Park et al., 2019). A previous study (Study 3, Chapter 6) examined this serial mediation dyadically predicting alcohol use and cannabis use and found strong support for the serial mediation. However, the serial mediation model dyadically predicting SRP has yet to be tested.

Partner Influence

Like a variety of social relationships (e.g., peer group, drinking buddies; Kehayes et al., 2020), romantic relationships are known to influence each partner's drinking behaviour (Muyingo et al., 2020). However, there is emerging evidence to suggest that one's drinking behaviour can also be influenced by a partner's drinking *motives*. For instance, it has been demonstrated that an individual's own coping motives are associated longitudinally with their partner's drinking behaviour, and that this occurs through the individual's own coping motives influencing the partner's coping motives (Kehayes et al., 2019). In contrast, in a study of 100 emerging adult couples, Lambe et al. (2015) found actor effects (significant only in the women) but not partner effects for the mediating role of coping motives in the link of romantic conflict to alcohol-related problems. However, a more recent study of 348 adult couples recruited during the first wave COVID-19 pandemic lockdown in April 2020 found not only actor effects in couple's conflict predicting own drinking behaviour via coping motives, but also gendered partner effects. Specifically, women's coping motives predicted marginally more drinking behaviour in their men partners, but men's coping motives were associated with *less* drinking behaviour in their women partners (Study 1, Chapter 2, Hagen et al., 2023b).

However, gaps remain from the Hagen et al. (2023b) pandemic study (Study 1, Chapter 2). For instance, it is possible that partner effects (both significant and marginal effects) were detected due to an increase in partner influence during lockdown; it is unknown if these findings would generalize to an adult sample outside of the unique context of lockdown measures but still in the context of variable and less severe

restrictions. Additionally, while the Lambe et al. (2015) paper examined problems related to alcohol use, the Hagen et al. (2023b) paper (Study 1, Chapter 2) used alcohol behaviour as their outcome, which may also explain differences in findings; neither paper examined problems related to cannabis use. Lastly, neither of these studies examined the role of EDS, which would theoretically link conflict and coping motives, i.e., coping motives should only be associated with conflict insofar as conflict induces unpleasant internal states that drive coping motives. Study 3, Chapter 6 examined alcohol use and cannabis use, including a measure of EDS to mediate conflict and coping motives. The results indicated support for the serial mediation model for both alcohol and cannabis, but only partner influence for cannabis use. This study did not examine problems related to substance use.

Purpose of the Present Study

The current study examined enacted hostile conflict behaviours, EDS, coping motives, and SRP from each member of dyadic couples. The purpose was to examine couples' hostile conflict as a predictor of SRP as serially mediated through EDS and coping motives. The analyses used Actor Partner Interdependence Models to assess actor and partner effects, both in general and when examining gender effects in mixed-gendered couples.

Hypotheses

H1. We expected to find significant actor effects in which dyadic hostile conflict predicted SRP sequentially via EDS and, in turn, coping motives for both non-gendered (i.e., indistinguishable dyad) and gendered (i.e., distinguishable dyad) analyses.

H2. We hypothesized significant partner effects for both indistinguishable and distinguishable dyad analyses, though the direction and nature of effects were exploratory due to mixed findings in the literature (Ahmadabadi et al., 2019; Study 1, Chapter 2, Hagen et al., 2023b; Levitt & Cooper, 2010), see also Study 3, Chapter 6.

H3. We hypothesized gender differences for both actor and partner effects, though the direction and nature of such were exploratory due to mixed findings in the literature (Study 1, Chapter 2, Hagen et al., 2023b).

Method

Participants

A total of $N = 962$ couples (1,924 individuals) were recruited from Canada and the U.S. for a larger study (Elgendi et al., 2022). Eligibility to participate were both partners being at least 19 years of age, having at least one child in grades 1-5 (due to criteria for a larger study; Elgendi et al., (2022)), and being in the romantic relationship for at least three months. Participants were recruited and data were collected between March – June 2021. Participants were asked to retrospectively report on their behaviour and experiences during the period from January 15th – February 15th, 2021[7]. See previously published work from the larger dataset for full descriptive statistics (Elgendi et al., 2022). See Study 3, Chapter 6 for a list of validity checks on the survey data.

A subsample of $N = 493$ couples (986 individuals) were included in the current analyses. These couples were selected based on the criteria that both participants must have used either alcohol or cannabis during the reporting period. Couples in which both members did not consume either alcohol or cannabis were excluded, as coping motives

[7] January-February 2021 was selected due to the ongoing pandemic context, in which many jurisdictions in Canada and the United States were under public health advisories.

were only assessed for those that consumed the relevant substance. References to "study participants" will be referring to this subsample for the remainder of the paper.

Study participants had a mean age of 37.98 (*SD* = 6.90) years, were predominately White (77.2%), 52.1% women, and predominantly in mixed-gender relationships (94.3%). Additionally, study participants were highly educated: 77.2% reported at least a college/university degree.

Additional descriptives statistics for the current subsample and the excluded subsample can be found in Table 8.1 and Table 6.3. Chi-square analyses were conducted to compare those included in the present analyses to those excluded. Overall, those included were significantly more educated and reported higher income than those who were excluded (Table 6.3). Additionally, *t*-tests were run on continuous demographic variables to compare subsamples (Table 8.1). Those included reported enacting significantly more conflict behaviours and experiencing more EDS than those excluded. Those included also reported higher rates of all substance use variables except for coping motivated use, as frequency of substance use was the basis for inclusion.

Measures

Demographics Questionnaire

Demographic information was gathered, including age, gender and sex, income, education, and ethnic background (Table 8.1, Table 6.2, and Table 6.3).

Dyadic Hostile Conflict

Dyadic hostile conflict was measured using the Partner-Specific Rejecting Behaviours Scale (Murray et al., 2003). This 7-item self-report measure asks individuals to report on their own hostile conflict behaviour (e.g., aggressive, insulting behaviours)

enacted towards their partner on a 9-point scale, from *1-strongly disagree* to *9-strongly agree.* Items include "I embarrassed or made fun of my partner," and "I criticized or complained about my partner (to him/her)." Partner reports were combined (i.e., averaged) to form a single variable of dyadic hostile conflict (Lambe et al., 2015; Mackinnon et al., 2022), as partner reports were highly inter-correlated, $r = .78$, $p < .001$. See Table 8.2 for scale internal consistency in the current sample.

Emotional Disorder Symptoms (EDS)

EDS were measured using the Patient Health Questionnaire – Anxiety and Depression Scale (PHQ-ADS), a measure from mad from combining standardized measures of depressive symptoms and anxiety symptoms, described below. Means and internal consistency for these measures can be found in Table 8.2.

The Patient Health Questionnaire – 9 (PHQ-9) is a 9-item standardized measure of depressive symptoms (Kroenke et al., 2001). Each item assesses the frequency of experiences, based on symptoms of major depressive disorder in the DSM-IV (APA, 1994), and is reported on a 4-point relative frequency scale where *0 – not at all, 1 – several days, 2 – more than half of days, 3 – nearly every day*, queried over the last two weeks. Higher scores yield more depressive symptoms. The PHQ-9 is widely used in clinical and research samples and has excellent psychometric properties: Cronbach's α = .89, and high same-week test-retest reliability $r = .84$. Additionally, the PHQ-9 has a sensitivity of 88% and specificity of 88% for major depressive disorder (Kroenke et al., 2001).

The Generalized Anxiety Disorder Screener (GAD-7) is a validated 7-item screening tool to identify anxiety disorders and assess severity of anxiety symptoms

(Löwe et al., 2008). Similar to the PHQ-9, each item describes the core diagnostic criteria for generalized anxiety disorder from the DSM-IV (APA, 1994). The questionnaire prompts participants to answer how often in the last two weeks they have experienced each of the seven symptoms, rated on a 4-point relative frequency scale, where in *0 – not at all, 1 – several days, 2 – more than half of days, 3 – nearly every day.* This scale yields total scores from 0 – 21. This scale has demonstrated excellent psychometric properties with a Cronbach's $\alpha = .92$, test-retest $r = .83$ (Spitzer et al., 2006). The GAD-7 has 89% sensitivity and 82% specificity for predicting generalized anxiety disorder (Spitzer et al., 2006).

As previously validated (Kroenke et al., 2016) and consistent with their strong inter-correlation in our current sample ($r = .86$, $p < .001$) and uni-dimensionality in a factor analysis, we opted to combine the PHQ-9 and GAD-7 sum scores for a measure of anxiety and depression symptoms (Patient Health Questionnaire – Anxiety and Depression Scale; PHQ-ADS) ranging from 0 – 48 where higher scores indicate more frequent EDS.

Coping Motives

The Brief Alcohol Motive Measure (BAMM) and the Brief Cannabis Motive Measure (BCAMM), developed and validated by Bartel et al. (2023), were used to measure coping motives. These brief measures were adapted from the Drinking Motives Questionnaire-Revised (Grant et al., 2007) and the parallel measure for cannabis use motives (Simons et al., 1998). Participants completed each motive measure if they reported using the respective substance in the reporting period. Responses were recorded on a visual analogue scale from *never* to *always*, coded from 0 – 100. To keep consistent

with our measure of EDS (combined anxiety and depressive measures), the two relevant items (coping with anxiety and coping with depression) from each of the BAMM and BCAMM were averaged and divided by ten, resulting in coping motives for each substance on a scale from 0-10, with higher numbers indicating more frequent coping-motivated use. Means and internal consistency for these measures can be found in Table 8.2.

Substance-Related Problems

The Short Inventory of Problems-Alcohol and Drugs (SIP-AD, Blanchard et al., 2003) was used to measure substance-related problems (SRP). Originally developed from the shortened version of the Inventory of Drug Use Consequences, this 15-item measure assesses problems associated with alcohol and other substance use on a 4-point scale, asking about how much each statement applies from *0-not at all* to *3-very much* or assessing the frequency of problems experienced from *0-never* to *3-daily or almost daily.* The SIP-AD can be interpreted as a total sum score out of 45, where higher scores indicate more severe SRP. The SIP-AD has five subscales: physical, social responsibility, intrapersonal, impulse control, and interpersonal. Since a factor analysis yielded a single factor onto which all items load highly with high internal consistency $\alpha = .981$, we chose to use the SIP-AD total score in the present study. See Table 8.2 for internal consistency and descriptive statistics within the current sample.

Procedure

Participants were recruited, compensated, and completed measures using Qualtrics Panels, a research software company that provides web-based data collection. A subset of the sample of voluntary homeschoolers (n =191 couples) were recruited from

homeschooling organizations due to low recruitment from Qualtrics Panels for this group for the purposes of the larger study (Elgendi et al., 2022). Interested participants were screened for eligibility; those who were eligible and indicated their partner was interested in completing the survey then provided informed consent to participate. Both members answered the same measures, except for the screening questions (panelist only). The study was approved by the Social Sciences and Humanities Research Ethics Board at Dalhousie University (REB# 2020-5336).

Data analysis

Data was analyzed using Stata 17.0 and SPSS version 26. Descriptive statistical methods are presented alongside the results. For hypothesis testing, we utilized two Actor-Partner Interdependence Models (APIM), examining SRP as the outcome variable, using both non-gendered (indistinguishable dyad) and gendered (distinguishable dyad) analyses (Kenny et al., 2020). All models examined a serial mediation pathway from dyadic hostile conflict to SRP via EDS and, in turn, coping motives. All models covaried age.

APIM estimates actor (degree to which one's own predictor variable is associated with one's own outcome) and partner effects (degree to which the partner's predictor variable is associated with one's own outcome). First, APIM analyses were run using the entire included sample, in which each partner's effects (component and mediational pathways) were constrained to be equal (i.e., between Parter A and Partner B in indistinguishable dyads analyses). Next, the same models were run as distinguishable dyads analyses with only those in mixed-gender relationships (i.e., 94.3% of the sample). Women were assigned to be Partner A and men to be Partner B (i.e., distinguishing by

gender), allowing for the examination of gendered effects in the component and mediational pathways.[8]

The outcome variable (SRP) had a non-normal distribution (positively skewed) and consisted of integers. Thus, generalized structural equation models using a negative binomial distribution for the outcome variables were employed. Although the models were run using listwise deletion, no cases were removed during analyses due to the subsample used (see above) and all having complete data on the variables of interest.

Mediational pathways were run using bootstrapping with 1000 resamples. Due to the negative binomial distribution resulting in log-linked beta coefficients, the coefficients were exponentiated for interpretation. This results in incidence rate ratios (IRRs), which indicate the percent change in the outcome variable (i.e., SRP) per one unit increase in the predictor (e.g., dyadic hostile conflict). IRR values surround the number one, in which the coefficient is significant if the 95% confidence intervals do not cross one. For instance, an IRR of 1.10 would indicate that SRP increase by 10% per one unit increase in dyadic hostile conflict.

SRP were assessed using the sum score of the SIP-AD as the outcome variable. Following the completion of the SIP-AD questionnaire, participants were asked to indicate which type of substance use contributed most to their experiences described in the questionnaire. Participants were given the options of "drinking," "drug use," "both," or "neither". The coping motives associated with their answer were used, i.e., used

[8] For the distinguishable by gender analysis, individuals were included if one member of the couple identified as a man and the other member identified as a woman, regardless of sex assigned at birth. In the cases where one or more member of a couple identified as non-binary, the couple was *not* included in the distinguishable by gender analyses, even if the individuals in a couple reported different sexes assigned at birth (i.e., one male and one female) and even if the couple reported being in an mixed-gendered relationship.

drinking motives if they responded "drinking" for how they answered the SIP-AD. For those that selected "both", the mean of their drinking coping motives and cannabis coping motives was used.[9]

Results

Indistinguishable Dyad Analyses (*n* = 485 couples)

Dyadic hostile conflict significantly predicted own EDS, $b = .427$, *95%CIs* [.380, .475], $SE = .024$, $p < .001$, which in turn predicted own coping motives, $b = .117$, *95%CIs* [.095, .138], $SE = .011$, $p < .001$, which in turn predicted own SRP, $b = .178$, *95%CIs* [.119, .238], $SE = .020$, $p < .001$. After accounting for the effects of coping motives, own EDS still significantly predicted own SRP, $b = .020$, *95%CIs* [.005, .036], $SE = .008$, $p < .001$. Additionally, own EDS significantly predicted partner's coping motives, $b = .023$, *95%CIs* [.002, .044], $SE = .011$, $p = .032$, and own coping motives significantly predicted partner's SRP, $b = .071$, *95%CIs* [.014, .128], $SE = .029$, $p = .014$. Lastly, after accounting for all other effects, a direct effect from dyadic hostile conflict to SRP remained, $b = .049$, *95%CIs* [.036, .062], $SE = .007$, $p < .001$. Age significantly and inversely covaried with SRP, $b = -.043$, *95%CIs* [-.071, -.016], $SE = .014$, $p < .001$. All other paths were non-significant (Figure 8.1).

The direct and indirect mediational pathways appear in Table 8.3. The main actor effect serial mediation pathway (dyadic hostile conflict to SRP via own EDS and, in turn, own coping motives) was significant. Additionally, component pathways (i.e., conflict to

[9] For those who selected "both" but only reported using one of either alcohol *or* cannabis in the reporting period, the available coping motives score was used (*n* = 18 individuals: 10 women, 8 men). For those who selected "neither" but reported using at least one of alcohol or cannabis, the available coping motives score was used (*n* = 297 individuals, 161 women, 136 men), or the mean of both coping scores in the case of those who used both substances in the reporting period (*n* = 83 individuals, 38 women, 45 men). Those who selected "drug use" but did *not* report using cannabis in the reporting period were excluded (*n* = 6 couples).

EDS to coping motives; EDS to coping motives to SRP) for this pathway were each significant. A single mediator pathway (actor effect) was also found to be significant, from dyadic hostile conflict to own SRP via own EDS. Partner effects were also detected: the serial mediational pathway from dyadic hostile conflict to own EDS to own coping motives to *partner's* SRP was significant. Similarly, the component pathways (i.e., conflict to own EDS to own coping motives; own EDS to own coping motives to partner's SRP) were also significant. After accounting for all mediational pathways, a direct effect from dyadic hostile conflict to SRP remained significant, as did the pathway from EDS to SRP.

Overall (direct and indirect pathways combined), this model resulted in a total effect IRR of 1.24. In other words, every unit increase in dyadic hostile conflict predicted a 24% increase in SRP both directly and indirectly through the mediators.

Distinguishable Dyad Analyses (*n* = 402 couples)

Dyadic hostile conflict significantly predicted EDS for both women, $b = .376$, *95%CIs* [.313, .439], $SE = .032$, $p < .001$, and men, $b = .469$, *95%CIs* [.409, .529], $SE = .031$, $p < .001$. Own EDS predicted own coping motives for both women, $b = .132$, *95%CIs* [.096, .169], $SE = .019$, $p < .001$, and men, $b = .114$, *95%CIs* [.071, .158], $SE = .022$, $p < .001$. Own coping motives predicted own SRP for women, $b = .300$, *95%CIs* [.219, .380], $SE = .041$, $p = < .001$, and men, $b = .149$, *95%CIs* [.053, .245], $SE = .049$, $p = .002$. While the beta was twice as large in women than men, overlapping confidence intervals for this pathway suggest that the association between own coping motives and own SRP was not significantly stronger for women than men. Additionally, EDS predicted own SRP, even after accounting for coping motives for men, $b = .056$, *95%CIs*

[.030, .082], *SE* = .013, $p < .001$, but not for women. This pathway was approaching significance for women and was not significantly different for men than for women. Conflict predicted coping motives when accounting for EDS for women, *b* = .034, *95%CIs* [.004, .063], *SE* = .015, *p* = .027, but not men, but this difference was not significant.

Partner effects were detected: women's EDS predicted men's coping motives, *b* = .036, *95%CIs* [.002, .070], *SE* = .017, *p* = .040, and women's coping motives predicted men's SRP, *b* = .129, *95%CIs* [.051, .207], *SE* = .040, *p* = .001. Additionally, men's EDS significantly predicted women's SRP, *b* = .032, *95%CIs* [.007, .056], *SE* = .012, *p* = .010, as did women's EDS in *inversely* predicting men's SRP, *b* = -.029, *95%CIs* [-.058, -.0004], *SE* = .015, *p* = .046. That is, women experience more severe SRP associated with their partner's EDS, but men experience less severe SRP associated with their partner's EDS.

Lastly, a direct effect between dyadic hostile conflict and SRP remained significant for women, *b* = .047, *95%CIs* [.032, .062], *SE* = .008, $p < .001$, and men, *b* = .052, *95%CIs* [.034, .069], *SE* = .009, $p < .001$. Age significantly and inversely covaried with women's SRP, *b* = -.082, *95%CIs* [-.108, -.055], *SE* = .014, $p < .001$, but not men's. All other paths were non-significant (Figure 8.2).

The direct and indirect mediational pathways appear in Table 8.4. The hypothesized serial mediational actor pathway was significant for women and for men: dyadic hostile conflict predicted SRP via own EDS and, in turn, own coping motives. The component pathways (i.e., dyadic hostile conflict to EDS to coping motives; EDS to coping motives to SRP) of this serial mediation pathway were also significant for women

and men. Additionally, a single mediator pathway from dyadic hostile conflict to own SRP via own EDS was significant (i.e., controlling for coping motives) for men, as well as the component pathway from men's EDS to men's SRP; these pathways were not significant for women. The single mediator pathway from dyadic hostile conflict to SRP via own coping motives was significant for women only; the component pathway from dyadic hostile conflict to coping was also significant for women only. The differences between these pathways listed above for men and women was non-significant.

Partner effects were also detected. A single mediator pathway from dyadic hostile conflict to women's SRP via *men's* EDS was significant, as well as the component link from men's EDS to women's SRP, but the inverse pathways (conflict to women's EDS to men's SRP; women's EDS to men's SRP) were not significant. The difference between these pathways was significant. Additionally, the serial mediation pathway from dyadic hostile conflict to men's SRP via *women's* EDS and *women's* coping motives was significant, as well as the component path from women's EDS to women's coping motives to men's SRP; however, the inverse pathways (conflict to men's EDS to men's coping motives to women's SRP and component pathway from men's EDS to men's coping to women's SRP were not significant. The difference between these pathways was non-significant. A component pathway from dyadic hostile conflict to women's EDS to men's coping motives was also significant, but the full chained mediational pathways including either partner's SRP were not significant.

Finally, a direct effect remained significant, from dyadic hostile conflict to SRP, for both women and men. Overall, direct and indirect effects combined, this model resulted in a total effect IRR value of 1.33 for women's outcomes and 1.28 for men's

outcomes. In other words, every unit increase in dyadic hostile conflict predicted a 33% increase in SRP for women and a 28% increase in SRP for men, both directly and through the mediators.

Discussion

The current study examined dyadic hostile conflict as a predictor of SRP sequentially mediated via EDS and, in turn, coping motives, during the second wave of the COVID-19 pandemic. This was conducted in both non-gendered (indistinguishable dyad) and gendered (distinguishable dyad) APIMs. Our hypotheses were largely supported. Overall, both the indistinguishable and distinguishable dyad models indicated that changes in dyadic hostile conflict predicted a significant amount of variance in SRP (i.e., 24% and 28-33%, respectively).

H1: Actor effects

Our first hypothesis was supported. The serial mediation actor effects pathway (i.e., dyadic hostile conflict → EDS → coping motives → SRP) was significant in the indistinguishable dyads analysis. This pathway was also significant in the distinguishable analysis for women and men. Additionally, the component pathways of EDS to coping motives to SRP as well as from dyadic hostile conflict to EDS to coping motives was significant in the indistinguishable model, for women, and for men.

Overall, these results suggest that EDS following hostile romantic conflict may result in more coping motives, and subsequently, more severe SRP during the COVID-19 pandemic. This evidence provides support for one possible mechanism to explain how hostile romantic conflict may be risky for the development or maintenance of SRP, consistent with previous findings (Cunradi et al., 2022; Fairbairn & Cranford, 2016;

Hagen et al., 2023a). Additionally, this effect appears to be true across gender, which is inconsistent with Lambe et al. (2015) who showed a portion of this mediational model (dyadic hostile conflict to coping motives to alcohol-related problems) to be significant only for women. It is possible that this effect is larger for women (Levitt & Cooper, 2010), and thus more likely to be detected for men during periods of heightened influence of couple's dynamics, such as during the pandemic.

Two component pathways were also significant. One was EDS to SRP via coping motives: this is to be expected, as dyadic hostile conflict is only one of many stressors and antecedents to emotional distress and emotional disorder symptoms. Additionally, the path from dyadic hostile conflict to EDS to coping motives (but not to SRP) was also significant, suggesting that some of the drive of dyadic hostile conflict to coping motives via EDS does not translate into SRP. It may be that some motivation does not translate into behaviour, and it could also be that some motivation translates into substance use behaviour, but not into SRP.

In addition to the hypothesized serial mediation, analyses revealed a significant single mediator pathway from dyadic hostile conflict to SRP via own EDS in the indistinguishable model and men's SRP, but not women's. The difference between the two gendered pathways was non-significant. This suggests that individuals are experiencing SRP related to dyadic hostile conflict and, in turn, EDS that is not explained via coping motives. One possibility is that the current measure of coping motives did not adequately measure the extent to which individuals cope with a range of EDS symptoms. For instance, the BAMM only assesses using alcohol in response to feeling nervous, anxious, tense, sad, down, or blue – affective components of EDS. However, there is

evidence that individuals may drink to cope with other symptoms of emotional disorders, such as shame (Dearing et al., 2005; Luoma et al., 2018), somatic symptoms such as insomnia and appetite changes (Chabrol et al., 2017; Haug et al., 2017; Kenney et al., 2013; Metrik et al., 2016), cognitive symptoms such as rumination (Bravo et al., 2017; Caselli et al., 2010), hopelessness (Baines et al., 2016), or suicidal ideation (Gonzalez & Hewell, 2012). On the other hand, it is possible that dyadic hostile conflict is indirectly associated with SRP via EDS due to other mechanisms, such as automatic cognitive processes such as memory biases or cravings due to a conditioned response activated by EDS that may not be captured in self-reported motives measures, as coping motives are theorized to be a conscious cognitive process (Cooper et al., 2016). The current study examined EDS due to the high comorbidity with SRP (Stewart et al., 2016), and indeed found support for one possible mechanism contributing to this comorbidity. However, it is possible that distressed affect on its own (i.e., anxious, angry, depressed affective states) are a stronger mediator than broader EDS between conflict and coping motives (and subsequent SRP). The component pathway of EDS to SRP was also significant for the indistinguishable model and for men – which suggests that EDS is associated with SRP beyond the association with dyadic hostile conflict. This would be expected, as the current analyses only sought to explore one possible mechanism; there are several other well-established links between EDS and SRP, e.g., shared genetic vulnerability (Levey et al., 2014), personality (Chinneck et al., 2018a).

Lastly, a direct effect remained from dyadic hostile conflict to SRP in both the indistinguishable and distinguishable models, which was not hypothesized. This suggests the presence of other mechanisms that were not examined. Because the current data are

cross-sectional, they beget the possibility that SRP is also predicting dyadic hostile conflict (i.e., conflict while intoxicated) or that a third uncontrolled variable (e.g., financial stress; Davalos et al., 2012; Guan et al., 2022; Tran et al., 2023) or a trait like variable (e.g., impulsivity; Coskunpinar et al., 2013; Nedegaard et al., 2019) was contributing to both dyadic hostile conflict and SRP. There is also the possibility of the presence of mediators that were not included in the current analysis. One possibility is that SRPs arise from substance use to avoid one's partner following conflict, which would not be captured by coping motives.

H2: Partner effects

There were three main partner effects observed. The first was a serial mediational pathway in which dyadic hostile conflict predicted *partner's* SRP via *own* EDS and *own* coping motives. This was significant in both the indistinguishable model and for women's EDS and coping motives predicting men's SRP, but not vice versa. The difference between this pathway for men's and women's SRP was not statistically significant, however. The same pattern of significance was true for the component pathway of own EDS to own coping motives to *partner's* SRP. This suggests this effect is true both when EDS is associated with dyadic hostile conflict, a novel finding of this study, and when EDS occurs independently of dyadic hostile conflict, the latter of which is consistent with previous findings with individuals (Bravo & Pearson, 2017).

The partner-effect serial mediation pathway replicates and extends results from Study 1, Chapter 2, Hagen et al. (2023b) who found that men reported more alcohol use behaviour associated with their women partner's coping motives in Wave 1 of the COVID-19 pandemic and from Study 3 (Chapter 6), which found that one's EDS and

coping motives (associated with conflict) predicted one's *partner's* cannabis use (and this was marginally true for women's EDS and coping motives predicting men's cannabis use). Additionally, this serially mediated partner effect is consistent with extant evidence that one's own substance-related outcomes may be partially in response to a close other's coping motives (Hussong, 2003; Kehayes et al., 2019; Kehayes et al., 2020). However, most of this research has been conducted on young or emerging adults; the current study presents evidence that this phenomenon may generalize to a wider age range of adults. Additionally, this effect has not yet been demonstrated regarding SRP – only direct substance use behaviour (i.e., frequency or quantity of use). Lambe et al. (2015) did not find such partner effects when examining coping motives and alcohol-related problems. Thus, it is possible that partner effects were larger (and thus easier to detect) in the pandemic context, that the sample size in the Lambe et al. (2015) paper was too small to detect partner effects ($N = 100$ couples), or that effects are larger when considering problems related to drug use in addition to alcohol use.

Additionally, our results show evidence of a single mediator partner effect pathway of conflict to one's own EDS to their *partner's* coping motives. This was found in the indistinguishable dyads analyses, as well as for women's EDS predicting men's coping motives but not for men's EDS predicting women's coping motives. The difference between the significant and non-significant path in the distinguishable dyads analysis was not significant, however. This suggests that one partner's coping motives (particularly men's) may be partially in response to their partners' distress in addition to being in response to their own symptoms. However, this pathway failed to predict SRP. It is possible that this pathway would predict substance use behaviour directly (i.e.,

frequency or quantity of use) rather than SRP. This was found in Study 3 (Chapter 6) in which men's EDS was predictive of women's cannabis use (this pathway was marginally significant, $p = .055$ when including conflict). It is also possible that this mechanism is more robust on an event-level which could be examined using daily diary methods.

Taken together, with one exception, these partner effects suggest that partner influence on SRP occurs primarily via motives (rather than via emotional disorder symptoms), as hypothesized. The exception is a significant single mediator partner effect from dyadic hostile conflict to men's EDS to women's SRP. This was not found for women's EDS to men's SRP or in the indistinguishable analyses**.** Additionally, the difference between these paths within the distinguishable analysis was significant. This result will be discussed below.

H3: Gender differences

Our third hypothesis was partially supported. Overall, despite many pathways that were significant for one gender but not the other (e.g., the actor serial mediation pathway), most of these gender differences were themselves non-significant. In other words, despite different patterns emerging for men and women partners in mixed-gender couples, the current results suggest that overall, each gender's effects in this model are more similar than they are different.

The one exception to this was a single mediation pathway, mentioned above, in which dyadic hostile conflict predicted women's SRP via men's EDS, but the inverse pathway (dyadic hostile conflict → women's EDS → men's SRP) was non-significant. The component pathway (men's EDS to women's SRP) was also significant, but the inverse component pathway was not (women's EDS to men's SRP). These gendered

pathways were significantly different from each other. In other words, only women experienced higher levels of SRPs associated with their men partner's conflict-induced and non-conflict-related EDS.

This is somewhat in contrast to findings from Hagen et al. (2023b; Study 1, Chapter 2), who found that men's coping motives were protective for women's alcohol *use*, whereas it was women's coping motives that predicted more alcohol *use* for their men partners. However, there are several important differences between these two findings. The previous findings examined alcohol use, which may have distinct antecedents from SRP. Another more likely possibility is that the current sample included cannabis users and cannabis-related problems, whereas the prior findings only examined drinkers and alcohol use – perhaps women's distress (whether EDS or coping motives) has differential effects by substance or by individual characteristics found in different substance using samples. In Study 3 (Chapter 4), it was found that women's coping motives were predictive of men's cannabis use, similar to Study 1 (Chapter 2) with alcohol use. Thus, another possibility is that gender effects vary by substance use vs substance problems.

It was surprising that women's SRPs associated with their men partner's conflict-induced EDS was not further mediated through coping motives. It is possible that our measure of coping motives did not accurately capture the variance associated with partners' EDS. For instance, it is possible that women felt anger, shame (i.e., related to stigma), or loneliness associated with their partner's EDS which contributed to the development of women's SRPs – neither of which were captured by our coping motives measure. Additionally, it is possible that our methods (sample size and cross-sectional

data) did not allow for the detection of a true effect that may be smaller in magnitude or developing across time. Because SRPs develop over time and are not single instances of behaviour, it is possible the true antecedents were not caught in the current study's cross-sectional measurement period.

Our findings are generally consistent with interpretations from Levitt and Cooper (2010) that overall, the complex associations between relationship functioning and substance use may be more impactful for women than for men. Specifically, our findings indicate that women's EDS (and to a lesser degree, coping motives) associated with conflict may be more impactful for *both* partners' SRP than men's EDS associated with conflict. Women's EDS associated with conflict is well established; indeed, that women experience more risk of emotional disorders following IPV than men has been demonstrated in laboratory conflicts and longitudinal studies, including for mutually violent relationships and including when frequency and severity of IPV is accounted for (Ahmadabadi et al., 2020b; Ansara & Hindin, 2011; Ehrensaft et al., 2006; Simpson et al., 1996; Temple et al., 2005). These findings also hold when examining non-violent forms of conflict (Brummett et al., 2000; Renner et al., 2014).

Limitations

There are several important limitations. The current analyses were conducted on cross-sectional data, and therefore causal conclusions cannot be drawn. Cross-sectional mediation has been criticized for its overuse, particularly when findings may not replicate longitudinally (O'Laughlin et al., 2018). However, others have argued that cross-sectional mediation may be appropriate to provide initial evidence of possible mechanisms and when interpreted appropriately (Hayes & Rockwood, 2020). Further research

incorporating longitudinal design are necessary to delineate the direction of these effects. A four-wave longitudinal APIM would be important to examine these serial mediation effects. Daily diary studies may also be helpful to ascertain if dyadic hostile conflict acts as a maintenance mechanism of already developed SRP and acts on a day-to-day level (Votaw & Witkiewitz, 2021).

Measurement considerations are important to the interpretation of these results. The BAMM is a brief tool that allows for reduced burden on participants, but the high correlation observed between the two coping scales in the present study suggest that it was not ideal for examining coping-with-anxiety and coping-with-depression motives separately in this sample. The Lambe et al. (2015) study found significant mediation for coping-with-depression motives, but not for coping-with-anxiety; however, this study used a multi-item measure of each construct. Future studies would benefit from using the full Drinking Motives Questionnaire-Revised (Grant et al., 2007) to allow for further examination of specific coping motives. In addition, all measures in this study relied on retrospective self-report, which may be susceptible to memory biases (Schmier & Halpern, 2004), particularly for mood-dependent recall (Mathersul & Ruscio, 2020), and socially desirable reporting (Dutton & Hemphill, 1992). However, research has also shown accurate recall of self-relevant information or for particularly salient information, which may apply to hostile conflict behaviours (Agastein & Buchanan, 1984; Lorents et al., 2023). Lastly, it is possible that the current analyses were underpowered to detect smaller effects, particularly in the distinguishable dyads (gendered) model.

The measure used to assess SRP has limitations to note. It did not allow for the separation of alcohol-related problems and cannabis-related problems, as some

individuals reported on both. Similarly, members of a couple may have each reported on separate substance-related problems (i.e., one alcohol and one cannabis, or one alcohol and on both substances). This means that there may be substance cross-over in the model (i.e., instances in which one partner's cannabis motives predict their partner's alcohol problems). While this measure was useful in its inclusivity and ability to examine transdiagnostic risk factors for SRP, it lacked in specificity, and thus may be masking specificity of effects by substance. Additionally, of the fifteen items in the SIP-AD, four items pertain to interpersonal problems. However, only one of these items involves conflict while intoxicated. This may have resulted in some measurement overlap between the measure of hostile romantic conflict and the SIP-AD.

Lastly, there may be limitations related to the sample recruited. For instance, the statistical tools used did not allow for the inclusion of same-gender couples in the distinguishable analyses; as such, our results may not generalize to same-gendered couples. Additionally, the sample was predominantly White and highly educated, potentially limiting generalizability to more diverse groups.

Implications

Though more research is needed to establish a causal or even temporal link, these results suggest that dyadic hostile conflict may partially contribute to the high comorbidity of emotional disorders and substance use disorders (Stewart et al., 2016) via coping-motivated use. Additionally, these results provide further evidence of an individual's substance-related problems being associated with a close others' coping motives, highlighting the importance of considering social environments when treating individuals with substance-related problems. And the findings also suggest that conflict

may be riskier for women's SRP than for men's. Overall, dyadic hostile conflict and associated substance-related problems are important public health considerations for informing interventions during future disaster- or pandemic-related crises.

Table 8.1 Comparison of Continuous Demographic Variables by Included vs. Excluded Participants

	Included sample	Excluded sample	*t*	*p*
Age	37.98 (6.90)	38.55 (6.62)	1.87	.062
Dyadic hostile conflict	22.40 (15.07)	18.61 (13.32)	-5.82	< .001
Emotional disorder symptoms	13.01 (10.45)	10.66 (10.16)	-5.01	< .001
Alcohol coping motives	3.48 (3.03)	3.04 (2.98)	-1.86	.064
Cannabis coping motives	5.18 (2.80)	4.72 (3.10)	-.131	.192
SIPAD	8.51 (12.05)	4.56 (8.70)	-4.98	< .001

Note. SIPAD = Short Inventory of Problems-Alcohol and Drugs

Table 8.2 Correlation Matrix

	1.	2.	3.	4.	5.
1. Dyadic hostile conflict	-				
2. Emotional disorder symptoms	.580***	-			
3. Alcohol coping motives	.390***	.491***	-		
4. Cannabis coping motives	.210***	.395***	.641***	-	
5. Substance-related problems	.678***	.525***	.212***	.212***	-
M (SD)	22.40 (15.07)	13.01 (10.45)	3.48 (3.03)	5.18 (2.80)	8.51 (12.05)
Range	7-63	0-48	0-10	0-10	0-45
Cronbach's alpha	.955	.951	.896	.828	.981

Note. EDS = emotional disorder symptoms; correlation matrix for $n = 986$ participants included in any of the GSEM models; $p < .05$*, $p < 0.01$**, $p < .001$***.

Table 8.3. Mediation Pathways for Indistinguishable Dyads Predicting Substance-Related Problems

Linear paths

	Path		Symmetric path	Effect	*b*	SE	*p*	LCI	UCI
Direct	Conflict →A Cop	=	Conflict →B Cop		.020	.010	.056	-0.001	0.040
Indirect	**Conflict →A EDS→A Cop**	**=**	**Conflict →B EDS→B Cop**	**Actor**	**.050**	**.005**	**.000**	0.039	0.060
	Conflict →A EDS→B Cop	**=**	**Conflict →B EDS→A Cop**	**Partner**	**.010**	**.005**	**.031**	0.001	0.019

Non-linear paths

	Path		Symmetric path	SE	*p*	IRR	LCI	UCI
Direct	**Conflict →A SRP**	**=**	**Conflict →B SRP**	**.007**	**.000**	**1.051**	**1.036**	**1.066**
	A EDS→A SRP	**=**	**B EDS→B SRP**	**.008**	**.013**	**1.021**	**1.004**	**1.037**
	A EDS→B SRP	=	B EDS→A SRP	.008	.802	1.002	0.986	1.019
Indirect	**Conflict →A EDS→A SRP**	**=**	**Conflict →B EDS→B SRP**	**.004**	**.014**	**1.009**	**1.002**	**1.016**
	Conflict →A EDS→B SRP	=	Conflict →B EDS→A SRP	.004	.802	1.001	0.994	1.008
	Conflict →A Cop→A SRP	=	Conflict →B Cop→B SRP	.002	.083	1.004	1.000	1.008
	Conflict →A Cop→B SRP	=	Conflict →B Cop→A SRP	.001	.157	1.001	0.999	1.003
	A EDS→A Cop→A SRP	**=**	**B EDS→B Cop→B SRP**	**.004**	**.000**	**1.021**	**1.012**	**1.030**
	A EDS→B Cop→A SRP	=	B EDS→A Cop→B SRP	.001	.135	1.002	0.999	1.004
	A EDS→A Cop→B SRP	**=**	**B EDS→B Cop→A SRP**	**.004**	**.026**	**1.008**	**1.001**	**1.016**
	A EDS→B Cop→B SRP	=	B EDS→A Cop→A SRP	.002	.071	1.004	1.000	1.009
	Conflict →A EDS→A Cop→A SRP	**=**	**Conflict →B EDS→B Cop→B SRP**	**.002**	**.000**	**1.009**	**1.005**	**1.013**
	Conflict →A EDS→B Cop→A SRP	=	Conflict →B EDS→A Cop→B SRP	.000	.133	1.001	1.000	1.002
	Conflict →A EDS→A Cop→B SRP	**=**	**Conflict →B EDS→B Cop→A SRP**	**.002**	**.027**	**1.004**	**1.000**	**1.007**
	Conflict →A EDS→B Cop→B SRP	=	Conflict →B EDS→A Cop→A SRP	.001	.070	1.002	1.000	1.004

Note: EDS = emotional disorder symptoms. Cop = coping motives. SRP = substance-related problems. IRR= Incident rate ratio. Standard errors and confidence intervals (CIs) were based on 1000 bootstrapped replicates.

Table 8.4. Mediation Pathways for Distinguishable Dyads (by Gender) Predicting Substance-Related Problems

Linear paths

	Path	*b*	SE	*p*	LCI	UCI
Direct	**Conflict →W Cop**	**0.034**	**0.014**	**.020**	**0.005**	**0.062**
Indirect	**Conflict →W EDS→W Cop**	**0.050**	**0.008**	**<.001**	**0.034**	**0.066**
	Conflict →W EDS→M Cop	**0.013**	**0.007**	**.041**	**0.001**	**0.026**
Direct	Conflict →M Cop	0.023	0.015	.120	-0.006	0.053
Indirect	**Conflict →M EDS→M Cop**	0.054	0.011	**<.001**	0.031	0.076
	Conflict →M EDS→W Cop	-0.002	0.010	.822	-0.021	0.017

Non-linear paths

	Path	*b*	SE	*p*	IRR	LCI	UCI
Direct	**Conflict →W SRP**	**0.047**	**0.008**	**.000**	**1.048**	**1.031**	**1.066**
	W EDS→W SRP	**0.024**	**0.014**	**.076**	**1.025**	**0.997**	**1.053**
	W EDS→M SRP	-0.029	0.016	.070	0.971	0.941	1.002
Indirect	Conflict →W EDS→W SRP	0.009	0.005	.076	1.009	0.999	1.020
	Conflict →W EDS→M SRP	-0.011	0.006	.077	0.989	0.977	1.001
	Conflict →W Cop→W SRP	**0.010**	**0.005**	**.034**	**1.010**	**1.001**	**1.020**
	Conflict →W Cop→M SRP	0.004	0.002	.059	1.004	1.000	1.009
	W EDS→W Cop→W SRP	**0.040**	**0.008**	**<.001**	**1.040**	**1.025**	**1.057**
	W EDS→M Cop→W SRP	0.002	0.002	.359	1.002	0.998	1.007
	W EDS→W Cop→M SRP	**0.017**	**0.006**	**.004**	**1.017**	**1.006**	**1.029**
	W EDS→M Cop→M SRP	0.005	0.003	.118	1.005	0.999	1.012
	Conflict →W EDS→W Cop→W SRP	**0.015**	**0.003**	**<.001**	**1.015**	**1.009**	**1.021**
	Conflict →W EDS→M Cop→W SRP	0.001	0.001	.363	1.001	0.999	1.003
	Conflict →W EDS→W Cop→M SRP	**0.006**	**0.002**	**.004**	**1.006**	**1.002**	**1.011**
	Conflict →W EDS→M Cop→M SRP	0.002	0.001	.127	1.002	0.999	1.005
Direct	**Conflict →M SRP**	**0.052**	**0.010**	**<.001**	**1.053**	**1.033**	**1.074**
	M EDS→M SRP	0.056	0.016	**<.001**	1.057	1.025	1.090

	M EDS→W SRP	0.032	0.015	**.032**	1.032	1.003	1.063
Indirect	**Conflict →M EDS→M SRP**	**0.026**	**0.007**	**<.001**	**1.026**	**1.012**	**1.041**
	Conflict →M EDS→W SRP	**0.015**	**0.007**	**.030**	**1.015**	**1.001**	**1.029**
	Conflict →M Cop→M SRP	0.003	0.003	.192	1.003	0.998	1.009
	Conflict →M Cop→W SRP	0.001	0.002	.380	1.001	0.998	1.005
	M EDS→M Cop →M SRP	**0.017**	**0.008**	**.024**	**1.017**	**1.002**	**1.032**
	M EDS→W Cop →M SRP	-0.001	0.003	.824	0.999	0.994	1.005
	M EDS→M Cop →W SRP	0.007	0.007	.297	1.007	0.994	1.020
	M EDS→W Cop →W SRP	-0.001	0.006	.824	0.999	0.987	1.011
	Conflict →M EDS→M Cop→M SRP	**0.008**	**0.004**	**.030**	**1.008**	**1.001**	**1.015**
	Conflict →M EDS→W Cop→M SRP	-0.0002	0.001	.824	1.000	0.997	1.002
	Conflict →M EDS→M Cop→W SRP	0.003	0.003	.304	1.003	0.997	1.009
	Conflict →M EDS→W Cop→W SRP	-0.001	0.003	.824	0.999	0.994	1.005

Note: W EDS= women's emotional disorder symptoms. M EDS= men's emotional disorder symptoms. W Cop=women's coping motives. M Cop=men's coping motives. W SRP=women's substance-related problems. M SRP=men's substance-related problems. IRR= Incident rate ratio. Standard errors and confidence intervals (CIs) were based on 1000 bootstrapped replicates.

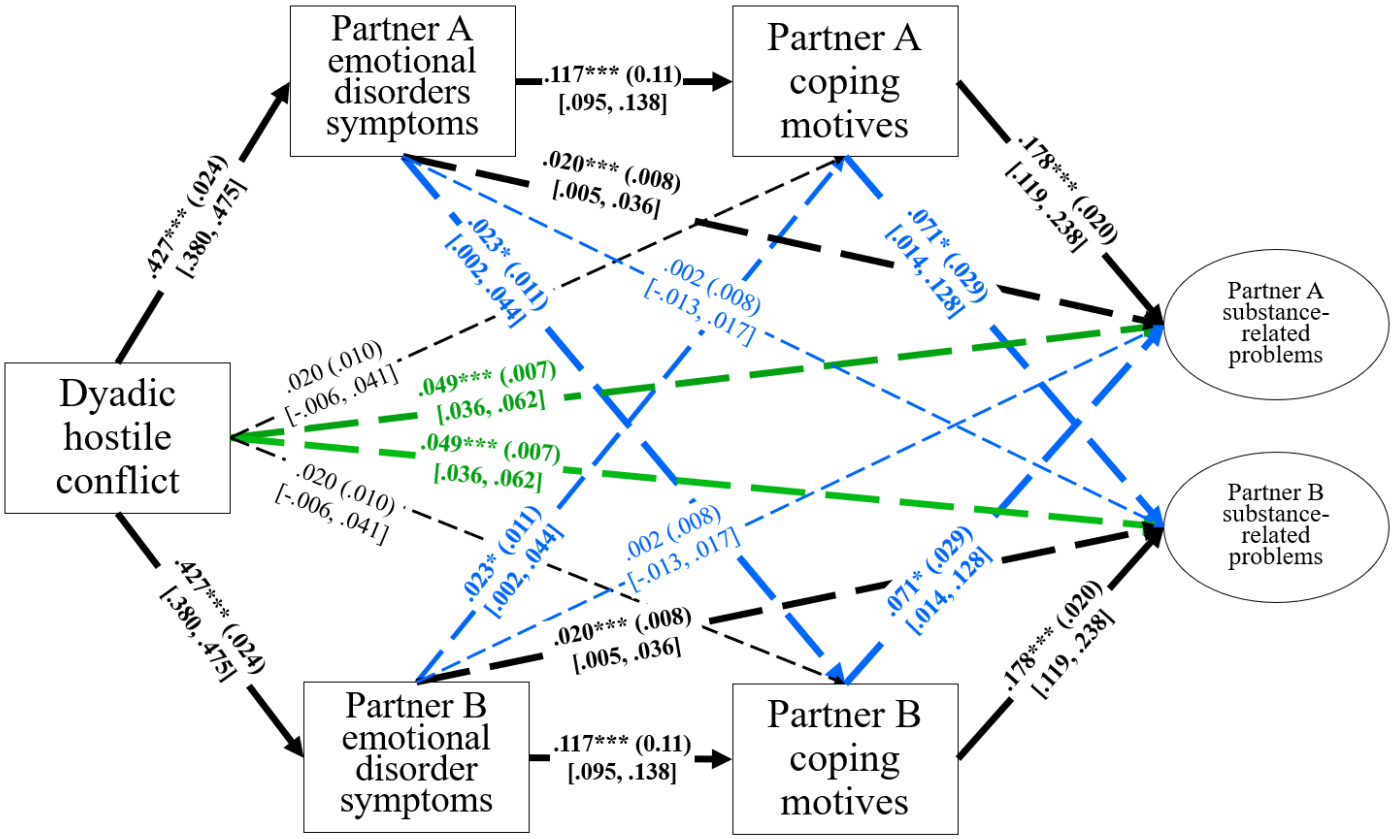

Figure 8.1. Serial Mediation Actor-Partner Interdependence Model with Indistinguishable Dyads Predicting Substance-Related Problems

Note. Values indicate standardized *b* coefficients. Thick lines indicate significant effects. Black lines indicate actor pathways, blue lines indicate partner pathways, green lines indicate direct pathways. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

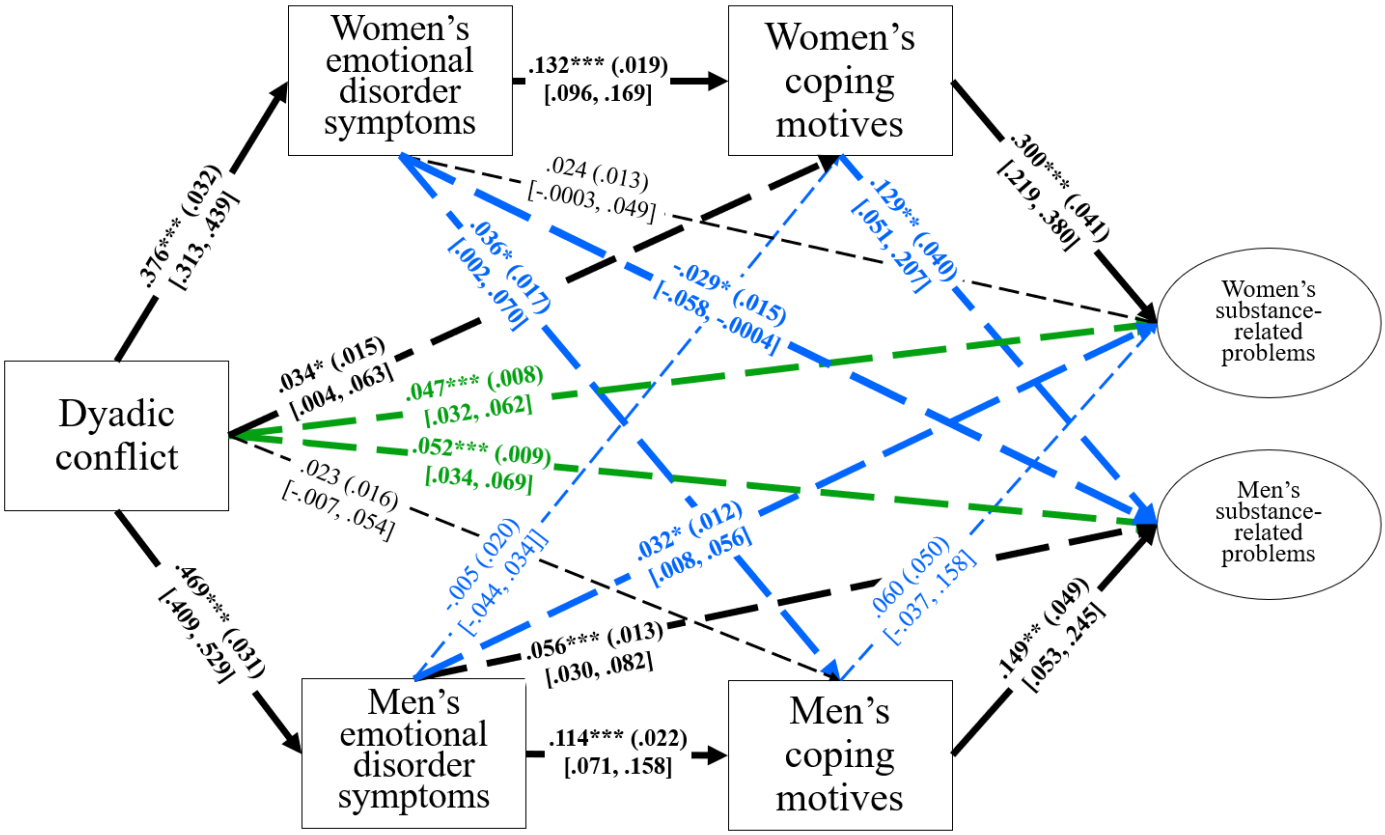

Figure 8.2. Serial Mediation Actor-Partner Interdependence Model with Distinguishable Dyads Predicting Substance-Related Problems

Note. Values indicate standardized *b* coefficients. Thick lines indicate significant effects. Black lines indicate actor pathways, blue lines indicate partner pathways, green lines indicate direct pathways. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

CHAPTER 9. General Discussion

This dissertation sought to examine a mechanistic pathway between hostile romantic conflict and addictive behaviours, specifically via emotional disorder symptoms and coping motives, during the COVID-19 pandemic. The included studies aimed to examine a range of addictive behaviours and problems associated with addictive behaviours, as well as examine a range of periods during the pandemic. Finally, this dissertation aimed to examine partner effects in these associations to better understand partner influence. To achieve this goal, couples or romantically involved individuals were recruited at three pandemic timepoints. Below, the results from four separate studies conducted over these three pandemic timepoints will be summarized and integrated both with one another and with the extant literature. Next, the theoretical and clinical implications of this body of work will be discussed. Lastly, the strengths and limitations of this work and recommendations for future directions will be reviewed, followed by a concluding statement.

Summary and Integration of Findings

Summary: Study 1

Study 1 (Chapter 2), entitled "*Drinking to cope mediates the association between dyadic hostile conflict and drinking behaviour: A study of romantic couples during the COVID-19 pandemic*", recruited couples to report on the first COVID-19 pandemic lockdown. A total of 348 couples who consumed alcohol in April 2020 reported on their conflict behaviours, coping motives, and drinking behaviour during that month (Wave 1 of the pandemic). Conflict reports were aggregated, and drinking was conceptualized as a latent variable, including typical quantity, peak quantity, and frequency of alcohol use.

Two actor-partner interdependence models were run to assess for coping motives as a mediator between conflict and drinking behaviour.

The indistinguishable dyads model found actor effects, but no partner effects. Additionally, a significant direct effect remained, even after accounting for the significant mediational pathway via coping motives. The distinguishable dyads model found actor effects for men and women, in which the pathway for women was larger in magnitude, but this difference only approached statistical significance. Additionally, roughly equal-but-opposite partner effects were detected, though one reached statistical significance and the other only approached significance. These effects indicate that men's coping motives (associated with dyadic hostile conflict) predicted lower levels of women's drinking, while women's coping motives (associated with dyadic hostile conflict) were marginally significant in predicting higher levels of men's drinking. Additionally, the direct effect in the indistinguishable model disappeared in the distinguishable model.

Summary: Study 2

Entitled "*What explains the link between romantic conflict and gambling problems? Testing a serial mediational model*", Study 2 (Chapter 4) sought to test the full mediational model as hypothesized in this dissertation, in a sample of gamblers. This study recruited 206 romantically involved gamblers (i.e., individuals, not couples) who reported on their enacted aggressive conflict behaviours, negative affect, coping motives, and gambling problems between Waves 3 and 4 of the pandemic. Notably, different facets of negative affect (anxiety, depression, stress) were assessed but found to hang too closely together in this sample to analyze separately; thus, this study examined negative affect more globally.

Results supported the chained mediational pathway. Additionally, a single mediational pathway via negative affect alone remained significant, as did the direct effect from conflict to gambling problems. Further, sensitivity analyses were run on each facet of negative affect and found no meaningful differences between models.

Summary: Study 3

Entitled *"Romantic conflict and coping-motivated substance use: An actor-partner interdependence serial mediation model*", Study 3 (Chapter 6) recruited couples who consumed alcohol and/or cannabis during Wave 2 of the COVID-19 pandemic and assessed their dyadic hostile conflict, EDS, coping motives, and substance use behaviour. Like in Study 1 (Chapter 3), conflict reports were aggregated, drinking was conceptualized as a latent variable (with peak drinking, drinking frequency, and binge drinking), and cannabis consumption was generated as a product of quantity and frequency.

The actor serial mediation pathway was supported for both alcohol and cannabis use. Surprisingly, no partner effects were detected for alcohol use in either the indistinguishable or distinguishable models. A single mediation pathway remained significant: from conflict to EDS to coping motives to alcohol use (for both women and in the indistinguishable model).

In contrast to alcohol use, partner effects were detected for cannabis use, in which conflict predicted one's cannabis use via their *partner's* EDS and coping motives, sequentially. Additionally, this pathway was marginally significant for women's EDS and coping motives predicting their men partner's cannabis use, but not for men's EDS and

coping motives predicting their women partner's cannabis use. Gender differences were themselves not statistically significantly different from each other.

Summary: Study 4

Entitled "*Dyadic conflict, emotional disorders, coping motives, and substance-related problems: A serial mediation model*", Study 4 (Chapter 8) sought to extend the results of Study 3 (Chapter 6) to examining substance-related problems (SRP) from the same dataset (gathered during Wave 2 of the COVID-19 pandemic). Indistinguishable and distinguishable actor-partner interdependence models were run. The main actor serial mediation pathway was supported for the indistinguishable dyads model, as well as for both men and women in the distinguishable dyads model. Additionally, a partner serial mediational pathway was supported in which one's SRP was predicted by one's partner's EDS and coping motives, associated with conflict. This held true for men's SRP, but not women's. In contrast, a single mediational pathway from conflict to EDS to one's *partner's* SRP was significant for women's SRP but not men's. The inverse was true for a single partner effect mediation via coping motives (significant in predicting men's SRP but not women's).

Integration

Taken together, the four dissertation studies corroborate the strong associations between hostile romantic conflict and addictive behaviours, across additive behaviours (i.e., alcohol, cannabis, and gambling) and provide evidence for a mechanism that may explain the ways in which hostile romantic conflict is risky for the development or exacerbation of addictive behaviours and/or experiencing problems associated with addictive behaviours. These studies provide an important extension to prior research,

which has established pieces of this mechanism but had not yet established the full chained mediational pathway in dyadic research. Additionally, the present dissertation extends the existing literature into the pandemic context. The pandemic context is important for two reasons: (1) it provides insight to the public health costs and benefits of lockdowns, other pandemic related restrictions, and of the pandemic itself, and (2) it provides a unique context in which partner effects may be more salient due to more time spent in the home and less time spent in other social settings (e.g., restaurants, bars, events, gatherings). The consistencies and inconsistencies in the results between studies will be discussed below.

Overall Support for Serial Mediation

The main actor effect hypothesized in this dissertation is a serial mediation pathway in which dyadic hostile conflict predicted an addictive behaviour or associated problems via EDS and, in turn, coping motives. The hypothesized actor serial mediation model was strongly supported by the results of Studies 2 (Chapter 4), 3 (Chapter 6), and 4 (Chapter 8); the serial mediation model was not tested in Study 1 (Chapter 2), but the single mediation pathway of conflict on alcohol use via coping motives was tested and supported. These results support extant evidence that dyadic hostile conflict is risky for addictive behaviours and associated problems, and that this may occur via distress associated with conflict leading to coping motivated engagement in addictive behaviours. These results are largely consistent with Lambe et al. (2015); however, the present dissertation found evidence for the mediational pathway amongst men and women, not just women. Gender differences will be discussed in detail below. Additionally, the Lambe et al. (2015) findings for alcohol-related problems in emerging adults were

extended to: (1) include the theorized mediator of EDS (Studies 2, 3, and 4), (2) gambling problems (Study 2), cannabis use and problems (Studies 3 and 4), and alcohol use (Studies 1 and 3), (3) samples of adults in middle adulthood. Specifically, Study 2 (Chapter 4) provided a novel contribution to the gambling literature, which thus far has been extremely limited on examining gambling as an outcome associated with dyadic hostile conflict. Furthermore, conflict as a predictor of cannabis use has been understudied.

In addition to the serial mediation pathway, Studies 3 and 4 demonstrated that EDS was associated with addictive behaviours and associated problems via coping motives *independently* from conflict as well. It was not hypothesized that conflict would entirely explain coping-motivated use; rather, it was hypothesized that coping-motivated use would explain the link between conflict and addictive behaviours and associated problems. Other factors contributing to EDS (e.g., other stressors besides dyadic hostile conflict) would likely account for the remaining variance in that pathway.

Overall, when comparing results across studies, it appears that the serial mediation model has more predictive value (i.e., larger beta values) when examining problems associated with addictive behaviours (Studies 2 and 4) compared to when examining addictive behaviours directly (Studies 1 and 3). While Studies 1 and 2 have limitations to direct comparison (i.e., APIM vs mediation, presence vs absence of EDS variable), Studies 3 and 4 can be directly compared with more confidence since they were conducted on the same sample and dataset. Study 3 (Chapter 6) found that for each unit increase in conflict, alcohol and cannabis use increased by 8-13%, while Study 4 (Chapter 8) found increases in SRP by 24-33% for every unit increase in conflict. In other

words, conflict appears to be riskier for more severe *problems* associated with gambling, alcohol, and cannabis use, than it does for using more alcohol and cannabis.

Direct Effect and Single Mediators

Notably, a direct effect of conflict on the addictive behaviour outcomes remained significant in several of the results. Specifically, a direct effect remained in Study 1 (Chapter 2) in the indistinguishable dyads analysis but became marginal in the distinguishable dyads model; in Study 2 (Chapter 4), a direct effect remained; in Study 4 (Chapter 8), but not Study 3 (Chapter 6), a direct effect remained in both indistinguishable and distinguishable models. This pattern suggests that the serial mediation pathway does a better job capturing most variance when examining addictive *behaviours*, rather than problems stemming from addictive behaviours, and that a direct effect is more likely to remain when examining problems. Regardless of the specific pattern, the degree to which a direct effect remained across models tested suggests that the serial mediation via EDS and coping motives does not capture all the variance in the link between conflict and addictive behaviours and associated problems.

One possibility is that the direct effect is a spurious effect resulting from cross-sectional data; indeed, Lambe et al. (2015) did not report a direct effect in their longitudinal dataset. Longitudinal models allow for the control of baseline variance, which may explain these differences. Another possibility is measurement error. The most likely measurement error is a mismatch between EDS associated with conflict, and coping motives associated with these EDS. For instance, if someone experiences dysregulated anger following conflict and uses cannabis to regulate, that may not have been captured in the measures used in Study 3 (Chapter 6) which focused on anxiety and

depression symptoms and anxiety and depression coping motives. Similarly, if someone experiences dysregulated shame following conflict and is at increased risk of binge drinking due to low self-regard (DeHart et al., 2008; Quaglino et al., 2020), this would be captured neither by the measure used of EDS or coping motives.

Another explanation may be relevant for the remaining *direct* effect of conflict on addictive behaviours. Specifically, partners may be engaging in addictive behaviours together following conflict to co-regulate and/or to facilitate relationship repair (Gilchrist et al., 2019; Levitt & Leonard, 2013). Future studies would need to examine context of use closely (i.e., alone, with partner) and emotional consequences of the addictive behaviours to determine the degree to which couples are attempting to enhance intimacy following conflict through addictive behaviours.

Furthermore, measurement issues may also explain the unexpected single mediators. For instance, in Study 2 (Chapter 4), the conflict to negative affect to problem gambling pathway was stronger than the pathway via coping motives and the latter remained significant even with coping motives in the model. In Study 3 (Chapter 6), the single mediation pathway from dyadic hostile conflict to one's own coping motives to one's own drinking behaviour was significant for men but not for women and in the indistinguishable dyads model, and in Study 4 (Chapter 8), the conflict to EDS to SRP pathway remained significant in the indistinguishable dyads model and for men's SRP, but not women's. Lastly, in Study 4 (Chapter 8), the dyadic hostile conflict to men's EDS to women's SRP (partner effect) pathway was significant. In sum, several single mediation pathways remained, inconsistently via coping motives or via EDS. This suggests a potential mismatch between the deleterious emotional consequences

associated with enacted aggressive conflict behaviour and the measures of EDS used, and/or a mismatch between the emotional consequences and the measures of coping motives used. This may be especially likely due to the way conflict was measured. Specifically, self-reported own conflict behaviours were measured (enacted conflict) and those conflict behaviours were critical, hostile, or rejecting behaviours. Perhaps enacted and aggressive conflict is more likely to result in additional affective sequelae, such as anger (Bodenmann et al., 2010; Rabinovitz, 2014), or moral distress, i.e., guilt and shame (Taverna & Marshall, 2023; Taverna et al., 2021), with smaller effects on increased fear or anxiety (Johnson, 2006) or low mood (Ahmadabadi et al., 2020b), which are more strongly associated with victimization. If so, anger and moral distress would likely not have been fully captured in the current models. One remaining measurement possibility is that individuals may use addictive behaviours to cope following conflict, but not directly with EDS. For instance, some qualitative research has shown that individuals may use gambling as a way to get away from their partner following aggressive conflict (Suomi et al., 2019).

Partner Effects

Several partner effects were observed in the studies that recruited couples (Studies 1, 3, 4; Chapters 2, 6, 8). Specifically, gendered partner effects were found in Study 1 (Chapter 2), in the indistinguishable cannabis model in Study 3 (Chapter 6), in a marginal effect ($p = .050$) predicting men's cannabis use in Study 3 (Chapter 6), and in the indistinguishable model and predicting men's SRP in Study 4 (Chapter 8). Notably, the partner effects in Studies 3 and 4 (Chapters 6 and 8) all occurred in the same manner: conflict to own EDS to own coping motives to *partner's* addictive behaviour outcome.

That is, partner effects were mainly occurring from one partner's coping motives to the other partner's addictive behaviour. This is notable, as the models also tested pathways from one partner's EDS to the other partner's coping motives (which would suggest a desire to cope with one's partner's distress), and these were largely non-significant. There was one exception to this: in Study 4 (Chapter 8), conflict was associated with men's coping motives, mediated through women's EDS (single mediational pathway). Overall, however, effects are consistent with the hypothesis that partners influence each other's addictive behaviours in response to the others' coping motives. This is consistent with prior research that has found evidence for social influence via motives (Bartel et al., 2022; Kehayes et al., 2019; Kehayes et al., 2017). However, these findings are inconsistent with Lambe et al. (2015), who did not detect partner effects. One possibility is that partner effects are too small to detect, either outside of the pandemic context, or in emerging adulthood compared to adulthood, or with a smaller sample size. That partner effects were consistently detected in the present dissertation highlights the importance of considering dyadic effects and relational factors in addictions research. The theoretical and clinical implications of the detected partner effects will be discussed in full below.

What is noteworthy, however, is a salient difference between Study 1 (Chapter 2) and Study 3 (Chapter 6), in that both studies examined alcohol use as an outcome, and Study 1 (Chapter 2) found evidence of partner effects (in the distinguishable dyads (by gender) model only), while Study 3 (Chapter 6) did not. There are several methodological differences which may explain this difference. The latent variable of alcohol use in Study 1 (Chapter 2) contained typical quantity, but not binge drinking, while the latent variable of alcohol use in Study 3 (Chapter 6) contained binge drinking, but not typical quantity. It

is possible that partner effects occur more so for typical quantity and less so for binge drinking. Another possibility is differences in the pandemic context at each timepoint (discussed below). Additionally, it is possible that sample characteristics explain this effect: the sample in Study 1 (Chapter 2) was considerably older than the sample in Study 3 (Chapter 6), so it is also possible that partner effects increase with age.

Gender Effects (Actor)

Additionally, interesting gender differences were noted in actor effects. Study 1 (Chapter 2) found that conflict was marginally riskier for women's than men's alcohol use; similarly, Study 3 (Chapter 6) found no serial mediation pathway for cannabis use for men but did for women (although the difference between these pathways was not itself significant). In contrast, Study 2 (Chapter 4) found that conflict was significantly riskier for men's gambling problems than for women's. However, simple effects from dyadic hostile conflict to EDS were not significantly different for men and women (Studies 3 and 4, Chapters 6 and 8). Taken together, these results tentatively suggest that conflict may be riskier for women's addictive behaviours and associated problems, but that this difference may be behaviour dependent (true for substance use but perhaps not for gambling) and relatively small. This is consistent with the extant literature. While gender differences in this literature are not always consistent, they lean towards conflict being perhaps riskier for women's mental health outcomes (Ansara & Hindin, 2011; Beach et al., 2016; Homish et al., 2007; Levitt & Cooper, 2010; Liebregts et al., 2013).

Gender Effects (Partner)

A more robust pattern was observed in gender differences for partner effects. Both Study 1 and Study 3 (Chapters 2 and 6) found that women's coping motives

predicted men's addictive behaviours, but there were mixed findings on men's coping motives predicting women's addictive behaviours (i.e., a mix of inverse and null findings). For instance, Study 4 (Chapter 8) found that men's SRP was predicted by women's EDS and coping motives associated with conflict, but the inverse was not true. Additionally, Study 4 (Chapter 8) found that men's coping motives were predicted by women's EDS associated with conflict. Study 1 (Chapter 2) found an inverse effect, in which women reported *less* drinking behaviour in association with their men partner's coping motives, associated with conflict. This pattern suggests that men are more likely, compared to women, to respond to their partner's distress associated with conflict by engaging in addictive behaviours in problematic ways.

This could be interpreted as men being more responsive to learning (differential association) from their women partners. That is consistent with overall findings that men are more influenced by their women partner's alcohol use than women are influenced by their men partner's alcohol use (Muyingo et al., 2020). On the other hand, when it comes to romantic conflict, typically women report experiencing a larger emotional, psychosocial, and physical health impact (Ahmadabadi et al., 2019; Ansara & Hindin, 2011; Kiecolt-Glaser & Wilson, 2017; Wanic & Kulik, 2011). Alternatively, it could be that men tend to respond to signs of their women partner's distress associated with conflict in more maladaptive ways than women do for their men partners. This is consistent with gender differences in emotion work, which is discussed in Chapter 2 (Erickson, 2005; Umberson et al., 2020). A third (and not mutually exclusive) interpretation is that men are more at risk for problems associated with addictive

behaviours (Zakiniaeiz & Potenza, 2018), and thus may experience a lower threshold for partner influence to result in increased addictive behaviours and associated problems.

There were exceptions to this pattern; for instance, men's EDS predicted women's cannabis use (but this became marginal when associated with dyadic hostile conflict); conflict to men's EDS to women's SRP was also significant. Furthermore, it must be noted that *most* differences (between significance and non-significance) found between different gendered pathways were themselves not significantly different from each other, suggesting small and unstable gender effects that may lack clinical significance.

Specificity of Negative Affect/EDS

While there were measurement limitations in Studies 2, 3, and 4 (Chapters 4, 6, and 8), namely that the data collected did not empirically suggest a factor structure consistent with differentiating distinct types of negative affect or different EDS, the findings suggest that the serial mediation pathway may not be specific to different affects or unpleasant emotional symptoms. The strongest evidence of this is in Study 2 (Chapter 4), in which sensitivity analyses yielded no meaningful differences when examining depressive affect, anxious affect, and stress as mediators. However, this is in contrast with previous studies that have found some unpleasant affective states (i.e., anger, nervousness) are more strongly associated with drinking motives than lower arousal unpleasant affective states, such as sadness (Todd et al., 2009), including Lambe et al. (2015), which found conflict was linked to alcohol problems via coping-with-depression motives but not coping-with-anxiety motives. However, other studies have found mixed evidence for specificity with coping-with-depression vs. coping-with-anxiety motives

(Bravo & Pearson, 2017; Lambe et al., 2023), suggesting a combination of measurement error, true overlap, and true specificity of affect-to-motives.

Additionally, it appears that using a range of emotional disorder symptoms as the mediator, which includes affective items and non-affective items (e.g., insomnia), produces similar results to mediators that involve affect only (Studies 2 vs Studies 3 & 4). This is consistent with evidence that suggests individuals may drink to cope with specific EDS beyond pure affective measures (Atasoy et al., 2023; Bilevicius et al., 2018; Bravo et al., 2017; Wallis et al., 2022). However, there are limitations to this comparison, i.e., Study 2 (Chapter 4) examined gambling problems, while Studies 3 and 4 examined alcohol use, cannabis use, and associated problems. Additionally, Study 2 (Chapter 4) did not examine partner effects between members of a couple. And it is possible that the affective items in the PHQ-ADS drove the effects found in Studies 3 and 4 (Chapters 6 and 8).

Pandemic Intersection

The studies within this dissertation allow for some comparison of findings by timing within the COVID-19 pandemic context. (Albeit these comparisons are imperfect as the studies differed in ways other than the changing pandemic context.) Most directly comparable are the findings from Study 1 (Chapter 2), which took place in the first lockdown (wave 1, April 2020) and the alcohol results from Study 3 (Chapter 6), which took place during the second wave (January/February 2021) during which time significant public health restrictions were in place but not as restrictive as the first lockdown (CIHI, 2022). Study 1 (Chapter 2) demonstrated partner effects, while the alcohol results from Study 3 (Chapter 6) did not. While there are other confounds (e.g.,

presence of an additional mediator in Study 3 (Chapter 6), sample mean age difference of 16 years [older in Study 1]), these results tentatively suggest that partner influence effects may be stronger when public health measures are more stringent, thus limiting contacts with other individuals outside of the home. This interpretation is consistent with findings from Lambe et al. (2015), which took place pre-pandemic and, like Study 3 (Chapter 6), did not detect partner effects for an alcohol outcome.

However, partner effects were still detected for the cannabis use models and SRP models in Study 3 and 4 (Chapters 6 and 8), respectively. It is possible that cannabis use and SRP also have larger partner effects which were detectible, even outside of the first lockdown in April 2020, given continued (albeit milder) restrictions were in place in Wave 2. Unfortunately, Study 2 (Chapter 4) recruited individuals rather than couples, preventing a comparison on partner effects to a period during the pandemic between waves in which restrictions tended to be least stringent in Canada (CIHI, 2022). Overall, all three studies that examined partner effects observed some significant effects occurring during various degrees of public health restrictions, providing evidence for one mechanism that may explain increases in rates of alcohol use, cannabis use, substance-related problems, and gambling problems for subgroups during the pandemic (Capasso et al., 2021; Chong et al., 2022).

Theoretical Implications

Transdiagnostic Model of Addictive Behaviours and Multifinality

The concepts of multifinality (Cicchetti & Rogosch, 1996) and the transdiagnostic model of addictive behaviours (Kim & Hodgins, 2018) were introduced in the General Introduction in Chapter 1. While these are two distinct ideas, they both involve the notion

that a set of factors may be a final common pathway to a range of different addictive behaviours and problems associated with addictive behaviours. This dissertation proposed that coping-motivated addictive behaviours associated with distress related to dyadic hostile conflict may be one such final common pathway. The results of this dissertation support the theory of multifinality, and the extant literature, in that conflict appears to be strongly associated with a range of different outcomes (e.g., alcohol use, cannabis use, gambling problems, and substance-related problems). Additionally, the findings of this dissertation support a transdiagnostic model of addictive behaviours, in that dyadic hostile conflict and coping-motivated addictive behaviours appears to be a shared risk factor across different addictive behaviours/problems, supporting the notion of addictive disorders as a heterogenous syndrome with shared etiological and perpetuating risk factors. Our findings are consistent with several proposed components of a transdiagnostic model of addictive behaviours, such as coping motives, and interpersonal factors such as poor social support (Kim & Hodgins, 2018), and an interpersonal and transdiagnostic model of addiction (Leach & Kranzler, 2013). Importantly, this finding was via coping motives as a common pathway, which will be examined below.

Conflict does not appear to be a stressor that confers specific risk to certain addictive behaviours, although the strength of effects in this dissertation were not directly tested against each other (i.e., if conflict is riskier for cannabis use compared to gambling, and so on). Additionally, the models run in this dissertation only included individuals who already engaged in the addictive behaviour being examined (due to only including people who had coping motives reported). Thus, these results are more suggestive of

conflict via coping motives as an *exacerbating* or *maintenance* mechanism. Conflict via coping motives as an etiological mechanism may also hold veracity but was not directly tested with the current data.

Motivational Model of Addictive Behaviours

The motivational model of addictive behaviours poses that individuals may engage in addictive behaviours to achieve various kinds of rewards, and that motives are a final common pathway via which more distal factors exert their influence (Cooper et al., 2016). Motives are theorized to each have distinct antecedents and consequences associated with them (Cooper et al., 2016). The current dissertation hypothesized that coping motives (i.e., engaging in additive behaviours to obtain relief from unpleasant internal states; negative reinforcement) may explain the link between engaging in aggressive conflict behaviours and addictive behaviours. The findings of this dissertation are consistent with the motivational model of addictive behaviours. This was examined via actor effects in a serial mediational model, in which the antecedents to coping motives examined were EDS associated with a stressor—dyadic hostile conflict, and the consequences examined were alcohol use, cannabis use, gambling problems, and problems associated with alcohol and cannabis use. Overall, it appears effect sizes may have been larger when examining gambling problems and substance-related problems compared to alcohol and cannabis use, though direct statistical comparisons were not made given other differences across the studies. This pattern is consistent with previous meta-analyses that indicate that coping motives are more robustly associated with problems than levels of use (Bresin & Mekawi, 2019; Bresin & Mekawi, 2021), and consistent with theory: the motivational model would posit that coping motives are

associated with more problems related to addictive behaviours (Cooper et al., 2016). Some gender differences were observed in relation to these actor effects. Study 1 (Chapter 2), cannabis use in Study 3 (Chapter 6), and Study 4 (Chapter 8) results suggest that conflict is riskier for women's addictive behaviours via coping motives. In contrast, Study 2 (Chapter 4) and alcohol use in Study 3 (Chapter 6) suggest that conflict is riskier for men's addictive behaviours via coping motives. However, these differences were smaller and involved weaker methods, e.g., controlling for gender in Study 2 (Chapter 4) vs distinguishable APIM, smaller sample size for the cannabis model in Study 3 (Chapter 6) compared to the alcohol model. Overall, gender differences were small and not entirely consistent, but taken together, suggest that, for individuals in mixed-gender relationships, women may be engaging in more coping motivated addictive behaviours associated with conflict compared to men. Several studies have found that women tend to report more coping motives than men and that women's coping motives is also more robustly associated with use or problems outcomes (Lehavot et al., 2014; Stewart & Zack, 2008; Terry-McElrath et al., 2010; Wallis et al., 2022): however, findings are mixed in that some have found no meaningful gender differences in coping motives (Jauregui & Estevez, 2020; Mezquita et al., 2011). Additionally, previous studies (Grant et al., 2007; Lambe et al., 2015; Mackinnon et al., 2014; Wallis et al., 2022) have delineated between coping-with-anxiety motives and coping-with-depression motives, which I did not do in this dissertation. This is elaborated upon in the discussion of future directions.

Interestingly, previous work has found that motives of one individual may be associated with the alcohol use of a close other (Kehayes et al., 2019; Kehayes et al.,

2020). This dissertation also sought to examine if coping motives (associated with conflict, and in turn, EDS) may predict one's romantic partner's addictive behaviours or associated problems. While not found across the board, several such partner effects were detected, adding to the literature on the partner influence of motives. Additionally, there was some evidence that individuals report coping motives associated with their partner's EDS, though this was only detected in Study 4 (Chapter 8) where men's coping motives were associated with women's EDS, but not vice versa.

Lastly, the General Introduction in Chapter 1 outlined previous research that examined if motives act on a trait- or state-like level (Cook et al., 2020; O'Hara et al., 2015; Votaw & Witkiewitz, 2021). The current dissertation examined between-subjects variance in coping motives, and thus adds to the literature on coping motives as a trait-like variable, which is how motives have most often been measured. Daily diary research that uses a daily measure of coping motives would need to be utilized to examine within-subjects variance at the event-level. Indeed, questions remain on the timescale(s) over which motives exert their effects, which is elaborated upon in the section below discussing future directions.

Social Learning Theory

The dissertation findings have implications for social learning theory. Overall, findings support the hypothesis that members of a couple influence each others' addictive behaviours. While selection effects were not controlled for in my dissertation studies, other studies have found robust influence even after controlling for the sizable effects of selection (Leonard, 1999). Specifically, the present dissertation adds to evidence of one possible mechanism of social influence in romantic partnerships on addictive behaviours:

via motives for use. This has been previously found longitudinally (Kehayes et al., 2019). As discussed above, my dissertation findings have gendered implications for social learning as well. Consistent with Muyingo et al. (2020), these findings suggest that men's addictive behaviour is more influenced by their women partner's than vice versa. This may be due to more vulnerability factors for addictive behaviours for men in general.

There are two theoretical mechanisms by which partner effects may have been observed (indicating social learning) in the present studies but not in Lambe et al. (2015). One is that the pandemic resulted in more time together and less time with individuals outside of the romantic partnership, enhancing the degree of influence within the partnership. Another possibility is that the age of the samples recruited drove partner effects, due to enhanced influence of one's romantic partner with age, also due to less influence of others (e.g., peer groups). Both possibilities are consistent with the notion of differential association (Akers, 1998), which would suggest that enhanced degree of exposure to a close other's behaviour will strengthen the degree of influence.

Clinical Implications

Individual Intervention

Romantic conflict is an important antecedent to relapse (Leach & Kranzler, 2013; Marlatt, 1996), particularly for women (Connors et al., 1998). The current dissertation presents one possible mechanism by which romantic conflict may be risky for relapse, namely via EDS and coping motives. Relapse prevention should focus on emotion regulation strategies, including following conflict; additionally, clinicians delivering relapse prevention may want to develop cope ahead plans for conflict specifically (Linehan, 1993). The results from this dissertation suggest that clinicians may want to

target emotion regulation for women in mixed-gender relationships specifically, but that managing emotional distress following conflict is an important target regardless of gender.

Data from a randomized clinical trial on CBT for SUD and anxiety disorders found that treatment effects were mediated by reductions in anxiety sensitivity (i.e., awareness of anxiety sensations and perceptions that they are dangerous), but not reductions in coping motives (Wolitzky-Taylor et al., 2018). This suggests that targeting the antecedent to coping motives, that is, EDS and associated variables (e.g., anxiety sensitivity, distress tolerance, emotion dysregulation) may be more effective than targeting coping motives directly. On the other hand, a randomized controlled trial for anxiety sensitivity found that CBT reduced anxiety sensitivity, which in turn was associated with reduced coping with anxiety motives and subsequently, reduced alcohol-related problems (Olthuis et al., 2015). These results are more consistent with the present findings, and perhaps occurred due to the specificity of motives examined (i.e., coping with anxiety vs coping motives). Another study found, contrary to hypotheses, that changes in coping motives did not predict changes in drinking behaviour following treatment in a community sample of individuals receiving AUD treatment (Votaw et al., 2021). However, in this sample at baseline, coping motives was not significantly associated with substance use; this unusual outcome suggests that perhaps it was a sample that engaged in less coping motivated use than is typical. In contrast, and consistent with theory, another randomized controlled trial for adults with CUD found that reductions in coping motives were associated with stronger treatment outcomes (Banes et al., 2014). Indeed, this study found that all motives reduced in intensity

following treatment, except for conformity motives; however, only reductions in coping motives predicted better reduced frequency of cannabis use and reduced cannabis-related problems (Banes et al., 2014). Interestingly, the reduction in coping motive was delayed and occurred between the 3-month and 9-month follow-up period, suggesting that either reductions in use came before reductions in coping motives, which further helped reduce use, or that continued skill use following treatment drove reductions in coping motives. Another randomized controlled trial treating CUD, this one in adolescents, found that reductions in all motives were associated with improved outcomes (reduced frequency of cannabis use and reduced cannabis-related problems) post-treatment, but that changes in coping motives were significantly more strongly associated with improved outcomes (Blevins et al., 2016).

The mixed findings in the current dissertation on the single mediator pathways in models testing chained mediation (i.e., via negative affect in Study 2 (Chapter 4), and via coping motives and/or EDS in Studies 3 and 4 (Chapters 6 and 8)) suggest likely some combination of measurement mismatch (discussed above) and real effects from each of these variables independent of the other on addictive behaviours and associated problems. Taken together with the present findings, the extant literature suggests that interventions for addictive behaviours at the level of the individual may be most effective if they target *both* negative affect/EDS *and* coping motives.

Couple's Intervention

A recent review found strong evidence for systemic family therapy, behavioural family therapy, and behavioural couple therapy for substance use disorders (Hogue et al., 2022). More limited evidence suggests that couples interventions are also effective in

treating gambling disorder (Ribeiro et al., 2021). For instance, behavioural couples therapy for women with substance abuse led to fewer days of substance use, longer periods of abstinence, fewer problems associated with substance use, and higher relationship satisfaction than individual-based treatment (Winters et al., 2002).

Behavioural couples therapy involves a structured approach to reversing the destructive cycle of conflict and substance use (Jacobson, 1992; Rotunda et al., 2013). The main objectives are to eliminate problem substance use/addictive behaviours, to bring the family in as a support for the person engaging in addictive behaviours to facilitate change, and to restructure interpersonal dynamics to help facilitate change towards harm reduction or abstinence (Jacobson, 1992; Rotunda et al., 2013). Components include problem solving skills, communication skills training, increase in caring behaviours, recovery contract, and components of standard individual substance abuse treatment (Jacobson, 1992; Rotunda et al., 2013). Additionally, alcohol behavioural couple therapy has been well established as an effective treatment for couples consisting of the patient for alcohol use treatment and the concerned significant other, comprising of cognitive behavioural therapy strategies for alcohol use and for partner coping and behavioural couple's therapy for the relationship (McCrady et al., 2016).

However, both of the above forms of couple's therapy are most strongly recommended when one partner has problems associated with addictive behaviours and the other does not. Indeed, couples in which one member abstains and the other uses is known to be particularly risky for adverse outcomes (Quigley & Leonard, 2000). Unfortunately, matched or co-use is common, as discussed in Chapter 1. Similarly, the present dissertation only included couples in which both members were using substances

during the reporting period, which is more representative of typical use patterns but may have excluded individuals with particularly aversive conflict dynamics (with the exception of Study 2 (Chapter 4), in which partners were not required to gamble, but dyadic data was not gathered). However, the current findings may be applicable to couples presenting for treatment in which both members wish to change their engagement in addictive behaviours. Specifically, the degree to which one's coping motives are risky for their partner's addictive behaviours may be a helpful topic to address (via psychoeducation and assessment), though the exact mechanism of this remains unknown. Furthermore, in mixed-gender couples, careful attention may need to be paid to men's risk for exacerbation of addictive behaviours and associated problems in response to their women's partner's distress and coping motives following aggressive and hostile conflict. Overall, due to the detection of partner effects in substance-related problems and cannabis use, interventions may overall be more effective if at the couple-level.

Public Health

While COVID-specific risk factors or stressors were not directly linked to the findings within each sample, all data in the current dissertation was collected while various public health measures were implemented. Thus, this dissertation has important public health implications for future pandemics or other disasters which involve shelter-in-place or stay-at-home orders. Public health guidance and/or restrictions will need to pay careful attention to the health costs and benefits of such measures. Longitudinal research and robust epidemiological data comparing pre- and peri-pandemic norms make it fairly clear that addictive behaviours were exacerbated in those most vulnerable during the pandemic (see Chapter 1 for a review of the evidence).

Additionally, due to the importance of social support in addiction treatment and relapse prevention (Birtel et al., 2017; Dobkin et al., 2002; Stillman & Sutcliff, 2020), and documented risk associated with low social support during the pandemic (Faris et al., 2023), public health agencies may wish to consider policies that bolster social support for vulnerable groups during a public health crisis. Ideally, this would allow for a balance of harm reduction of the impact of the measures/restrictions and harm reduction of the public health threat (e.g., viral spread). For instance, prioritizing in-person peer support groups, allowing for "bubbles" of households, and maintaining virtual treatment options are all possibilities. A diversity of social supports may buffer the amount of influence of one's romantic partner, reducing the magnitude of partner effects between one's partner's EDS or coping motives and one's own addictive behaviours.

Strengths and Limitations

Limitations for each study are discussed in each manuscript above. However, limitations that extend across the entire set of studies will be reviewed below, as they must be considered alongside any interpretation of findings. Strengths of the dissertation will also be discussed.

Recruited Couples and APIM

A significant strength of this dissertation is the recruitment of couples for three of four studies. This allowed for the use of actor-partner interdependence models (APIM), which permitted the examination of ways partners within a couple influence each other. This adds significantly to the literature on individuals' experience of dyadic hostile conflict and addictive behaviours (Brown et al., 2018; Cramer, 2004; Cunradi et al., 2020; Marchand-Reilly, 2012). Most importantly, this dissertation significantly adds to

the literature on partner influence of coping motives. Additionally, having both partners' reports of enacted aggressive conflict behaviours allowed for the conceptualization of *dyadic* conflict (Lambe et al., 2015). Indeed, relationship variables predict more variance in relationship quality than individual variables (Joel et al., 2020), and partner reports correlated highly within couples across the samples of dyads recruited in this dissertation, suggesting that the conceptualization of conflict as a dyadic variable holds veracity.

Cross-Sectional Design

The cross-sectional nature of the data in this dissertation prevents causal interpretations. Specifically, cross-sectional mediation cannot determine directionality of effect or temporal precedence of the associations examined. The criticisms of bias in cross-sectional mediation have been well-documented, including that findings may differ meaningfully from longitudinal findings and can result in biased parameter estimates (O'Laughlin et al., 2018). However, others have provided justification for cross-sectional mediation in specific circumstances, such as (a) having established causality between variables prior, (b) appropriate interpretation of causality or lack thereof, and (c) contributes iteratively to the literature, perhaps providing justification for a future longitudinal design (Hayes & Rockwood, 2020). Given that there are similar issues with "half-longitudinal designs" (e.g., mediation models with three variables and two waves of data collection) as there are with fully cross-sectional design (Hayes & Rockwood, 2020), it may be an appropriate use of resources to test a model with cross-sectional data before executing intensive three- and four-wave longitudinal designs. Further research incorporating longitudinal designs are necessary to delineate the direction of these preliminary findings (see Future Directions section below).

Self-Report Biases

All the data collected for this dissertation were self-reported. While this is the norm in psychological research, it is particularly noteworthy when participants are asked to self-report socially undesirable behaviours (Krumpal, 2011), such as yelling at their romantic partner. While it may be intuitive that one's reports of their *partner's* aggressive conflict behaviours would be more accurate, this may not be the case. Firstly, the high degree of correlation between partner reports of conflict suggests a degree of partner corroboration. Additionally, a large-scale meta-analysis found that self-reported behaviours had larger effect sizes than partner-reported behaviours in dyadic research (Joel et al., 2020), and desirability reporting bias has been found to not predict decreased reports of aggressive marital behaviour (Arias & Beach, 1987). Lastly, several techniques shown to reduce socially desirable reporting were utilized in the study methodology, such as online reporting/not having an interviewer present and providing assurances of confidentiality (Krumpal, 2011).

There are additional limitations of self-reported behaviour. One is that participants were asked to report on periods of time a few months prior to the time of recruitment, which may have introduced recall biases (Schmier & Halpern, 2004). Additionally, while there are advantages of online data collection (reach, speed of data collection during world events, enhanced willingness to respond honestly), online data collection has higher risks of fraud by participants than in-lab data collection. To address this, quality checks were used in all three datasets, such as attentional checks and speed checks (i.e., removing cases when surveys were completed too fast to be realistic). Despite these important fraud checks, it is possible that individuals may still have entered

erroneous data in ways that would not be detectable (e.g., a participant might have completed both sets of measures to obtain compensation).

Lastly, there is possible measurement concern to note in the self-reported measures selected. It may appear that there is potential overlap between dyadic hostile conflict and EDS in Studies 3 and 4 (Chapters 6 and 8), in that EDS can conceptually include irritability and hostility. However, this does not appear to have been a large problem in the present dissertation given that only one item (from the GAD-7 in the PHQ-ADS) included mention of hostility – the item tapping into feelings of irritability or annoyance.

Sample Characteristics

A significant limitation to the distinguishable models was the exclusion of same-gender couples from the analyses. This means that only the indistinguishable dyads models and the results in Study 2 (Chapter 4) are likely generalizable to same-gender couples, while the results from the distinguishable dyads models in Studies 1, 3, and 4 (Chapters 2, 6, and 8) are not. This is particularly notable due to the higher rates of both IPV (Rolle et al., 2018) and substance abuse (Kerr & Oglesby, 2017) in same-gender couples.

The biggest limitation of the exclusion of same-gender couples and non-binary individuals in the distinguishable dyads analyses is the exclusion of under researched minority groups. However, there are other considerations: analysing mixed-gender couples confound the effects of *being* a woman and the effect of being *partnered with* a man, and vice versa. Findings should be interpreted carefully, as one may easily assume that the effects are specific to the gender of the actor, and not to the gender of the partner.

Additionally, the samples included in the studies in this dissertation were disproportionately White, educated, and wealthy compared to the general population. These demographic characteristics may limit generalizability to populations with more ethnic diversity, less university education, and lower SES. Additionally, as addictive behaviours and associated problems are inversely associated with SES (Hasin et al., 2019; Swendsen et al., 2009; Volberg et al., 2018), it is possible that the association between dyadic hostile romantic conflict and coping-motivated addictive behaviour occurs differentially by SES. If so, this would not have been adequately captured in the current studies.

Lastly, due to convenience sampling, the findings in this dissertation may not generalize to individuals experiencing IPV (as opposed to hostile, aggressive, and rejecting conflict behaviours, measured across all four dissertation studies) or individuals experiencing moderate to severe problems associated with addictive behaviours. While all couples (or individuals in the case of Study 2, Chapter 4) included consumed substances or engaged in gambling activity, participants were not recruited or included on the basis of *problems* associated with addictive behaviours. Reported levels of use and associated problems were, as a result, below what would be consistent with clinical samples of individuals with disorders of addictive behaviours, though they were higher than general population norms. As an exception, participants in Study 2 (Chapter 4) reported mean gambling problems consistent with moderate problem gambling, and participants across all studies that measured EDS (Studies 2, 3, and 4; Chapters 4, 6, and 8, respectively) reported mild-to-moderate levels of emotional disorder symptoms. Overall, the results of these studies may not generalize to clinical samples or treatment-

seeking samples and are likely most applicable to those experiencing sub-threshold problems associated with addictive behaviours.

Future Directions

Consistent with the above limitations, there are several avenues for future research to build upon the work of this dissertation. First, to better explore the transdiagnostic model of addictive behaviours from conflict via coping motives, it may be important to better understand for whom this is the case (i.e., via moderated mediation). Possible moderators might include stable vulnerabilities (e.g., ACEs, attachment style, personality) or contextual variables (e.g., addictive behaviour context [social, solitary], conflict styles). Additionally, future studies may wish to make direct comparisons within the same dataset to various addictive behaviours, which would expand our understanding of dyadic hostile romantic conflict as a transdiagnostic risk factor for addictive behaviours.

Further research could extend what is known within drinking motives theory (Cooper et al., 2016). For instance, studies could be conducted to examine the mechanism of the contagion of motives, such as qualitative studies to ascertain if individuals are consciously aware of their partner's motives, or a multi-wave longitudinal study examining the influence of partner's motives on each other's motives over longer periods of time. Additionally, a daily diary study could examine the degree of matching of motives on a per-occasion basis following conflict via a daily diary study and whether post-conflict addictive behaviours are occurring together or apart. Importantly, the brief measure of motives used in Studies 1, 3, and 4 would need to be utilized to allow for daily measurement (Joyce et al., 2018). Future research that occurs on a longer timescale

could use the full DMQ-R (Grant et al., 2007) and Marijuana Motives Measure (Simons et al., 1998) to examine coping-with-anxiety and coping-with-depression motives separately, something that was not psychometrically supported by brief measures used in Studies 1, 3, and 4 of the current dissertation. Previous work has found at least partial specificity (i.e., affect mapping onto each sub-motive) with that factor structure, and thus is important to examine in future (Chinneck et al., 2018a; Lambe et al., 2015; Treeby & Bruno, 2012). However, there is evidence that a global drinking to cope measure provides stronger predictive validity than separating coping-with-anxiety and coping-with depression (Bravo & Pearson, 2017). Similarly, future studies may wish to consider various affective states and emotional disorder symptoms following conflict (e.g., anger, shame, rumination, insomnia) to discern any affective specificity following conflict and predicting coping motives. Specifically, other measures with more robust factor structures would have to be used, as the measures in the current dissertation were not sufficiently distinct to allow for examination separately.

Longitudinal research is needed to (1) confirm the directionality of the effects found in this dissertation and (2) better understand the temporal nature of this serial mediation model, i.e., if it occurs at the event-level, or across weeks, months, or years, and if coping motives are exerting their effect at the between- or within-subjects level (i.e., the trait or state level). Likely a series of studies taking place at various time-courses would be required, such as a daily diary (Shorey et al., 2014b) or ecological momentary assessment study (Buckner et al., 2015) as well as multi-wave longitudinal studies over weeks or months. Specifically, a four-wave longitudinal design (with APIM) would be

necessary to best control for cross-sectional variance to assess the full serial mediation model (Fava et al., 2023).

Ecological momentary assessment or daily diary studies may also be helpful to ascertain if dyadic hostile conflict acts as a maintenance mechanism of already developed addictive behaviours or associated problems (Votaw & Witkiewitz, 2021). These study designs would also allow for an examination of important considerations not examined in the current dissertation, such as (1) addictive behaviour context, i.e., at home, a bar, etc., (2) function within the relationship, i.e., facilitate repair, enhance intimacy, avoidance of one's partner, spite, etc. For instance, one could assess if days with earlier conflict are associated with increased addictive behaviour in either partner, and if this is mediated through EDS and coping motives. The above recommendations would also address gaps in understanding social learning theory in this area of research, i.e., understanding the mechanism of partner influence of motives, and understanding the timeframe of influence (e.g., event-level, shifts over time). Additionally, understanding context may shed light on sub-components of social learning in this area, e.g., due to mere exposure (differential associations) to a close other's behaviour vs seeing a behaviour be rewarded or punished in others (vicarious learning) (Akers, 1998; Bandura, 1997). There is extant evidence that conflict is an etiological mechanism for the development for emotional disorders (Ahmadabadi et al., 2020b) and substance use disorders (Ahmadabadi et al., 2019), but these findings have not been linked or linked via coping motives. Further, to extend these findings, it would be important to understand not just for which addictive behaviours conflict is a risk factor, but also for *whom* conflict is an important risk factor for addictive

behaviours (e.g., those with ACEs, those higher in trait coping motives, those with lower relationship satisfaction, attachment styles, etc.).

As mentioned above, longitudinal research would overcome the limitations of this dissertation which was conducted with cross-sectional designs. Ecological momentary assessment or daily diary methodology would also overcome the limitation of recall bias. One possibility to overcome socially desirable reporting is to conduct an in-laboratory conflict which can be coded, followed by a daily diary study, to investigate if couples who tend to engage in more hostile conflict behaviours are also more likely to engage in addictive behaviours following conflict in their typical environments.

Lastly, efforts could be made in future research in this area to address the diversity limitations of this dissertation. One study used unique methods: the authors overrecruited same-gender couples to allow for the delineation of the effect of being a given gender vs being partnered with a given gender; indeed, they found that providing emotion work is associated with poorer well-being, and that this was larger for those married to a man, rather than a larger effect based on the gender of the actor (Umberson et al., 2020). Future studies may wish to use similar methods to overrecruit same-gender couples to conduct such analyses and better represent this important minority in couple's conflict and addictive behaviours research. Additionally, it is recommended that future studies examine these phenomena in clinical samples (i.e., in individuals who meet diagnostic criteria for substance use disorders or gambling disorder) to increase the clinical utility of this area of study.

Conclusions

This aim of this dissertation was to better understand the link between dyadic hostile conflict and addictive behaviours and associated problems, examining alcohol, cannabis, and gambling. It was hypothesized that emotional distress and emotional disorder symptoms associated with dyadic hostile conflict between romantic partners may be an affective antecedent to coping motives, which may in turn result in heavier engagement in addictive behaviours and more severe associated problems (negative consequences of the addictive behaviour). Furthermore, it was hypothesized that members of couples may influence each other in these processes, particularly in the pandemic context. To explore these research questions, three sets of data (two of which were from couples) were collected from people who engaged in addictive behaviours at various time points during the first three waves of the COVID-19 pandemic. Overall, findings supported the main hypotheses. The hypothesized serial mediation was consistently supported for individuals, in which dyadic hostile conflict predicted their own emotional disorder symptoms, which in turn predicted coping motives, which in turn predicted addictive behaviours and associated problems. Findings suggest that this pathway may be stronger for problems associated with addictive behaviours than for heavier and more frequent engagement in addictive behaviours. The consistency of findings suggests that dyadic hostile conflict may be a non-specific risk factor across a range of addictive behaviours. Furthermore, several partner effects were detected in this model, adding to the literature on an individual's motives influencing their partner's addictive behaviours. Some gender differences were detected; although somewhat conflicting, they tentatively suggest that women may be more at risk of addictive

behaviour consequences associated with hostile romantic conflict, but that men may be more at risk of addictive behaviour consequences related to their women partner's distress associated with conflict. These findings contribute to the literature on coping motives, partner influence, and transdiagnostic conceptualizations of addictive behaviours, and add to our growing understanding of the public health impacts of the COVID-19 pandemic.

References

Adams, Z. W., Kaiser, A. J., Lynam, D. R., Charnigo, R. J., & Milich, R. (2012). Drinking motives as mediators of the impulsivity-substance use relation: Pathways for negative urgency, lack of premeditation, and sensation seeking. *Addictive Behaviors, 37*(7), 848-855. https://doi.org/10.1016/j.addbeh.2012.03.016

Adamson, S. J., & Sellman, J. D. (2003). A prototype screening instrument for cannabis use disorder: The cannabis use disorders identification test (CUDIT) in an alcohol-dependent clinical sample. *Drug and Alcohol Review, 22*(3), 309-315. https://doi.org/10.1080/0959523031000154454

Afifi, T. O., Brownridge, D. A., MacMillan, H., & Sareen, J. (2010a). The relationship of gambling to intimate partner violence and child maltreatment in a nationally representative sample. *Journal of Psychiatric Research, 44*(5), 331-337. https://doi.org/10.1016/j.jpsychires.2009.07.010

Afifi, T. O., Cox, B. J., Martens, P. J., Sareen, J., & Enns, M. W. (2010b). Demographic and social variables associated with problem gambling among men and women in Canada. *Psychiatry Research, 178*(2), 395-400. https://doi.org/10.1016/j.psychres.2009.10.003

Afifi, T. O., Cox, B. J., Martens, P. J., Sareen, J., & Enns, M. W. (2010c). The relation between types and frequency of gambling activities and poblem gambling among women in Canada. *Canadian Journal of Psychiatry, 55*(1), 28.

Afifi, T. O., LaPlante, D. A., Taillieu, T. L., Dowd, D., & Shaffer, H. J. (2013). Gambling involvement: Considering frequency of play and the moderating effects of gender and age. *International Journal of Mental Health and Addiction, 12*(3), 283-294. https://doi.org/10.1007/s11469-013-9452-3

Agastein, F. C., & Buchanan, D. B. (1984). Public and private self-consciousness and the recall of self-relevant information. *Personality and Social Psychology Bulletin, 10*(2), 314-325. https://doi.org/doi.org/10.1177/0146167284102019

Ahmadabadi, Z., Najman, J. M., Williams, G. M., & Clavarino, A. M. (2020a). Income, gender, and forms of intimate partner violence. *Journal of Interpersonal Violence, 35*(23-24), 5500-5525. https://doi.org/10.1177/0886260517719541

Ahmadabadi, Z., Najman, J. M., Williams, G. M., Clavarino, A. M., d'Abbs, P., & Smirnov, A. (2019). Intimate partner violence in emerging adulthood and subsequent substance use disorders: Findings from a longitudinal study. *Addiction, 114*(7), 1264-1273. https://doi.org/10.1111/add.14592

Ahmadabadi, Z., Najman, J. M., Williams, G. M., Clavarino, A. M., d'Abbs, P., & Tran, N. (2020b). Intimate partner violence and subsequent depression and anxiety disorders. *Social Psychiatry and Psychiatric Epidemiology, 55*(5), 611-620. https://doi.org/10.1007/s00127-019-01828-1

Akers, R. L., La Greca, A. J., Cochran, J., Sellers, C. (1998). Social learning theory and alcohol behavior among the elderly. *Sociological Quarterly, 30*(4), 625–638. https://doi.org/doi:10.1111/j.1533-8525.1989.tb01539.x

Alford, J. R., Hatemi, P. K., Hibbing, J. R., Martin, N. G., & Eaves, L. J. (2011). The politics of mate choice. *Journal of Politics, 73*(2), 362-379. https://doi.org/10.1017/s0022381611000016

Ali, P. A., Dhingra, K., & McGarry, J. (2016). A literature review of intimate partner violence and its classifications. *Aggression and Violent Behavior, 31*, 16-25. https://doi.org/10.1016/j.avb.2016.06.008

Allen, D. W. (2021). COVID-19 lockdown cost/benefits: A critical assessment of the literature. *International Journal of the Economics of Business, 29*(1), 1-32. https://doi.org/10.1080/13571516.2021.1976051

Aloia, L. S., & Solomon, D. H. (2015). Conflict intensity, family history, and physiological stress reactions to conflict within romantic relationships. *Human Communication Research, 41*, 367-389. https://doi.org/10.1111/hcre.12049

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed ed.).

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders, 5th edition (DSM-5)*. https://doi.org/10.1002/ejoc.201200111

Anda, R. F., Whitfield, C. L., Felitte, V. J., Chapman, D., Edwards, V. J., Dube, S. R., & Williamson, D. F. (2002). Adverse childhood experiences, alcoholic parents, and later risk of alcoholism and depression. *Psychiatric Services, 53*(8), 1-9.

Anderson, K. L. (2008). Is partner violence worse in the context of control? *Journal of Marriage and Family, 70*(5), 1157-1168. https://doi.org/10.1111/j.1741-3737.2008.00557.x

Ansara, D. L., & Hindin, M. J. (2011). Psychosocial consequences of intimate partner violence for women and men in Canada. *Journal of Interpersonal Violence, 26*(8), 1628-1645. https://doi.org/10.1177/0886260510370600

Anthenien, A. M., Lembo, J., & Neighbors, C. (2017). Drinking motives and alcohol outcome expectancies as mediators of the association between negative urgency and alcohol consumption. *Addictive Behaviors, 66*, 101-107. https://doi.org/10.1016/j.addbeh.2016.11.009

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical g. *Psychological Assessment, 10*(2), 176-181. https://doi.org/10.1037/1040-3590.10.2.176

Arbeau, K. J., Kuiken, D., & Wild, T. C. (2011). Drinking to enhance and to cope: A daily process study of motive specificity. *Addictive Behaviors, 36*(12), 1174-1183. https://doi.org/10.1016/j.addbeh.2011.07.020

Arbel, R., & Pliskin, J. (2022). Vaccinations versus lockdowns to prevent COVID-19 mortality. *Vaccines, 10*(8). https://doi.org/10.3390/vaccines10081347

Arias, I., & Beach, S. R. H. (1987). Validity of self-reports of marital violence. *Journal of Family Violence, 2*(2), 139-149.

Armeli, S., Conner, T. S., Cullum, J., & Tennen, H. (2010). A longitudinal analysis of drinking motives moderating the negative affect-drinking association among college students. *Psychology of Addictive Behaviors, 24*(1), 38-47. https://doi.org/doi:10.1037/a0017530

Armeli, S., O'Hara, R. E., Ehrenberg, E., Sullivan, T. P., Tennen, H. (2014). Episode-specific drinking-to-cope motivation, daily mood, and fatigue-related symptoms among college students. *Journal of Studies on Alcohol and Drugs, 75*(5), 766-774. https://doi.org/10.15288/jsad.2014.75.766

Asbridge, M., Duff, C., Marsh, D. C., & Erickson, P. G. (2014). Problems with the identification of 'problematic' cannabis use: Examining the issues of frequency, quantity, and drug use environment. *European Addiction Research, 20*(5), 254-267. https://doi.org/10.1159/000360697

Atasoy, P., Lambe, L., DeGrace, S., Cosman, T., Romero-Sanchiz, P., & Stewart, S. H. (2023). Cannabis coping motives might mediate the association between PTSD symptom severity and trauma cue–elicited cannabis craving. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-023-01190-z

Bahorik, A. L., Leibowitz, A., Sterling, S. A., Travis, A., Weisner, C., & Satre, D. D. (2017). Patterns of marijuana use among psychiatry patients with depression and its impact on recovery. *Journal of Affective Disorders, 213*, 168-171. https://doi.org/10.1016/j.jad.2017.02.016

Bailey, A. J., & McHugh, R. K. (2023). Why do we focus on the exception and not the rule? Examining the prevalence of mono- versus polysubstance use in the general population. *Addiction, 118*(10), 2026-2029. https://doi.org/10.1111/add.16290

Baines, L., Jones, A., & Christiansen, P. (2016). Hopelessness and alcohol use: The mediating role of drinking motives and outcome expectancies. *Addictive Behavior Reports, 4*, 65-69. https://doi.org/10.1016/j.abrep.2016.11.001

Balzarini, R. N., Muise, A., Zoppolat, G., Bartolomeo, A. D., Rodrigues, D. L., Alonso-Ferres, M., Urganci, B., Debrot, A., Pichayayothin, N. B., Dharma, C., Chi, P., Karremans, J., Schoebi, D., & Slatcher, R. B. (2020). Love in the time of covid: Perceived partner responsiveness buffers people from lower relationship quality associated with covid-related stressors. *PsyArXiv*. https://doi.org/https://doi.org/10.31234/osf.io/e3fh4

Bandura, A. (1971). *Vicarious and self-reinforcement processes: The nature of reinforcement*. Academic Press.

Bandura, A. (1997). *Social learning theory*. Prentice Hall.

Banes, K. E., Stephens, R. S., Blevins, C. E., Walker, D. D., & Roffman, R. A. (2014). Changing motives for use: Outcomes from a cognitive-behavioral intervention for marijuana-dependent adults. *Drug and Alcohol Dependence, 139*, 41-46. https://doi.org/10.1016/j.drugalcdep.2014.02.706

Baptist Mohseni, N., Morris, V., Vedelago, L., Kempe, T., Rapinda, K., Mesmer, E., Bilevicius, E., Wardell, J. D., MacKillop, J., & Keough, M. T. (2022). A longitudinal approach to understanding risk factors for problem alcohol use during the COVID-19 pandemic. *Alcoholism: Clinical and Experimental Research, 46*(3), 434-446. https://doi.org/10.1111/acer.14774

Barlow, D. H., Allen, L. B., & Choate, M. L. (2020). Toward a unified treatment for emotional disorders. *Behavior Therapy, 47*, 838-853. https://doi.org/10.1016/S0005-7894(04)

Barrault, S., Mathieu, S., Brunault, P., & Varescon, I. (2019). Does gambling type moderate the links between problem gambling, emotion regulation, anxiety, depression and gambling motives. *International Gambling Studies, 19*(1), 54-68. https://doi.org/10.1080/14459795.2018.1501403

Bartel, S., Sherry, S., Mahu, I., & Stewart, S. (2023). Development of brief alcohol and cannabis motives measures: Psychometric evaluation using expert feedback and longitudinal methods. *Cannabis, 6*(1), 34-49. https://doi.org/10.26828/cannabis/2023.01.004

Bartel, S. J., Sherry, S. B., Molnar, D. S., Mushquash, A. R., Leonard, K. E., Flett, G. L., & Stewart, S. H. (2017). Do romantic partners influence each other's heavy episodic drinking? Support for the partner influence hypothesis in a three-year longitudinal study. *Addictive Behaviors, 69*, 55-58. https://doi.org/10.1016/j.addbeh.2017.01.020

Bartel, S. J., Sherry, S. B., Rodriguez, L. M., & Stewart, S. H. (2022). Accuracy and bias in perceptions of why social network members drink: A truth and bias approach to drinking motive (mis)perception. *Emerging Adulthood, 10*(6), 1409-1419. https://doi.org/10.1177/21676968211065910

Bartel, S. J., Sherry, S. B., Smith, M. M., Glowacka, M., Speth, T. A., & Stewart, S. H. (2020). Social influences on binge drinking in emerging adults: Which social network members matter most? *Substance Abuse, 41*(4), 480-484. https://doi.org/10.1080/08897077.2019.1709604

Basso, N., Lambe, L. J., Kim, A. J., Rodriquez, L., Deacon, H., Nogueria-Arjona, R. S. S., Abbass, A., & Stewart, S. H. (2023). Effects of mandatory homeschooling during COVID-19 on conflict in romantic couples. *Journal of Family Psychology, 37*(2), 275-281. https://doi.org/doi.org/10.1037/fam0001052

Beach, S. R. H., Kim, S., Cercone-Keeney, J., Gupta, M., Arias, I., & Brody, G. H. (2016). Physical aggression and depressive symptoms: Gender asymmetry in effects? *Journal of Social and Personal Relationships, 21*(3), 341-360. https://doi.org/10.1177/0265407504042836

Belzer, K., & Schneier, F. R. (2004). Comorbidity of anxiety and depressive disorders: Issues of conceptualization, assessment, and treatment. *Journal of Psychiatric Practice, 10*(5), 296-306.

Benschop, A., Liebregts, N., van der Pol, P., Schaap, R., Buisman, R., van Laar, M., van den Brink, W., de Graaf, R., & Korf, D. J. (2015). Reliability and validity of the marijuana motives measure among young adult frequent cannabis users and associations with cannabis dependence. *Addictive Behaviors, 40*, 91-95. https://doi.org/10.1016/j.addbeh.2014.09.003

Bernusky, H. C. R., Tibbo, P. G., Conrod, P. J., Yunus, F. M., Keough, M. T., Thompson, K. D., Krank, M. D., Hadwin, A. F., & Stewart, S. H. (2023). Do anxiety symptoms mediate the association between cannabis use frequency and psychotic-like experiences in emerging adult undergraduates? *Canadian Journal of Psychiatry, 68*(11), 860-869. https://doi.org/10.1177/07067437231176900

Beydoun, H. A., Beydoun, M. A., Kaufman, J. S., Lo, B., & Zonderman, A. B. (2012). Intimate partner violence against adult women and its association with major depressive disorder, depressive symptoms and postpartum depression: A systematic review and meta-analysis. *Social Science and Medicine, 75*(6), 959-975. https://doi.org/10.1016/j.socscimed.2012.04.025

Biddle, N., Edwards, B., Gray, M., & Sollis, K. (2020). *Mental health and relationships during the COVID-19 pandemic*.

Bilevicius, E., Single, A., Bristow, L. A., Foot, M., Ellery, M., Keough, M. T., & Johnson, E. A. (2018). Shame mediates the relationship between depression and addictive behaviours. *Addictive Behaviors, 82*, 94-100. https://doi.org/10.1016/j.addbeh.2018.02.023

Binde, P., Romild, U., & Volberg, R. A. (2017). Forms of gambling, gambling involvement and problem gambling: Evidence from a Swedish population survey. *International Gambling Studies, 17*(3), 490-507. https://doi.org/10.1080/14459795.2017.1360928

Birtel, M. D., Wood, L., & Kempa, N. J. (2017). Stigma and social support in substance abuse: Implications for mental health and well-being. *Psychiatry Research, 252*, 1-8. https://doi.org/10.1016/j.psychres.2017.01.097

Blackwell, D. L., & Lichter, D. T. (2016). Homogamy among dating, cohabiting, and married couples. *The Sociological Quarterly, 45*(4), 719-737. https://doi.org/10.1111/j.1533-8525.2004.tb02311.x

Blanchard, K. A., Morgenstern, J., Morgan, T. J., Lobouvie, E. W., & Bux, D. A. (2003). Assessing consequences of substance use: Psychometric properties of the inventory of drug use consequences. *Psychology of Addictive Behaviors, 17*(4), 328-331. https://doi.org/10.1037/0893-164X.17.4.328

Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction, 97*, 487-499. https://doi.org/10.1046/j.1360-0443.2002.00015.x

Blevins, C. E., Banes, K. E., Stephens, R. S., Walker, D. D., & Roffman, R. A. (2016). Change in motives among frequent cannabis-using adolescents: Predicting treatment outcomes. *Drug and Alcohol Dependence, 167*, 175-181. https://doi.org/10.1016/j.drugalcdep.2016.08.018

Blume, A. W. (2001). Negative reinforcement and substance abuse: Using a behavioral conceptualization to enhance treatment. *The Behavior Analyst Today, 2*(2), 86-90. https://doi.org/doi.org/10.1037/h0099916

Boden, J. M., & Fergusson, D. M. (2010). Alcohol and depression. *Addiction, 106*, 906-914. https://doi.org/10.1111/j.1360-0443.2010.03351.x

Boden, J. M., Fergusson, D. M., & Horwood, L. J. (2014). Associations between exposure to stressful life events and alcohol use disorder in a longitudinal birth cohort studied to age 30. *Drug and Alcohol Dependence, 142*, 154-160. https://doi.org/10.1016/j.drugalcdep.2014.06.010

Bodenmann, G., Meuwly, N., Bradbury, T. N., Gmelch, S., & Ledermann, T. (2010). Stress, anger, and verbal aggression in intimate relationships: Moderating effects of individual and dyadic coping. *Journal of Social and Personal Relationships, 27*(3), 408-424. https://doi.org/10.1177/0265407510361616

Bolton, J. M., Robinson, J., & Sareen, J. (2009). Self-medication of mood disorders with alcohol and drugs in the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Affective Disorders, 115*(3), 367-375. https://doi.org/10.1016/j.jad.2008.10.003

Bonar, E. E., Goldstick, J. E., Collins, R. L., Cranford, J. A., Cunningham, R. M., Chermack, S. T., Blow, F. C., & Walton, M. A. (2017). Daily associations between cannabis motives and consumption in emerging adults. *Drug and Alcohol Dependence, 178*, 136-142. https://doi.org/10.1016/j.drugalcdep.2017.05.006

Bonn-Miller, M., & Zvolensky, M. (2009). An evaluation of the nature of marijuana use and its motives among young adult active users. *American Journal on Addictions, 18*(5), 409-416. https://doi.org/10.3109/10550490903077705

Bonn-Miller, M. O., Boden, M. T., Bucossi, M. M., & Babson, K. A. (2014). Self-reported cannabis use characteristics, patterns and helpfulness among medical cannabis users. *American Journal on Drug and Alcohol Abuse, 40*(1), 23-30. https://doi.org/10.3109/00952990.2013.821477

Bookwala, J., & Jacobs, J. (2004). Age, marital process, and depressed affect. *The Gerontologist, 44*(3), 328-338. https://doi.org/doi.org/10.1093/geront/44.3.328

Booth, A., Crouter, A. C., & Clements, M. (2001). *Couples in conflict*. Routledge.

Boschloo, L., Vogelzangs, N., van den Brink, W., Smit, J. H., Veltman, D. J., Beekman, A. T., & Penninx, B. W. (2012). Alcohol use disorders and the course of depressive and anxiety disorders. *British Journal of Psychiatry, 200*(6), 476-484. https://doi.org/10.1192/bjp.bp.111.097550

Boschloo, L., Vogelzangs, N., van den Brink, W., Smit, J. H., Veltman, D. J., Beekman, A. T., & Penninx, B. W. (2013). Depressive and anxiety disorders predicting first incidence of alcohol use disorders: Results of the Netherlands study of depression and anxiety (NESDA). *Journal of Clinical Psychiatry, 74*(12), 1233-1240. https://doi.org/10.4088/JCP.12m08159

Braithwaite, S., & Holt-Lunstad, J. (2017). Romantic relationships and mental health. *Current Opinion in Psychology, 13*, 120-125. https://doi.org/10.1016/j.copsyc.2016.04.001

Bravo, A. J., & Pearson, M. R. (2017). In the process of drinking to cope among college students: An examination of specific vs global coping motives for depression and anxiety symptoms. *Addictive Behaviors, 73*, 94-98. https://doi.org/10.1016/j.addbeh.2017.05.001

Bravo, A. J., Pearson, M. R., & Henson, J. M. (2017). Drinking to cope with depressive symptoms and ruminative thinking: A multiple mediation model among college students. *Substance Use and Misuse, 52*(1), 52-62. https://doi.org/10.1080/10826084.2016.1214151

Brenneke, S. G., Nordeck, C. D., Riehm, K. E., Schmid, I., Tormohlen, K. N., Smail, E. J., Johnson, R. M., Kalb, L. G., Stuart, E. A., & Thrul, J. (2022). Trends in cannabis use among U.S. Adults amid the COVID-19 pandemic. *International Journal of Drug Policy, 100*, 103517. https://doi.org/10.1016/j.drugpo.2021.103517

Bresin, K., & Mekawi, Y. (2019). Do marijuana use motives matter? Meta-analytic associations with marijuana use frequency and problems. *Addict Behav, 99*, 106102. https://doi.org/10.1016/j.addbeh.2019.106102

Bresin, K., & Mekawi, Y. (2021). The "why" of drinking matters: A meta-analysis of the association between drinking motives and drinking outcomes. *Alcoholism: Clinical and Experimental Research, 45*(1), 38-50. https://doi.org/10.1111/acer.14518

Bresin, K., Mekawi, Y., & Verona, E. (2018). The effect of laboratory manipulations of negative affect on alcohol craving and use: A meta-analysis. *Psychology of Addictive Behaviors, 32*(6), 617-627. https://doi.org/10.1037/adb0000383

Brière, F. N., Rohde, P., Seeley, J. R., Klein, D., & Lewinsohn, P. M. (2014). Comorbidity between major depression and alcohol use disorder from adolescence to adulthood. *Comprehensive Psychiatry, 55*(3), 526-533. https://doi.org/10.1016/j.comppsych.2013.10.007

Bristow, L. A., Bilevicius, E., Stewart, S. H., Goldstein, A. L., & Keough, M. T. (2018). Solitary gambling mediates the risk pathway from anxiety sensitivity to excessive gambling: Evidence from a longitudinal ecological momentary assessment study. *Psychology of Addictive Behaviors, 32*(6), 689-696. https://doi.org/doi.org/10.1037/adb0000395

Brodeur, M., Audette-Chapdelaine, S., Savard, A.-c., & Kairouz, S. (2021). Gambling and the COVID-19 pandemic: A scoping review. *Progress in Neuropsychopharmacology & Biological Psychiatry, 111*(110389). https://doi.org/10.1016/j.pnpbp.2021.110389

Brown, W. C., Wang, W., & Testa, M. (2018). Alcohol and marijuana use in undergraduate males: Between- and within-person associations with interpersonal conflict. *Cannabis, 1*(2), 48-59. https://doi.org/10.26828/cannabis.2018.02.005

Brummett, B. H., Barefoot, J. C., Feaganes, J. R., Yen, S., Bosworth, H. B., Williams, R. B., & Siegler, I. C. (2000). Hostility in marital dyads: Associations with depressive symptoms. *Journal of Behavioral Medicine, 23*(1), 95-105.

Brunson, E. K. (2013). The impact of social networks on parents' vaccination decisions. *Pediatrics, 131*(5), e1397-1404. https://doi.org/10.1542/peds.2012-2452

Bryden, A., Roberts, B., McKee, M., & Petticrew, M. (2012). A systematic review of the influence on alcohol use of community level availability and marketing of alcohol. *Health Place, 18*(2), 349-357. https://doi.org/10.1016/j.healthplace.2011.11.003

Buchanan, T. W., McMullin, S. D., Baxley, C., & Weinstock, J. (2020). Stress and gambling. *Current Opinion in Behavioral Sciences, 31*, 8-12. https://doi.org/10.1016/j.cobeha.2019.09.004

Buckner, J. D., Crosby, R. D., Wonderlich, S. A., & Schmidt, N. B. (2012). Social anxiety and cannabis use: An analysis from ecological momentary assessment. *Journal of Anxiety Disorders, 26*(2), 297-304. https://doi.org/10.1016/j.janxdis.2011.12.006

Buckner, J. D., Zvolensky, M. J., Crosby, R. D., Wonderlich, S. A., Ecker, A. H., & Richter, A. (2015). Antecedents and consequences of cannabis use among racially diverse cannabis users: An analysis from ecological momentary assessment. *Drug and Alcohol Dependence, 147*, 20-25. https://doi.org/10.1016/j.drugalcdep.2014.12.022

Bujarski, S. J., Norberg, M. M., & Copeland, J. (2012). The association between distress tolerance and cannabis use-related problems: The mediating and moderating roles of coping motives and gender. *Addictive Behaviors, 37*(10), 1181-1184. https://doi.org/10.1016/j.addbeh.2012.05.014

Bullis, J. R., Boettcher, H., Sauer-Zavala, S., Farchione, T. J., & Barlow, D. H. (2019). What is an emotional disorder? A transdiagnostic mechanistic definition with implications for assessment, treatment, and prevention. *Clinical Psychology: Science and Practice, 26*(2). https://doi.org/10.1111/cpsp.12278

Busby, D. M., & Holman, T. B. (2009). Perceived match or mismatch on the Gottman conflict styles: Associations with relationship outcome variables. *Family Processes, 48*(4), 531-545. https://doi.org/10.1111/j.1545-5300.2009.01300.x

Caetano, R., Vaeth, P. A. C., & Ramisetty-Mikler, S. (2008). Intimate partner violence victim and perpetrator characteristics among couples in the United States. *Journal of Family Violence, 23*(6), 507-518. https://doi.org/10.1007/s10896-008-9178-3

Cafferky, B. M., Mendez, M., Anderson, J. R., & Stith, S. M. (2018). Substance use and intimate partner violence: A meta-analytic review. *Psychology of Violence, 8*(1), 110-131. https://doi.org/10.1037/vio0000074

Calado, F., & Griffiths, M. D. (2016). Problem gambling worldwide: An update and systematic review of empirical research (2000-2015). *Journal of Behavioral Addictions, 5*(4), 592-613. https://doi.org/10.1556/2006.5.2016.073

Calarco, J. M., Meanwell, E., Anderson, E., & Knopf, A. (2020). "My husband thinks i'm crazy": COVID-19-related conflict in couples with young children. *SocArXiv*. https://doi.org/10.31235/osf.io/cpkj6

Calvete, E., Corral, S., & Este´vez, A. (2005). Desarrollo de un inventario para evaluar el abuso psicolo´gico en las relaciones de pareja. (development of an inventory to assess emotional abuse in couple relationships). *Cli´nica y Salud, 16*(3), 203-221.

Canadian Centre on Substance Use and Addiction. (2019). *Canadian drug summary: Alcohol*.

Canadian Centre on Substance Use and Addiction. (2020). *Canadian drug sumamry: Cannabis*.

Canadian Institute for Health Information. (2022). *Canadian COVID-19 intervention timeline*. Canadian Institute for Health Information. https://www.cihi.ca/en/canadian-covid-19-intervention-timeline

Canale, N., Vieno, A., Santinello, M., Chieco, F., & Andriolo, S. (2015). The efficacy of computerized alcohol intervention tailored to drinking motives among college students: A quasi-experimental pilot study. *American Journal of Drug and Alcohol Abuse, 41*(2), 183-187. https://doi.org/10.3109/00952990.2014.991022

Canale, N., Vieno, A., Griffiths, M.D., Rubaltelli, E., Santinello, M. (2015). How do impulsivity traits influence problem gambling through gambling motives? The role of perceived gambling risk/benefits. *Psychology of Addictive Behaviors, 29*, 813-823.

Canary, D. J., Cupach, W. R., & Messman, S. (1995). *Relationship conflict: Conflict in parent-child, friendship, and romantic relationships*. Sage Publications.

Cann, A., Norman, M. A., Welbourne, J. L., & Calhoun, L. G. (2020). Attachment styles, conflict styles and humour styles: Interrelationships and associations with relationship satisfaction. *European Journal of Personality, 22*(2), 131-146. https://doi.org/10.1002/per.666

Capaldi, D. M., Knoble, N. B., Shortt, J. W., & Kim, H. K. (2012). A systematic review of risk factors for intimate partner violence. *Partner Abuse, 3*(2), 231-280. https://doi.org/10.1891/1946-6560.3.2.231

Capasso, A., Jones, A. M., Ali, S. H., Foreman, J., Tozan, Y., & DiClemente, R. J. (2021). Increased alcohol use during the COVID-19 pandemic: The effect of mental health and age in a cross-sectional sample of social media users in the u.S. *Preventive Medicine, 145*(106422). https://doi.org/10.1016/j.ypmed.2021.106422

Carr, M. M., Ellis, J. D., & Ledgerwood, D. M. (2018). Suicidality among gambling helpline callers: A consideration of the role of financial stress and conflict. *American Journal on Addictions, 27*(6), 531-537. https://doi.org/10.1111/ajad.12787

Carrese-Chacra, E., Hollett, K., Erdem, G., Miller, S., & Gouin, J. P. (2023). Longitudinal effects of pandemic stressors and dyadic coping on relationship satisfaction during the COVID-19 pandemic. *Family Relations, 72*(3), 645-664. https://doi.org/10.1111/fare.12885

Carrigan, G., Samoluk, S. B., & Stewart, S. H. (1998). Examination of the short form of the Inventory of Drinking Situations (IDS-42) in a young adult university student sample. *Behaviour Research and Therapy, 36*(7-8), 789-807. https://doi.org/10.1016/S0005-7967(98)00024-2

Carroll, J. S., Nelson, D. A., Yorgason, J. B., Harper, J. M., Ashton, R. H., & Jensen, A. C. (2010). Relational aggression in marriage. *Aggressive Behavior, 36*(5), 315-329. https://doi.org/10.1002/ab.20349

Carron, A. V., Hausenblas, H. A., & Mack, D. (1996). Social influence and exercise: A meta-analysis. *Journal of Sport and Exercise Psychology, 18*, 1-16. https://doi.org/https://doi.org/10.1123/jsep.18.1.1

Caselli, G., Ferretti, C., Leoni, M., Rebecchi, D., Rovetto, F., & Spada, M. M. (2010). Rumination as a predictor of drinking behaviour in alcohol abusers: A prospective study. *Addiction, 105*(6), 1041-1048. https://doi.org/10.1111/j.1360-0443.2010.02912.x

Caulkins, J. P., Pardo, B., & Kilmer, B. (2020). Intensity of cannabis use: Findings from three online surveys. *International Journal of Drug Policy, 79*, 102740. https://doi.org/10.1016/j.drugpo.2020.102740

Center for Systems Science and Engineering. (2023). *COVID-19 dashboard*. John Hopkins University. https://gisanddata.maps.arcgis.com/apps/dashboards/bda7594740fd40299423467b48e9ecf6

Cerda, M., Moffitt, T. E., Meier, M. H., Harrington, H., Houts, R., Ramrakha, S., Hogan, S., Poulton, R., & Caspi, A. (2016). Persistent cannabis dependence and alcohol dependence represent risks for midlife economic and social problems: A longitudinal cohort study. *Clinical Psychological Science, 4*(6), 1028-1046. https://doi.org/10.1177/2167702616630958

Chabrol, H., Beck, C., & Laconi, S. (2017). Contribution of health motive to cannabis use among high-school students. *Addictive Behaviors, 64*, 54-56. https://doi.org/10.1016/j.addbeh.2016.08.011

Chandan, J. S., Thomas, T., Bradbury-Jones, C., Russell, R., Bandyopadhyay, S., Nirantharakumar, K., & Taylor, J. (2020). Female survivors of intimate partner violence and risk of depression, anxiety and serious mental illness. *British Journal of Psychiatry, 217*(4), 562-567. https://doi.org/10.1192/bjp.2019.124

Chao, R. C. L. (2011). Managing stress and maintaining well-being: Social support, problem-focused coping, and avoidant coping. *Journal of Counseling & Development, 89*(3), 338-348. https://doi.org/10.1002/j.1556-6678.2011.tb00098.x

Chapman, C., Slade, T., Hunt, C., & Teesson, M. (2015). Delay to first treatment contact for alcohol use disorder. *Drug and Alcohol Dependence, 147*, 116-121. https://doi.org/10.1016/j.drugalcdep.2014.11.029

Chinneck, A., Mackinnon, S. P., & Stewart, S. H. (2016). Investigating possible reciprocal relations between depressive and problem gambling symptoms in emerging adults. *Canadian Journal of Psychiatry, 61*(2), 93-101. https://doi.org/10.1177/0706743715625934

Chinneck, A., Thompson, K., Dobson, K. S., Stuart, H., Teehan, M., & Stewart, S. H. (2018a). Neurotic personality traits and risk for adverse alcohol outcomes: Chained mediation through emotional disorder symptoms and drinking to cope. *Substance Use and Misuse, 53*(10), 1730-1741. https://doi.org/10.1080/10826084.2018.1432647

Chinneck, A., Thompson, K., Mahu, I. T., Davis-MacNevin, P., Dobson, K., & Stewart, S. H. (2018b). Personality and prescription drug use/misuse among first year undergraduates. *Addictive Behaviors, 87*, 122-130. https://doi.org/10.1016/j.addbeh.2018.07.001

Cho, S. B., Su, J., Kuo, S. I., Bucholz, K. K., Chan, G., Edenberg, H. J., McCutcheon, V. V., Schuckit, M. A., Kramer, J. R., & Dick, D. M. (2019). Positive and negative reinforcement are differentially associated with alcohol consumption as a function of alcohol dependence. *Psychology of Addictive Behaviors, 33*(1), 58-68. https://doi.org/10.1037/adb0000436

Choi, H., & Marks, N. F. (2008). Marital conflict, depressive symptoms, and functional impairment. *Journal of Marriage, 70*, 377-390. https://doi.org/doi.org/10.1111/j.1741-3737.2008.00488.x

Chong, W. W., Acar, Z. I., West, M. L., & Wong, F. (2022). A scoping review on the medical and recreational use of cannabis during the COVID-19 pandemic. *Cannabis and Cannabinoid Research, 7*(5), 591-602. https://doi.org/10.1089/can.2021.0054

Chou, K.-l., & Afifi, T. O. (2011). Disordered (pathological or problem) gambling and Axis I psychiatric disorders: Results from the national epidemiologic survey on alcohol and related conditions. *American Journal of Epidemiology, 173*(11), 1289-1297. https://doi.org/10.1093/aje/kwr017

Chuang, C. H., Cattoi, A. L., McCall-Hosenfeld, J. S., Camacho, F., Dyer, A.-M., & Weisman, C. S. (2012). Longitudinal association of intimate partner violence and depressive symptoms. *Mental Health in Family Medicine, 9*, 107-114.

Cicchetti, D. (2016). A multilevel developmental psychopathology systems perspective on depression. In *Systems neuroscience in depression* (pp. 3-28). Academic Press. https://doi.org/10.1016/b978-0-12-802456-0.00001-7

Cicchetti, D., & Handley, E. D. (2019). Child maltreatment and the development of substance use and disorder. *Neurobiology of Stress, 10*, 100144. https://doi.org/10.1016/j.ynstr.2018.100144

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology, 8*, 597-600.

Colder, C. R., Lee, Y. H., Frndak, S., Read, J. P., & Wieczorek, W. F. (2019). Internalizing symptoms and cannabis and alcohol use: Between- and within-person risk pathways with coping motives. *Journal of Consulting and Clinical Psychology, 87*(7), 629-644. https://doi.org/10.1037/ccp0000413

Collins, J., Skinner, W., & Toneatto, T. (2005). *Beyond assessment: The impact of comorbidity of pathological gambling, psychiatric disorders and substance use disorders on treatment course and outcomes*. https://www.greo.ca/Modules/EvidenceCentre/files/Collins et al(2005)Beyond_assessment_The_impact_of_comorbidity.pdf

Coman, G. J., Burrows, G. D., & Evans, B. J. (1997). Stress and anxiety as factors in the onset of problem gambling: Implications for treatment. *Stress Medicine, 13*(4), 235-244. https://doi.org/10.1002/(SICI)1099-1700(199710)13:4<235::AID-SMI748>3.0.CO;2-4

Comeau, N., Stewart, S. H., & Loba, P. (2001). The relations of trait anxiety, anxiety sensitivity, and sensation seeking to adolescents' motivations for alcohol, cigarette, and marijuana use. *Addictive Behaviors, 26*, 803-825. https://doi.org/https://doi.org/10.1016/S0306-4603(01)00238-6

Compton, W. M., Han, B., Jones, C. M., & Blanco, C. (2019). Cannabis use disorders among adults in the United States during a time of increasing use of cannabis. *Drug and Alcohol Dependence, 204*, 107468. https://doi.org/10.1016/j.drugalcdep.2019.05.008

Conner, K. R., Pinquart, M., & Gamble, S. A. (2009). Meta-analysis of depression and substance use among individuals with alcohol use disorders. *Journal of Substance Abuse Treatment, 37*(2), 127-137. https://doi.org/10.1016/j.jsat.2008.11.007

Connor, J. P., Stjepanovic, D., Le Foll, B., Hoch, E., Budney, A. J., & Hall, W. D. (2021). Cannabis use and cannabis use disorder. *Nature Reviews Disease Primers, 7*(1), 16. https://doi.org/10.1038/s41572-021-00247-4

Connors, G. J., Maisto, S. A., & Zywiak, W. H. (1998). Male and female alcoholics' attributions regarding the onset and termination of relapses and maintenance of abstinence. *Journal of Substance Abuse, 10*, 27-42. https://doi.org/https://doi.org/10.1016/S0899-3289(99)80138-2

Cook, M. A., Newins, A. R., Dvorak, R. D., & Stevenson, B. L. (2020). What about this time? Within- and between-person associations between drinking motives and alcohol outcomes. *Experimental and Clinical Psychopharmacology, 28*(5), 567-575. https://doi.org/10.1037/pha0000332

Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment, 6*(2), 117-128. https://doi.org/https://doi.org/10.1037/1040-3590.6.2.117

Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (1995). Drinking to regulate positive and negative emotions: A motivational model of alcohol use. *Journal of Personality and Social Psychology, 69*(5), 990-1005. https://doi.org/10.1037//0022-3514.69.5.990

Cooper, M. L., Kuntsche, E., Levitt, A., Barber, L. L., & Wolf, S. (2016). Motivational models of substance use: A review of theory and research on motives for using alcohol, marijuana, and tobacco. In *The Oxford Handbook of Substance Use and Substance Use Disorders* (pp. 375-421). Oxford University Press.

Cooper, M. L., Russell, M., Skinner, J. B., & Windle, M. (1992). Development and validation of a three-dimensional measure of drinking motives. *Psychological Assessment, 4*(2), 123-132.

Corbin, W. R., Farmer, N. M., & Nolen-Hoekesma, S. (2013). Relations among stress, coping strategies, coping motives, alcohol consumption and related problems: A mediated moderation model. *Addictive Behaviors, 38*(4), 1912-1919. https://doi.org/10.1016/j.addbeh.2012.12.005

Corbin, W. R., Waddell, J. T., Ladensack, A., & Scott, C. (2020). I drink alone: Mechanisms of risk for alcohol problems in solitary drinkers. *Addictive Behaviors, 102*, 106147. https://doi.org/10.1016/j.addbeh.2019.106147

Cortes-Albornoz, M. C., Ramirez-Guerrero, S., Garcia-Guaqueta, D. P., Velez-Van-Meerbeke, A., & Talero-Gutierrez, C. (2023). Effects of remote learning during COVID-19 lockdown on children's learning abilities and school performance: A systematic review. *International Journal of Educational Development, 101*, 102835. https://doi.org/10.1016/j.ijedudev.2023.102835

Coskunpinar, A., Dir, A. L., & Cyders, M. A. (2013). Multidimensionality in impulsivity and alcohol use: A meta-analysis using the upps model of impulsivity. *Alcoholism: Clinical and Experimental Research, 37*(9), 1441-1450. https://doi.org/10.1111/acer.12131

Costa, B. M., Kaestle, C. E., Walker, A., Curtis, A., Day, A., Toumbourou, J. W., & Miller, P. (2015). Longitudinal predictors of domestic violence perpetration and victimization: A systematic review. *Aggression and Violent Behavior, 24*, 261-272. https://doi.org/10.1016/j.avb.2015.06.001

Cousijn, J., Kuhns, L., Larsen, H., & Kroon, E. (2021). For better or for worse? A pre-post exploration of the impact of the COVID-19 lockdown on cannabis users. *Addiction, 116*(8), 2104-2115. https://doi.org/10.1111/add.15387

Cowlishaw, S., Suomi, A., & Rodgers, B. (2016). Implications of gambling problems for family and interpersonal adjustment: Results from the Quinte Longitudinal Study. *Addiction, 111*(9), 1628-1636. https://doi.org/10.1111/add.13402

Cramer, D. (2000). Relationship satisfaction and conflict style in romantic relationships. *Journal of Psychology, 134*(4), 337-341. https://doi.org/10.1080/00223980009600873

Cramer, D. (2003). Facilitativeness, conflict, demand for approval, self-esteem, and satisfaction with romantic relationships. *Journal of Psychology, 137*(1), 85-98. https://doi.org/10.1080/00223980309600601

Cramer, D. (2004). Emotional support, conflict, depression, and relationship satisfaction in a romantic partner. *Journal of Psychology, 138*(6), 532-542. https://doi.org/10.3200/JRLP.138.6.532-542

Crane, C. A., Testa, M., Schlauch, R. C., & Leonard, K. E. (2016). The couple that smokes together: Dyadic marijuana use and relationship functioning during conflict. *Psychology of Addictive Behaviors, 30*(6), 686-693. https://doi.org/10.1037/adb0000198

Cruwys, T., Bevelander, K. E., & Hermans, R. C. (2015). Social modeling of eating: A review of when and why social influence affects food intake and choice. *Appetite, 86*, 3-18. https://doi.org/10.1016/j.appet.2014.08.035

Cunningham-Williams, R. M., Abdallah, A. B., Callahan, C., & Cottler, L. (2007). Problem gambling and violence among community-recruited female substance abusers. *Psychology of Addictive Behaviors, 21*(2), 239-243. https://doi.org/10.1037/0893-164X.21.2.239

Cunradi, C. B., Caetano, R., Alter, H. J., & Ponicki, W. R. (2022). Association of cannabis use and at-risk alcohol use with intimate partner violence in an urban ed sample. *Journal of Emergency Nursing, 48*(5), 504-514. https://doi.org/10.1016/j.jen.2022.04.002

Cunradi, C. B., Dellor, E., Alter, H. J., Caetano, R., & Mair, C. (2020). Problem drinking and marijuana use as risks for unidirectional and bidirectional partner violence. *Partner Abuse, 11*(1), 57-75. https://doi.org/10.1891/1946-6560.11.1.57

Cunradi, C. B., Todd, M., & Mair, C. (2015). Discrepant patterns of heavy drinking, marijuana use, and smoking and intimate partner violence: Results from the California community health study of couples. *Journal of Drug Education: Substance Abuse Research and Prevention, 45*(2), 73-95. https://doi.org/10.1177/0047237915608450

Cunradi, C. B., Todd, M., Mair, C., & Remer, L. (2013). Intimate partner violence among California couples: Multilevel analysis of environmental and partner risk factors. *Partner Abuse, 4*(4), 419-443. https://doi.org/10.1891/1946-6560.4.4.419

Cuttler, C., & Spradlin, A. (2017). Measuring cannabis consumption: Psychometric properties of the daily sessions, frequency, age of onset, and quantity of cannabis use inventory (dfaq-cu). *PLoS ONE, 12*(5), e0178194. https://doi.org/10.1371/journal.pone.0178194

Dahm, J., Wong, D., & Ponsford, J. (2013). Validity of the depression anxiety stress scales in assessing depression and anxiety following traumatic brain injury. *Journal of Affective Disorders, 151*(1), 392-396. https://doi.org/10.1016/j.jad.2013.06.011

Dash, G. F., Slutske, W. S., Martin, N. G., & Statham, D. J. (2019). Big 5 personality traits and alcohol, nicotine, cannabis, and gambling use disorder comorbidity. *Psychology of Addictive Behaviors, 33*(4), 420-429. https://doi.org/10.1037/adb0000468.Big

Davalos, M. E., Fang, H., & French, M. T. (2012). Easing the pain of an economic downturn: Macroeconomic conditions and excessive alcohol consumption. *Health Economics, 21*(11), 1318-1335. https://doi.org/10.1002/hec.1788

Davis, L., Uezato, A., Newell, J. M., & Frazier, E. (2008). Major depression and comorbid substance use disorders. *Current Opinion in Psychiatry, 21*, 14-18.

Deacon, S. H., Rodriguez, L. M., Elgendi, M., King, F. E., Nogueira-Arjona, R., Sherry, S. B., & Stewart, S. H. (2021). Parenting through a pandemic: Mental health and substance use consequences of mandated homeschooling. *Couple and Family Psychology: Research and Practice, 10*(4), 281-293. https://doi.org/10.1037/cfp0000171

Deak, J. D., & Johnson, E. C. (2022). Genetics of substance use disorders: A review. *Psychological Medicine, 52*(4), 800. https://doi.org/10.1017/S0033291722000629

Dearing, R. L., Stuewig, J., & Tangney, J. P. (2005). On the importance of distinguishing shame from guilt: Relations to problematic alcohol and drug use. *Addictive Behaviors, 30*(7), 1392-1404. https://doi.org/10.1016/j.addbeh.2005.02.002

DeHart, T., Tennen, H., Armeli, S., Todd, M., & Affleck, G. (2008). Drinking to regulate negative romantic relationship interactions: The moderating role of self-esteem. *Journal of Experimental Social Psychology, 44*(3), 527-538. https://doi.org/10.1016/j.jesp.2007.10.001

Deng, J., Zhou, F., Hou, W., Silver, Z., Wong, C. Y., Chang, O., Huang, E., & Zuo, Q. K. (2021). The prevalence of depression, anxiety, and sleep disturbances in COVID-19 patients: A meta-analysis. *Annals of the New York Academy of Science, 1486*(1), 90-111. https://doi.org/10.1111/nyas.14506

Denson, R. K., Hedeker, D., & Mermelstein, R. J. (2023). Association between affect and cannabis use varies by social context. *Drug and Alcohol Dependence, 243*, 109750. https://doi.org/10.1016/j.drugalcdep.2022.109750

Denson, T. F., Spanovic, M., & Miller, N. (2009). Cognitive appraisals and emotions predict cortisol and immune responses: A meta-analysis of acute laboratory social stressors and emotion inductions. *Psychological Bulletin, 135*(6), 823-853. https://doi.org/10.1037/a0016909

Derrick, J. L., Ph, D., Testa, M., & Ph, D. (2017). Temporal effects of perpetrating or receiving intimate partner aggression on alcohol consumption: A daily diary study of community couples. *Journal of Studies on Alcohol and Drugs, 78*(2), 213-221.

Derrick, J. L., Testa, M., & Leonard, K. E. (2014). Daily reports of intimate partner verbal aggression by self and partner: Short-term consequences and implications for measurement. *Psychology of Violence, 4*(4), 416-431. https://doi.org/10.1037/a0037481

Derrick, J. L., Wittkower, L. D., & Pierce, J. D. (2019). Committed relationships and substance use: Recent findings and future directions. *Current Opinion in Psychology, 30*, 74-79. https://doi.org/10.1016/j.copsyc.2019.03.002

Desai, R. A., & Potenza, M. N. (2008). Gender differences in the associations between past-year gambling problems and psychiatric disorders. *Social Psychiatry and Psychiatric Epidemiology*, 173-183. https://doi.org/10.1007/s00127-007-0283-z

Desalu, J. M., Kim, J., Zaso, M. J., Corriders, S. R., Loury, J. A., Minter, M. L., & Park, A. (2019). Racial discrimination, binge drinking, and negative drinking consequences among black college students: Serial mediation by depressive symptoms and coping motives. *Ethnicity and Health, 24*(8), 874-888. https://doi.org/10.1080/13557858.2017.1380170

Desmarais, S. L., Reeves, K. A., Nicholls, T. L., Telford, R. P., & Fiebert, M. S. (2012). Prevalence of physical violence in intimate relationships II: Rates of male and female perpetration. *Partner Abuse, 3*(2), 170-198. https://doi.org/10.1891/1946-6560.3.2.170

DesRoches, D. I., Deacon, S. H., Rodriguez, L. M., Sherry, S. B., Nogueira-Arjona, R., Elgendi, M. M., Meier, S., Abbass, A., King, F. E., & Stewart, S. H. (2021). Homeschooling during COVID-19: Gender differences in work–family conflict and alcohol use behaviour among romantic couples. *Social Sciences, 10*(7), 240-240. https://doi.org/10.3390/socsci10070240

Devries, K. M., Mak, J. Y., Bacchus, L. J., Child, J. C., Falder, G., Petzold, M., Astbury, J., & Watts, C. H. (2013). Intimate partner violence and incident depressive symptoms and suicide attempts: A systematic review of longitudinal studies. *PLoS Med, 10*(5), e1001439. https://doi.org/10.1371/journal.pmed.1001439

DiBello, A. M., Preddy, T. M., Overup, C. S., & Neighbors, C. (2017). Understanding the context of romantic partner relational victimization: Links between relationship satisfaction, depressive symptoms, and alcohol-related problems. *Psychology of Violence, 7*(4), 543-552. https://doi.org/10.1037/vio0000064

Dierker, L., Selya, A., Lanza, S., Li, R., & Rose, J. (2018). Depression and marijuana use disorder symptoms among current marijuana users. *Addictive Behaviors, 76*, 161-168. https://doi.org/10.1016/j.addbeh.2017.08.013

Dillon, L. M., Nowak, N., Weisfeld, G. E., Weisfeld, C. C., Shattuck, K. S., Imamoglu, O. E., Cutovskaya, M., & Shen, J. (2015). Sources of marital conflict in five cultures. *Evolutionary Psychology, 13*(1), 1-15. https://doi.org/https://doi.org/10.1177/14747049150130010

Dimeff, L. A. (1999). *Brief alcohol screening and intervention for college students (basics): A harm reduction approach*. Guilford Press.

Dobkin, P. L., De, C. M., Paraherakis, A., & Gill, K. (2002). The role of functional social support in treatment retention and outcomes among outpatient adult substance abusers. *Addiction, 97*(3), 347-356. https://doi.org/10.1046/j.1360-0443.2002.00083.x

Dora, J., Piccirillo, M., Foster, K. T., Arbeau, K., Armeli, S., Auriacombe, M., Bartholow, B., Beltz, A. M., Blumenstock, S. M., Bold, K., Bonar, E. E., Braitman, A., Carpenter, R. W., Creswell, K. G., De Hart, T., Dvorak, R. D., Emery, N., Enkema, M., Fairbairn, C. E., Fairlie, A. M., Ferguson, S. G., Freire, T., Goodman, F., Gottfredson, N., Halvorson, M., Haroon, M., Howard, A. L., Hussong, A., Jackson, K. M., Jenzer, T., Kelly, D. P., Kuczynski, A. M., Kuerbis, A., Lee, C. M., Lewis, M., Linden-Carmichael, A. N., Littlefield, A., Lydon-Staley, D. M., Merrill, J. E., Miranda Jr., R., Mohr, C., Read, J. P., Richardson, C., O'Connor, R., O'Malley, S. S., Papp, L., Piasecki, T. M., Sacco, P., Scaglione, N., Serre, F., Shadur, J., Sher, K. J., Shoda, Y., Simpson, T. L., Smith, M. R., Stevens, A., Stevenson, B., Tennen, H., Todd, M., Treloar Padovano, H., Trull, T., Waddell, J., Walukevich-Dienst, K., Witkiewitz, K., Wray, T., Wright, A. G. C., Wycoff, A. M., King, K. M. (2023). The daily association between affect and alcohol use: A meta-analysis of individual participant data. *Psychological Bulletin, 149*(1-2), 1-24. https://doi.org/https://doi.org/10.1037/bul0000387

Dowling, N., Suomi, A., Jackson, A., Lavis, T., Patford, J., Cockman, S., Thomas, S., Bellringer, M., Koziol-Mclain, J., Battersby, M., Harvey, P., & Abbott, M. (2016a). Problem gambling and intimate partner violence: A systemic review and meta-analysis. *Trauma, Violence, and Abuse, 17*(1), 43-61. https://doi.org/10.1177/1524838014561269

Dowling, N. A., Cowlishaw, S., Jackson, A. C., Merkouris, S. S., & Frances, A. (2015). The prevalence of comorbid personality disorders in treatment-seeking problem gamblers: A systematic review and meta-analysis. *Journal of Personality Disorders, 29*(6), 735-754. https://doi.org/https://doi.org/10.1521/pedi_2014_28_168

Dowling, N. A., Merkouris, S. S., Greenwood, C. J., Oldenhof, E., Toumbourou, J. W., & Youssef, G. J. (2017). Early risk and protective factors for problem gambling: A systematic review and meta-analysis of longitudinal studies. *Clinical Psychology Review, 51*, 109-124. https://doi.org/10.1016/j.cpr.2016.10.008

Dowling, N. A., Suomi, A., Jackson, A. C., & Lavis, T. (2016b). Problem gambling family impacts: Development of the Problem Gambling Family Impact Scale. *Journal of Gambling Studies, 32*(3), 935-955. https://doi.org/10.1007/s10899-015-9582-6

Dozois, D. J. (2021). Anxiety and depression in Canada during the COVID-19 pandemic: A national survey. *Canadian Psychology, 62*(1), 136-142. https://doi.org/https://doi.org/10.1037/cap0000251

Du Rocher Schudlich, T. D., Papp, L. M., & Cummings, E. M. (2004). Relations of husbands and wives dysphoria to marital conflict resolution strategies. *Journal of Family Psychology, 18*(1), 171-183. https://doi.org/10.1037/0893-3200.18.1.171

Du Rocher Schudlich, T. D., Papp, L. M., & Cummings, E. M. (2011). Relations between spouses' depressive symptoms and marital conflict: A longitudinal investigation of the role of conflict resolution styles. *Journal of Family Psychology, 25*(4), 531-540. https://doi.org/10.1037/a0024216

Dunaief, R. J., Bravo, A. J., & Henson, J. M. (2023). Changes in mental health symptoms as a predictor of cannabis coping motives and consequences: Examining the impact of COVID-19 among college students. *Cannabis, 6*(3). https://doi.org/10.26828/cannabis/2023/000163

Duncombe, J., & Marseden, D. (1993). Love and intimacy: The gender division of emotion and 'emotion work'. *Sociology, 27*(2), 221-241.

Dussault, F., Brendgen, M., Vitaro, F., Wanner, B., & Tremblay, R. E. (2011). Longitudinal links between impulsivity, gambling problems and depressive symptoms: A transactional model from adolescence to early adulthood. *Journal of Child Psychology and Psychiatry, 52*(2), 130-138. https://doi.org/10.1111/j.1469-7610.2010.02313.x

Dutton, D. G., & Hemphill, K. J. (1992). Patterns of socially desirable responding among perpetrators and victims of wife assault. *Violence and Victims, 7*(1), 29-39. https://doi.org/10.1891/0886-6708.7.1.29

Eaton, N. R., Rodriguez-Seijas, C., Carragher, N., & Krueger, R. F. (2015). Transdiagnostic factors of psychopathology and substance use disorders: A review. *Social Psychiatry and Psychiatric Epidemiology, 50*(2), 171-182. https://doi.org/10.1007/s00127-014-1001-2

Eby, L. T., Mitchell, M. E., Gray, C. J., Provolt, L., Lorys, A., Fortune, E., & Goodie, A. S. (2016). Gambling-related problems across life domains: An exploratory study of non-treatment-seeking weekly gamblers. *Community, Work, and Family, 19*(5), 604-620. https://doi.org/10.1080/13668803.2015.1112255

Echeburúa, E., González-Ortega, I., de Corral, P., & Polo-López, R. (2011). Clinical gender differences among adult pathological gamblers seeking treatment. *Journal of Gambling Studies, 27*(2), 215-227. https://doi.org/10.1007/s10899-010-9205-1

Ehrensaft, M. K., Moffitt, T. E., & Caspi, A. (2006). Is domestic violence followed by an increased risk of psychiatric disorders among women but not among men? A longitudinal cohort study. *American Journal of Psychiatry, 163*(5), 885-892. https://doi.org/10.1176/ajp.2006.163.5.885

Ehring, T., & Watkins, E. R. (2008). Repetitive negative thinking as a transdiagnostic process. *International Journal of Cognitive Therapy, 1*(3), 192-205. https://doi.org/10.1521/ijct.2008.1.3.192

Eisenberg, M. E., Toumbourou, J. W., Catalano, R. F., & Hemphill, S. A. (2014). Social norms in the development of adolescent substance use: A longitudinal analysis of the international youth development study. *Journal of Youth and Adolescence, 43*(9), 1486-1497. https://doi.org/10.1007/s10964-014-0111-1

El-Guebaly, N., Patten, S. B., Currie, S., Williams, J. V. A., Beck, C. A., Maxwell, C. J., & Wang, J. L. (2006). Epidemiological associations between gambling behavior, substance use and mood and anxiety disorders. *Journal of Gambling Studies, 22*(3), 275-287. https://doi.org/10.1007/s10899-006-9016-6

El-Sheikh, M., Kelly, R., & Rauer, A. (2013). Quick to berate, slow to sleep: Interpartner psychological conflict, mental health, and sleep. *Health Psychology, 32*(10), 1057-1066. https://doi.org/10.1037/a0031786.

Eldridge, K. A., & Christensen, A. (2002). Demand-withdraw communication during couple conflict: A reivew and analysis. In P. Noller & J. A. Feeney (Eds.), *Understanding marriage: Developments in the study of couple interaction* (pp. 289-322). Cambridge University Press.

Elgendi, M. M., Stewart, S. H., DesRoches, D. I., Corkum, P., Nogueira-Arjona, R., & Deacon, S. H. (2022). Division of labour and parental mental health and relationship well-being during COVID-19 pandemic-mandated homeschooling. *International Journal of Environmental Research and Public Health, 19*(24). https://doi.org/10.3390/ijerph192417021

Elkins, S. R., Moore, T. M., McNulty, J. K., Kivisto, A. J., & Handsel, V. A. (2013). Electronic diary assessment of the temporal association between proximal anger and intimate partner violence perpetration. *Psychology of Violence, 3*(1), 100-113. https://doi.org/10.1037/a0029927

Elliott, S., & Umberson, D. (2008). The performance of desire: Gender and sexual negotiations in long-term marriages. *Journal of Marriage and Family, 70*(2), 391-406. https://doi.org/https://doi.org/10.1111/j.1741-3737.2008.00489.x

Erickson, R. J. (2005). Why emotion work matters: Sex, gender, and the division of household labor. *Journal of Marriage and Family, 67*(2), 337-351. https://doi.org/10.1111/j.0022-2445.2005.00120.x

Esser, M. B., Sherk, A., Liu, Y., Naimi, T. S., Stockwell, T., Stahre, M., Kanny, D., Landen, M., Saitz, R., & Brewer, R. D. (2020). *Deaths and years of potential life lost from excessive alcohol use - United States, 2011-2015* Morbidity and Mortality Weekly Report.

Etienne, K., Linda, L. D., James, A. M., Anthony, B. Z., & Rafael, L. (2002). Violence by intimate partners. In *World report on violence and health* (pp. 82-123). World Health Organization. https://doi.org/10.1016/S0140-6736(02)11133-0

Ettman, C. K., Abdalla, S. M., Cohen, G. H., Sampson, L., Vivier, P. M., & Galea, S. (2020). Prevalence of depression symptoms in US adults before and during the COVID-19 pandemic. *JAMA Network Open, 3*(9), e2019686. https://doi.org/10.1001/jamanetworkopen.2020.19686

Fairbairn, C. E., & Cranford, J. A. (2016). A multimethod examination of negative behaviors during couples interactions and problem drinking trajectories. *Journal of Abnormal Psychology, 125*(6), 805-810. https://doi.org/10.1037/abn0000186

Falba, T. A., & Sindelar, J. L. (2008). Spousal concordance in health behavior change. *Health Services Research, 43*(1 Pt 1), 96-116. https://doi.org/10.1111/j.1475-6773.2007.00754.x

Faris, L. H., Gabarrell-Pascuet, A., Felez-Nobrega, M., Cristobal-Narvaez, P., Mortier, P., Vilagut, G., Olaya, B., Alonso, J., Haro, J. M., Lopez-Carrilero, R., & Domenech-Abella, J. (2023). The association between substance use disorder and depression during the COVID-19 lockdown in Spain and the moderating role of social support: A cross-sectional study. *International Journal of Mental Health and Addiction, 21*(2), 1157-1167. https://doi.org/10.1007/s11469-021-00651-7

Farmer, R. F., Kosty, D. B., Seeley, J. R., Duncan, S. C., Lynskey, M. T., Rohde, P., Klein, D. N., & Lewinsohn, P. M. (2015a). Natural course of cannabis use disorders. *Psychological Medicine, 45*(1), 63-72. https://doi.org/10.1017/S003329171400107X

Farmer, R. F., Seeley, J. R., Kosty, D. B., Gau, J. M., Duncan, S. C., Lynskey, M. T., & Lewinsohn, P. M. (2015b). Internalizing and externalizing psychopathology as predictors of cannabis use disorder onset during adolescence and early adulthood. *Psychology of Addictive Behaviors, 29*(3), 541-551. https://doi.org/10.1037/adb0000059

Farrelly, K. N., Sherry, S. B., Kehayes, I. L., & Stewart, S. H. (2019). Female informant-reports of male romantic partners' alcohol problems predict escalations in dyadic conflict in heterosexual couples. *Addictive Behaviors, 92*, 102-107. https://doi.org/10.1016/j.addbeh.2018.12.034

Fatseas, M., Serre, F., Swendsen, J., & Auriacombe, M. (2018). Effects of anxiety and mood disorders on craving and substance use among patients with substance use disorder: An ecological momentary assessment study. *Drug and Alcohol Dependence, 187*, 242-248. https://doi.org/10.1016/j.drugalcdep.2018.03.008

Fava, N. M., Meldrum, R. C., Villar, M. G., Zucker, R. A., & Trucco, E. M. (2023). Adverse childhood experiences, sleep problems, low self-control, and adolescent delinquency: A longitudinal serial mediation analysis. *Dev Psychopathol, 35*(4), 1868-1877. https://doi.org/10.1017/S0954579422000530

Feingold, A., Kerr, D. C., & Capaldi, D. M. (2008). Associations of substance use problems with intimate partner violence for at-risk men in long-term relationships. *Journal of Family Psychology, 22*(3), 429-438. https://doi.org/10.1037/0893-3200.22.3.429

Feingold, D., Rehm, J., & Lev-Ran, S. (2017). Cannabis use and the course and outcome of major depressive disorder: A population based longitudinal study. *Psychiatry Research, 251*, 225-234. https://doi.org/10.1016/j.psychres.2017.02.027

Feingold, D., Weiser, M., Rehm, J., & Lev-Ran, S. (2015). The association between cannabis use and mood disorders: A longitudinal study. *Journal of Affective Disorders, 172*, 211-218. https://doi.org/10.1016/j.jad.2014.10.006

Fergusson, D. M., & Boden, J. M. (2008). Cannabis use and later life outcomes. *Addiction, 103*(6), 969-976; discussion 977-968. https://doi.org/10.1111/j.1360-0443.2008.02221.x

Ferris, J., & Wynne, H. (2001). *The Canadian problem gambling index: Final report*. Canadian Centre on Substance Use and Addiction (CCSA).

First, J. M., Ravi, K. E., Smith-Frigerio, S., & Houston, J. B. (2022). Mental health impacts of Hurricane Harvey: Examining the roles of intimate partner violence and resilience. *Social Work Research, 46*(4), 293-303. https://doi.org/10.1093/swr/svac021

Flanagan, J. C., Jaquier, V., Overstreet, N., Swan, S. C., & Sullivan, T. P. (2014). The mediating role of avoidance coping between intimate partner violence (IPV) victimization, mental health, and substance abuse among women experiencing bidirectional IPV. *Psychiatry Research, 220*(1-2), 391-396. https://doi.org/10.1016/j.psychres.2014.07.065

Flanagan, J. C., Jarnecke, A. M., Leone, R. M., & Oesterle, D. W. (2020a). Effects of couple conflict on alcohol craving: Does intimate partner violence play a role? *Addictive Behaviors, 109*. https://doi.org/10.1016/j.addbeh.2020.106474

Flanagan, J. C., Leone, R. M., Gilmore, A. K., McClure, E. A., & Gray, K. M. (2020b). Association of cannabis use with intimate partner violence among couples with substance misuse. *American Journal on Addictions, 29*(4), 323-330. https://doi.org/10.1111/ajad.13025

Fleming, C. B., White, H. R., & Catalano, R. F. (2010). Romantic relationships and substance use in early adulthood: An examination of the influences of relationship type, partner substance use, and relationship quality. *Journal of Health and Social Behavior, 51*, 153-167. https://doi.org/https://doi.org/10.1177/0022146510368930

Follingstad, D. R., & Edmundson, M. (2010). Is psychological abuse reciprocal in intimate relationships? Data from a national sample of American adults. *Journal of Family Violence, 25*(5), 495-508. https://doi.org/10.1007/s10896-010-9311-y

Foran, H. M., & O'Leary, K. D. (2008). Alcohol and intimate partner violence: A meta-analytic review. *Clinical Psychology Review, 28*(7), 1222-1234. https://doi.org/10.1016/j.cpr.2008.05.001

Ford, K., Sohn, W., & Lepkowski, J. M. (2003). Ethnicity or race, area characteristics, and sexual partner choice among American adolescents. *Journal of Sex Research, 40*(2), 211-218. https://doi.org/10.1080/00224490309552182

Foster, D. W., Jeffries, E. R., Zvolensky, M. J., & Buckner, J. D. (2016). The interactive influence of cannabis-related negative expectancies and coping motives on cannabis use behavior and problems. *Substance Use & Misuse, 51*(11), 1504-1511. https://doi.org/10.1080/10826084.2016.1188947

Fox, C. L., Towe, S. L., Stephens, R. S., Walker, D. D., & Roffman, R. A. (2011). Motives for cannabis use in high-risk adolescent users. *Psychology of Addictive Behaviors, 25*(3), 492-500. https://doi.org/10.1037/a0024331

Franco, S., Olfson, M., Wall, M. M., Wang, S., Hoertel, N., & Blanco, C. (2019). Shared and specific associations of substance use disorders on adverse outcomes: A national prospective study. *Drug and Alcohol Dependence, 201*, 212-219. https://doi.org/10.1016/j.drugalcdep.2019.03.003

Gainsbury, S. M., Blascscynski, A., Swanton, T., & Burgess, M. (2020). *The impact of the COVID-19 shutdown on gambling in Australia.* The University of Sydney.

Gainsbury, S. M., Russell, A., Hing, N., Wood, R., Lubman, D., & Blaszczynski, A. (2015). How the internet is changing gambling: Findings from an Australian prevalence survey. *Journal of Gambling Studies, 31*(1), 1-15. https://doi.org/10.1007/s10899-013-9404-7

Gainsbury, S. M., Russell, A., Wood, R., Hing, N., & Blaszczynski, A. (2014a). How risky is internet gambling? A comparison of subgroups of internet gamblers based on problem gambling status. *New Media & Society, 17*(6), 861-879. https://doi.org/10.1177/1461444813518185

Gainsbury, S. M., Suhonen, N., & Saastamoinen, J. (2014b). Chasing losses in online poker and casino games: Characteristics and game play of internet gamblers at risk of disordered gambling. *Psychiatry Research, 217*(3), 220-225. https://doi.org/10.1016/j.psychres.2014.03.033

Galasso, V. (2020). COVID: Not a great equalizer. *CESifo Economic Studies, 66*(4), 376-393. https://doi.org/10.1093/cesifo/ifaa019

Galdiolo, S., Culot, S., Delannoy, P., Mauroy, A., Laforgue, F., & Gaugue, J. (2022). Harmful stress-related couple processes during the COVID-19 pandemic and lockdown: A longitudinal dyadic perspective. *Frontiers in Psychology, 13*, 819874. https://doi.org/10.3389/fpsyg.2022.819874

Garey, L., Olofsson, H., Garza, T., Rogers, A. H., Kauffman, B. Y., & Zvolensky, M. J. (2020). Directional effects of anxiety and depressive disorders with substance use: A review of recent prospective research. *Current Addiction Reports, 7*(3), 344-355. https://doi.org/10.1007/s40429-020-00321-z

Gautreau, C., Sherry, S., Battista, S., Goldstein, A., & Stewart, S. (2015). Enhancement motives moderate the relationship between high-arousal positive moods and drinking quantity: Evidence from a 22-day experience sampling study. *Drug and Alcohol Review, 34*(6), 595-602. https://doi.org/10.1111/dar.12235

Gelernter, J., & Polimanti, R. (2021). Genetics of substance use disorders in the era of big data. *Nature Reviews Genetics, 22*(11), 712-729. https://doi.org/10.1038/s41576-021-00377-1

Ghosal, S., Bhattacharyya, R., & Majumder, M. (2020). Impact of complete lockdown on total infection and death rates: A hierarchical cluster analysis. *Diabetes and Metabolic Syndrome, 14*(4), 707-711. https://doi.org/10.1016/j.dsx.2020.05.026

Giddens, J. L., Xian, H., Scherrer, J. F., Eisen, S. A., & Potenza, M. N. (2011). Shared genetic contributions to anxiety disorders and pathological gambling in a male population. *Journal of Affective Disorders, 132*(3), 406-412. https://doi.org/10.1016/j.jad.2011.03.008

Gilchrist, G., Dennis, F., Radcliffe, P., Henderson, J., Howard, L. M., & Gadd, D. (2019). The interplay between substance use and intimate partner violence perpetration: A meta-ethnography. *International Journal of Drug Policy, 65*, 8-23. https://doi.org/10.1016/j.drugpo.2018.12.009

Gillespie, N. A., Aggen, S. H., Neale, M. C., Knudsen, G. P., Krueger, R. F., South, S. C., Czajkowski, N., Nesvag, R., Ystrom, E., Kendler, K. S., & Reichborn-Kjennerud, T. (2018). Associations between personality disorders and cannabis use and cannabis use disorder: A population-based twin study. *Addiction, 113*(8), 1488-1498. https://doi.org/10.1111/add.14209

Gillespie, N. A., Neale, M. C., & Kendler, K. S. (2009). Pathways to cannabis abuse: A multi-stage model from cannabis availability, cannabis initiation and progression to abuse. *Addiction, 104*(3), 430-438. https://doi.org/10.1111/j.1360-0443.2008.02456.x

Gilman, S. E., & Abraham, H. D. (2001). A longitudinal study of the order of onset of alcohol dependence and major depression. *Drug and Alcohol Dependence, 63*, 277-286. https://doi.org/https://doi.org/10.1016/S0376-8716(00)00216-7

Glodosky, N. C., & Cuttler, C. (2020). Motives matter: Cannabis use motives moderate the associations between stress and negative affect. *Addictive Behaviors, 102*, 106188. https://doi.org/10.1016/j.addbeh.2019.106188

Goldfarb, M. R., & Trudel, G. (2019). Marital quality and depression: A review. *Marriage & Family Review, 55*(8), 737-763. https://doi.org/10.1080/01494929.2019.1610136

Golding, J. M. (1999). Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence, 14*(2), 99-132. https://doi.org/https://doi.org/10.1023/A:1022079418229

Goldman, M. S., Brown, S. A., & Christiansen, B. A. (1987). Expectancy theory: Thinking about drinking. In H. T. Blane & K. E. Leonard (Eds.), *Psychological theories of drinking and alcoholism* (pp. 181-226). Guilford Publications.

Goldstein, A. L., Vilhena-Churchill, N., Stewart, S. H., Hoaken, P. N., & Flett, G. L. (2016). Mood, motives, and money: An examination of factors that differentiate online and non-online young adult gamblers. *Journal of Behavioral Addictions, 5*(1), 68-76. https://doi.org/10.1556/2006.5.2016.003

Gomes, K., & Pascual-Leone, A. (2014). A resource model of change: Client factors that influence problem gambling treatment outcomes. *Journal of Gambling Studies, 31*(4), 1651-1669. https://doi.org/10.1007/s10899-014-9493-y

Gonzalez, V. M., & Hewell, V. M. (2012). Suicidal ideation and drinking to cope among college binge drinkers. *Addictive Behaviors, 37*(8), 994-997. https://doi.org/10.1016/j.addbeh.2012.03.027

Gooding, N. B., Williams, J. N., & Williams, R. J. (2022). Addiction chronicity: Are all addictions the same? *Addiction Research & Theory, 30*(4), 304-310. https://doi.org/10.1080/16066359.2022.2035370

Gooding, N. B., & Williams, R. J. (2023). Are there riskier types of gambling? *Journal of Gambling Studies*. https://doi.org/10.1007/s10899-023-10231-0

Gorman, J. M. (1997). Comorid depression and anxiety spectrum disorders. *Depression and Anxiety, 4*, 160-168.

Gosangi, B., Park, H., Thomas, R., Gujrathi, R., Bay, C. P., Raja, A. S., Seltzer, S. E., Balcom, M. C., McDonald, M. L., Orgill, D. P., Harris, M. B., Boland, G. W., Rexrode, K., & Khurana, B. (2021). Exacerbation of physical intimate partner violence during COVID-19 pandemic. *Radiology, 298*(1), E38-E45. https://doi.org/10.1148/RADIOL.2020202866

Gottman, J. M. (1994). *What predicts divorce? The relationship between marital processes and marital outcomes*. Lawrence Erlbaum Associaties.

Gottman, J. M., & Levenson, R. W. (2004). The timing of divorce: Predicting when a couple will divorce over a 14-year period. *Journal of Marriage and Family, 62*(3), 737-745. https://doi.org/10.1111/j.1741-3737.2000.00737.x

Götz, F. M., Gosling, S. D., & Rentfrow, P. J. (2022). Small effects: The indispensable foundation for a cumulative psychological sciene. *Perspectives on Psychological Science, 17*(1), 205-215. https://doi.org/10.1177/1745691620984483

Government of Canada. (2022). *Cannabis legalization and regulation in Canada* Taking stock of progress.

Grant, B. F., Goldstein, R. B., Saha, T. D., Chou, S. P., Jung, J., Zhang, H., Pickering, R. P., June Ruan, W., Smith, S. M., Huang, B., & Hasin, D. S. (2015). Epidemiology of DSM-5 alcohol use disorder: Results from the National Epidemiologic Survey on Alcohol and Related Conditions III. *JAMA Psychiatry, 72*(8), 757-766. https://doi.org/10.1001/jamapsychiatry.2015.0584

Grant, B. F., & Pickering, R. (1998). The relationship between cannabis use and DSM-IV cannabis abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Use, 10*(3), 255-264. https://doi.org/https://doi.org/10.1016/S0899-3289(99)00006-1

Grant, J. D., Verges, A., Jackson, K. M., Trull, T. J., Sher, K. J., & Bucholz, K. K. (2012a). Age and ethnic differences in the onset, persistence and recurrence of alcohol use disorder. *Addiction, 107*(4), 756-765. https://doi.org/10.1111/j.1360-0443.2011.03721.x

Grant, J. E., Odlaug, B. L., & Mooney, M. E. (2012b). Telescoping phenomenon in pathological gambling: Association with gender and comorbidities. *Journal of Nervous and Mental Disease, 200*(11), 996-998. https://doi.org/10.1097/NMD.0b013e3182718a4d

Grant, V. V., Stewart, S. H., O'Connor, R. M., Blackwell, E., & Conrod, P. J. (2007). Psychometric evaluation of the five-factor Modified Drinking Motives Questionnaire - Revised in undergraduates. *Addictive Behaviors, 32*(11), 2611-2632. https://doi.org/10.1016/j.addbeh.2007.07.004

Grazioli, V. S., Bagge, C. L., Studer, J., Bertholet, N., Rougemont-Bucking, A., Mohler-Kuo, M., Daeppen, J. B., & Gmel, G. (2018). Depressive symptoms, alcohol use and coping drinking motives: Examining various pathways to suicide attempts among young men. *Journal of Affective Disorders, 232*, 243-251. https://doi.org/10.1016/j.jad.2018.02.028

Greeff, A. P., & de Bruyne, T. (2000). Conflict management style and marital satisfaction. *Journal of Sex and Marital Therapy, 26*(4), 321-334. https://doi.org/10.1080/009262300438724

Green, I. W., & Glausier, J. R. (2016). Different paths to core pathology: The equifinal model of the schizophrenia syndrome. *Schizophrenia Bulletin, 42*(3), 542-549. https://doi.org/10.1093/schbul/sbv136

Gronbaek, M. (2009). The positive and negative health effects of alcohol - and the public health implications. *Journal of Internal Medicine, 265*(4), 407-420. https://doi.org/10.1111/j.1365-2796.2009.02082.x

Grubbs, J. B., & Rosansky, J. A. (2020). Problem gambling, coping motivations, and positive expectancies: A longitudinal survey study. *Psychology of Addictive Behaviors, 34*(2), 414-419. https://doi.org/10.1037/adb0000529

Guan, N., Guariglia, A., Moore, P., Xu, F., & Al-Janabi, H. (2022). Financial stress and depression in adults: A systematic review. *PLoS ONE, 17*(2), e0264041. https://doi.org/10.1371/journal.pone.0264041

Guo, J., Hawkins, D. J., Hill, K. G., & Abbott, R. D. (2001). Childhood and adolescent predictors of alcohol abuse and dependence in young adulthood. *Journal of Studies on Alcohol, 62*(6), 754-762. https://doi.org/10.15288/jsa.2001.62.754

Hagen, A. E. F., Nogueira-Arjona, R., Sherry, S. B., Rodriguez, L. M., Yakovenko, I., & Stewart, S. H. (2023a). What explains the link between romantic conflict with gambling problems? Testing a serial mediational model. *Frontiers in Psychology, 14*, 1018098. https://doi.org/10.3389/fpsyg.2023.1018098

Hagen, A. E. F., Rodriguez, L. M., Neighbors, C., Nogueira-Arjona, R., Sherry, S. B., Lambe, L., Deacon, S. H., Meier, S., Abbass, A., & Stewart, S. H. (2023b). Drinking to cope mediates the association between dyadic conflict and drinking behavior: A study of romantic couples during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 20*(14). https://doi.org/10.3390/ijerph20146332

Hagfors, H., Castren, S., & Salonen, A. H. (2022). How gambling motives are associated with socio-demographics and gambling behavior: A Finnish population study. *Journal of Behavioral Addictions, 11*(1), 63-74. https://doi.org/10.1556/2006.2022.00003

Håkansson, A. (2020). Changes in gambling behavior during the COVID-19 pandemic -- a web survey study in Sweden. *Environmental Research and Public Health, 17*(4013). https://doi.org/10.3390/ijerph17114013

Hakulinen, C., Elovainio, M., Batty, G. D., Virtanen, M., Kivimaki, M., & Jokela, M. (2015). Personality and alcohol consumption: Pooled analysis of 72,949 adults from eight cohort studies. *Drug and Alcohol Dependence, 151*, 110-114. https://doi.org/10.1016/j.drugalcdep.2015.03.008

Halford, W. K., Sanders, M. R., & Behrens, B. C. (2000). Repeating the errors of our parents? Family-of-origin spouse violence and observed conflict management in engaged couples. *Family Process, 39*(2), 219-235. https://doi.org/10.1111/j.1545-5300.2000.39206.x

Hamberger, L. K. (2005). Men's and women's use of intimate partner violence in clinical samples: Toward a gender-sensitive analysis. *Violence and Victims, 20*(2), 131-151. https://doi.org/10.1891/vivi.2005.20.2.131

Hartmann, M., & Blaszczynski, A. (2016). The longitudinal relationships between psychiatric disorders and gambling disorders. *International Journal of Mental Health and Addiction, 16*(1), 16-44. https://doi.org/10.1007/s11469-016-9705-z

Harville, E. W., Taylor, C. A., Tesfai, H., Xu, X., & Buekens, P. (2011). Experience of Hurricane Katrina and reported intimate partner violence. *Journal of Interpersonal Violence, 26*(4), 833-845. https://doi.org/10.1177/0886260510365861

Hasin, D., & Walsh, C. (2021). Cannabis use, cannabis use disorder, and comorbid psychiatric illness: A narrative review. *Journal of Clinical Medicine, 10*(1), 1-19. https://doi.org/10.3390/jcm10010015

Hasin, D. S. (2018). US epidemiology of cannabis use and associated problems. *Neuropsychopharmacology, 43*(1), 195-212. https://doi.org/10.1038/npp.2017.198

Hasin, D. S., Kerridge, B. T., Saha, T. D., Huang, B., Pickering, R., Smith, S. M., Jung, J., Zhang, H., & Grant, B. F. (2016). Prevalence and correlates of DSM-5 cannabis use disorder, 2012-2013: Findings from the National Epidemiologic Survey on Alcohol and Related Conditions–III. *The American Journal of Psychiatry, 173*(6), 588-599. https://doi.org/10.1176/appi.ajp.2015.15070907

Hasin, D. S., Shmulewitz, D., & Sarvet, A. L. (2019). Time trends in US cannabis use and cannabis use disorders overall and by sociodemographic subgroups: A narrative review and new findings. *American Journal of Drug and Alcohol Abuse, 45*(6), 623-643. https://doi.org/10.1080/00952990.2019.1569668

Hasin, D. S., Stinston, F. S., Ogburn, E., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States. *Archives of General Psychiatry, 64*(7), 830-842. https://doi.org/10.1001/archpsyc.64.7.830

Haug, N. A., Padula, C. B., Sottile, J. E., Vandrey, R., Heinz, A. J., & Bonn-Miller, M. O. (2017). Cannabis use patterns and motives: A comparison of younger, middle-aged, and older medical cannabis dispensary patients. *Addictive Behaviors, 72*, 14-20. https://doi.org/10.1016/j.addbeh.2017.03.006

Hawkins, D. N., & Booth, A. (2005). Unhappily ever after: Effects of long-term, low-quality marriages on well-being. *Social Forces, 84*(1), 451-471. https://doi.org/10.1353/sof.2005.0103

Hayatbakhsh, M. R., Najman, J. M., Bor, W., O'Callaghan, M. J., & Williams, G. M. (2009). Multiple risk factor model predicting cannabis use and use disorders: A longitudinal study. *American Journal of Drug and Alcohol Abuse, 35*(6), 399-407. https://doi.org/10.3109/00952990903353415

Haydon, K. C., & Salvatore, J. E. (2022). Relationship perceptions and conflict behavior among cannabis users. *Drug and Alcohol Dependence, 237*, 109502. https://doi.org/10.1016/j.drugalcdep.2022.109502

Hayes, A. F. (2014). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.

Hayes, A. F., & Rockwood, N. J. (2020). Conditional process analysis: Concepts, computation, and advances in the modeling of the contingencies of mechanisms. *American Behavioral Scientist, 64*(1), 19-54. https://doi.org/10.1177/0002764219859633

Helle, A. C., Trull, T. J., Watts, A. L., McDowell, Y., & Sher, K. J. (2020). Psychiatric comorbidity as a function of severity: DSM-5 alcohol use disorder and hitop classification of mental disorders. *Alcoholism: Clinical and Experimental Research, 44*(3), 632-644. https://doi.org/10.1111/acer.14284

Henson, C., Truchot, D., & Canevello, A. (2021). What promotes post traumatic growth? A systematic review. *European Journal of Trauma & Dissociation, 5*(4), 100195. https://doi.org/https://doi.org/10.1016/j.ejtd.2020.100195

Higgins, S. T., Heil, S. H., & Lussier, J. P. (2004). Clinical implications of reinforcement as a determinant of substance use disorders. *Annual Review of Psychology, 55*, 431-461. https://doi.org/10.1146/annurev.psych.55.090902.142033

Hilbe, J. M. (2012). Negative binomial regression. In J. M. Hilbe (Ed.), *Negative binomial regression* (pp. 77-98). Cambridge University Press.

Hill, K. G., Hawkins, J. D., Bailey, J. A., Catalano, R. F., Abbott, R. D., & Shapiro, V. B. (2010). Person-environment interaction in the prediction of alcohol abuse and alcohol dependence in adulthood. *Drug and Alcohol Dependence, 110*(1-2), 62-69. https://doi.org/10.1016/j.drugalcdep.2010.02.005

Hines, D. A., & Douglas, E. M. (2009). Women's use of intimate partner violence against men: Prevalence, implications, and consequences. *Journal of Aggression, Maltreatment & Trauma, 18*(6), 572-586. https://doi.org/10.1080/10926770903103099

Hing, N., Russell, A., Tolchard, B., & Nower, L. (2016). Risk factors for gambling: An analysis by gender. *Journal of Gambling Studies, 32*(2), 511-534. https://doi.org/10.1007/s10899-015-9548-8

Hjorthoj, C. R., Hjorthoj, A. R., & Nordentoft, M. (2012). Validity of timeline follow-back for self-reported use of cannabis and other illicit substances: Systematic review and meta-analysis. *Addictive Behaviors, 37*(3), 225-233. https://doi.org/10.1016/j.addbeh.2011.11.025

Hodgins, D. C., & El-Guebaly, N. (2004). Retrospective and prospective reports of preciptants to relapse in pathological gambling. *Journal of Consulting and Clinical Psychology, 72*(1), 72-80. https://doi.org/10.1037/0022-006X.72.1.72

Hodgins, D. C., & Racicot, S. (2013). The link between drinking and gambling among undergraduate university students. *Psychology of Addictive Behaviors, 27*(3), 885-892. https://doi.org/10.1037/a0032866

Hodgins, D. C., & Stevens, R. M. G. (2021). The impact of COVID-19 on gambling and gambling disorder: Emerging data. *Current Opinion in Psychiatry, 34*(4), 332-343. https://doi.org/10.1097/YCO.0000000000000709

Hogan, J. N., & Flanagan, J. C. (2022). Cortisol recovery following conflict predicts alcohol use in substance misusing couples. *Couple and Family Psychology: Research and Practice*. https://doi.org/10.1037/cfp0000219

Hogue, A., Schumm, J. A., MacLean, A., & Bobek, M. (2022). Couple and family therapy for substance use disorders: Evidence-based update 2010-2019. *Journal of Marital and Family Therapy, 48*(1), 178-203. https://doi.org/10.1111/jmft.12546

Holm, K. E., Werner-Wilson, R. J., Cook, A. S., & Berger, P. S. (2001). The association between emotion work balance and relationship satisfaction of couples seeking therapy. *American Journal of Family Therapy, 29*(3), 193-205. https://doi.org/10.1080/019261801750424316

Holman, T. B., & Jarvis, M. O. (2003). Hostile, volatile, avoiding, and validating couple-conflict types: An investigation of gottman's couple-conflict types. *Personal Relationships, 10*(2), 267-282. https://doi.org/10.1111/1475-6811.00049

Holway, G. V., Umberson, D., & Thomeer, M. B. (2017). Binge drinking and depression: The influence of romantic partners in young adulthood. *Society and Mental Health, 7*(1), 36-49. https://doi.org/10.1177/2156869316674056

Homish, G. G., & Leonard, K. E. (2005). Spousal influence on smoking behaviors in a US community sample of newly married couples. *Social Science and Medicine, 61*, 2557-2567. https://doi.org/https://doi.org/10.1016/j.socscimed.2005.05.005

Homish, G. G., Leonard, K. E., & Cornelius, J. R. (2007). Predictors of marijuana use among married couples: The influence of one's spouse. *Drug and Alcohol Dependence, 91*(2-3), 121-128. https://doi.org/10.1016/j.drugalcdep.2007.05.014

Hoppmann, C. A., Gerstorf, D., Willis, S. L., & Schaie, K. W. (2011). Spousal interrelations in happiness in the Seattle Longitudinal Study: Considerable similarities in levels and change over time. *Developmental Psychology, 47*(1), 1-8. https://doi.org/10.1037/a0020788

Howe, G. W., Levy, M. L., & Caplan, R. D. (2004). Job loss and depressive symptoms in couples: Common stressors, stress transmission, or relationship disruption? *Journal of Family Psychology, 18*(4), 639-650. https://doi.org/10.1037/0893-3200.18.4.639

Hui, V., & Constantino, R. E. (2021). The association between life satisfaction, emotional support, and perceived health among women who experienced intimate partner violence (IPV) - 2007 behavioral risk factor surveillance system. *BMC Public Health, 21*(1), 641. https://doi.org/10.1186/s12889-021-10665-4

Hunter, R. F., de la Haye, K., Murray, J. M., Badham, J., Valente, T. W., Clarke, M., & Kee, F. (2019). Social network interventions for health behaviours and outcomes: A systematic review and meta-analysis. *PLoS Medicine, 16*(9), e1002890. https://doi.org/10.1371/journal.pmed.1002890

Hussong, A. (2003). Social influences in motivated drinking among college students. *Psychology of Addictive Behaviors, 17*(2), 142-150. https://doi.org/10.1037/0893-164X.17.2.142

Hussong, A. M. (2007). Predictors of drinking immediacy following daily sadness: An application of survival analysis to experience sampling data. *Addict Behav, 32*(5), 1054-1065. https://doi.org/10.1016/j.addbeh.2006.07.011

Hyman, S. M., & Sinha, R. (2009). Stress-related factors in cannabis use and misuse: Implications for prevention and treatment. *Journal of Substance Abuse and Treatment, 36*(4), 400-413. https://doi.org/10.1016/j.jsat.2008.08.005

Ioannidis, K., Hook, R., Wickham, K., Grant, J. E., & Chamberlain, S. R. (2019). Impulsivity in gambling disorder and problem gambling: A meta-analysis. *Neuropsychopharmacology, 44*(8), 1354-1361. https://doi.org/10.1038/s41386-019-0393-9

Iveniuk, J., Waite, L. J., McClintock, M. K., & Teidt, A. D. (2014). Marital conflict in older couples: Positivity, personality, and health. *Journal of Marriage and Family, 76*(1), 130-144. https://doi.org/10.1111/jomf.12085

Jacobson, N. S. (1992). Behavioral couple therapy: A new beginning *Behavior Therapy, 23*(4), 493-506. https://doi.org/10.1016/s0005-7894(05)80218-7

Jarnecke, A. M., & Flanagan, J. C. (2020). Staying safe during COVID-19: How a pandemic can escalate risk for intimate partner violence and what can be done to provide individuals with resources and support. *Psychological Trauma: Theory, Research, Practice, and Policy, 12*(S1), S202-S204. https://doi.org/10.1037/tra0000688

Jauregui, P., & Estevez, A. (2020). Predictive role of attachment, coping, and emotion regulation in gambling motives of adolescents and young people. *Journal of Gambling Studies, 36*(4), 1283-1300. https://doi.org/10.1007/s10899-019-09893-6

Jenkinson, R., Sakata, K., Khokhar, T., Tajin, R., & Jatkar, U. (2020). *Gambling in Australia during COVID-19*.

Joel, S., Eastwick, P. W., Allison, C. J., Arriaga, X. B., Baker, Z. G., Bar-Kalifa, E., Bergeron, S., Birnbaum, G. E., Brock, R. L., Brumbaugh, C. C., Carmichael, C. L., Chen, S., Clarke, J., Cobb, R. J., Coolsen, M. K., Davis, J., de Jong, D. C., Debrot, A., DeHaas, E. C., Derrick, J. L., Eller, J., Estrada, M. J., Faure, R., Finkel, E. J., Fraley, R. C., Gable, S. L., Gadassi-Polack, R., Girme, Y. U., Gordon, A. M., Gosnell, C. L., Hammond, M. D., Hannon, P. A., Harasymchuk, C., Hofmann, W., Horn, A. B., Impett, E. A., Jamieson, J. P., Keltner, D., Kim, J. J., Kirchner, J. L., Kluwer, E. S., Kumashiro, M., Larson, G., Lazarus, G., Logan, J. M., Luchies, L. B., MacDonald, G., Machia, L. V., Maniaci, M. R., Maxwell, J. A., Mizrahi, M., Muise, A., Niehuis, S., Ogolsky, B. G., Oldham, C. R., Overall, N. C., Perrez, M., Peters, B. J., Pietromonaco, P. R., Powers, S. I., Prok, T., Pshedetzky-Shochat, R., Rafaeli, E., Ramsdell, E. L., Reblin, M., Reicherts, M., Reifman, A., Reis, H. T., Rhoades, G. K., Rholes, W. S., Righetti, F., Rodriguez, L. M., Rogge, R., Rosen, N. O., Saxbe, D., Sened, H., Simpson, J. A., Slotter, E. B., Stanley, S. M., Stocker, S., Surra, C., Ter Kuile, H., Vaughn, A. A., Vicary, A. M., Visserman, M. L., & Wolf, S. (2020). Machine learning uncovers the most robust self-report predictors of relationship quality across 43 longitudinal couples studies. *Proceedings of the National Academy of Sciences 117*(32), 19061-19071. https://doi.org/10.1073/pnas.1917036117

Johansson, A., Grant, J. E., Kim, S. W., Odlaug, B. L., & Gotestam, K. G. (2009). Risk factors for problematic gambling: A critical literature review. *Journal of Gambling Studies, 25*(1), 67-92. https://doi.org/10.1007/s10899-008-9088-6

Johnson, M., B. (2006). Violence and abuse in personal relationships. In A. L. Vangelisti & D. Perlman (Eds.), *The Cambridge Handbook of Personal Relationships* (pp. 557-576). Cambridge University Press.

Jones, B. T., Corbin, W., & Fromme, K. (2001). A review of expectancy theory and alcohol consumption. *Addiction, 96*(1), 57-72. https://doi.org/10.1046/j.1360-0443.2001.961575.x

Joung, I. M. A., Stronks, K., van de Mheen, H., & Mackenbach, J. P. (1995). Health behaviours explain part of the differences in self reported health associated with partner/marital status in the Netherlands. *Journal of Epidemiology and Community Health, 49*, 482-488. https://doi.org/https://doi.org/10.1136/jech.49.5.482

Joyce, K. M., Hudson, A., O'Connor, R., Thompson, K., Hodgin, M., Perrot, T., & Stewart, S. H. (2018). Changes in coping and social motives for drinking and alcohol consumption across the menstrual cycle. *Depression and Anxiety, 35*(4), 313-320. https://doi.org/10.1002/da.22699

Kalischuk, R. G., Nowatzki, N., Cardwell, K., Klein, K., & Solowoniuk, J. (2006). Problem gambling and its impact on families: A literature review. *International Gambling Studies, 6*(1), 31-60. https://doi.org/10.1080/14459790600644176

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin, 118*(1), 3-34. https://doi.org/doi.org/10.1037/0033-2909.118.1.3

Kedzior, K. K., & Laeber, L. T. (2014). A positive association between anxiety disorders and cannabis use or cannabis use disorders in the general population: A meta-analysis of 31 studies. *BMC Psychiatry, 14*(136), 1-22. https://doi.org/https://doi.org/10.1186/1471-244X-14-136

Keenan, K., Hipwell, A. E., Stepp, S. D., & Wroblewski, K. (2014). Testing an equifinality model of nonsuicidal self-injury among early adolescent girls. *Development and Psychopathology, 26*(3), 851-862. https://doi.org/10.1017/S0954579414000431

Kehayes, I.-l. L., Mackinnon, S. P., Sherry, S. B., Leonard, K. E., & Stewart, S. H. (2019). Drinking motives and drinking behaviors in romantic couples: A longitudinal actor-partner interdependence model. *Psychology of Addictive Behaviors, 33*(3), 208-220. https://doi.org/doi.org/10.1037/adb0000459

Kehayes, I. L. L., Mackinnon, S. P., Sherry, S. B., Leonard, K. E., & Stewart, S. H. (2017). Similarity in romantic couples' drinking motivations and drinking behaviors. *Substance Abuse, 38*(4), 488-492. https://doi.org/10.1080/08897077.2017.1355869

Kehayes, I. L. L., Mackinnon, S. P., Sherry, S. B., Leonard, K. E., & Stewart, S. H. (2020). The influence of drinking buddies: A longitudinal investigation of drinking motivations and drinking behaviors in emerging adults. *Substance Use and Misuse, 56*(2), 286-296. https://doi.org/10.1080/10826084.2020.1861631

Keller, P. S., El-Sheikh, M., Keiley, M., & Liao, P. J. (2009). Longitudinal relations between marital aggression and alcohol problems. *Psychology of Addictive Behaviors, 23*(1), 2-13. https://doi.org/10.1037/a0013459

Kelly, J. F., Stout, R. L., Tonigan, J. S., Magill, M., & Al, K. E. T. (2010). Negative affect, relapse, and alcoholics anonymous (AA): Does AA work by reducing anger? *Journal of Studies on Alcohol and Drugs, 71*(3), 434-444. https://doi.org/https://doi.org/10.15288/jsad.2010.71.434

Kendler, K. S., Jacobson, K. C., Prescott, C. A., Neale, M. C. (2003). Specificity of genetic and environmental risk factors for use and abuse/dependence of cannabis, cocaine, hallucinogens, sedatives, stimulants, and opiates in male twins. *American Journal of Psychiatry, 160*(4), 687-695. https://doi.org/doi:10.1176/appi.ajp.160.4.687

Kendler, K. S., Myers, J., Dick, D., & Prescott, C. A. (2010). The relationship between genetic influences on alcohol dependence and on patterns of alcohol consumption. *Alcoholism: Clinical and Experimental Research, 34*(6), 1058-1065. https://doi.org/10.1111/j.1530-0277.2010.01181.x

Kendler, K. S., Prescott, C. A., Myers, J., & Neale, M. C. (2003). The structure of genetic and environmental risk factors for common psychiatric and substance use disorders in men and women. *Archives of Clinical Neuropsychology, 60*, 929-937. https://doi.org/doi:10.1001/archpsyc.60.9.929

Kenney, S. R., Lac, A., LaBrie, J. W., Hummer, J. F., & Pham, A. (2013). Mental health, sleep quality, drinking motives, and alcohol-related consequences: A path-analytic model. *Journal of Studies on Alcohol and Drugs, 74*(6), 841-851. https://doi.org/https://doi.org/10.15288/jsad.2013.74.841

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2020). *Dyadic data analysis*. Guilford Press.

Kenny, D. A., & Ledermann, T. (2010). Detecting, measuring, and testing dyadic patterns in the actor – partner interdependence model. *Journal of Family Issues, 24*(3), 359-366. https://doi.org/10.1037/a0019651

Keough, M. T., O'Connor, R. M., Sherry, S. B., & Stewart, S. H. (2015). Context counts: Solitary drinking explains the association between depressive symptoms and alcohol-related problems in undergraduates. *Addictive Behaviors, 42*, 216-221. https://doi.org/10.1016/j.addbeh.2014.11.031

Keough, M. T., Penniston, T. L., Vilhena-Churchill, N., Michael Bagby, R., & Quilty, L. C. (2018). Depression symptoms and reasons for gambling sequentially mediate the associations between insecure attachment styles and problem gambling. *Addictive Behaviors, 78*, 166-172. https://doi.org/10.1016/j.addbeh.2017.11.018

Kerr, D. L., & Oglesby, W. H. (2017). LGBT populations and substance abuse research: An overview. In J. B. VanGeest, T. P. Johnson, & S. A. Alemagno (Eds.), *Research methods in the study of substance abuse* (pp. 341-356). Springer Nature.

Kessler, R. C. (2004). The epidemiology of dual diagnosis. *Biological Psychiatry, 56*(10), 730-737. https://doi.org/10.1016/j.biopsych.2004.06.034

Kessler, R. C., Hwang, I., Labrie, R., Petukhova, M., Sampson, N. A., Winters, K. C., & Shaffer, H. J. (2008). DSM-IV pathological gambling in the National Comorbidity Survey replication. *Psychological Medicine, 38*(9), 1351-1360. https://doi.org/10.1017/S0033291708002900

Ketcherside, A., & Filbey, F. M. (2015). Mediating processes between stress and problematic marijuana use. *Addictive Behaviors, 45*, 113-118. https://doi.org/10.1016/j.addbeh.2015.01.015

Keum, B. T., & Choi, A. Y. (2022). COVID-19 racism, depressive symptoms, drinking to cope motives, and alcohol use severity among Asian American emerging adults. *Emerging Adulthood, 10*(6), 1591-1601. https://doi.org/10.1177/21676968221117421

Keyes, K. M., Hatzenbuehler, M. L., & Hasin, D. S. (2011). Stressful life experiences, alcohol consumption, and alcohol use disorders: The epidemiologic evidence for four main types of stressors. *Psychopharmacology, 218*(1), 1-17. https://doi.org/10.1007/s00213-011-2236-1

Khantzian, E. J. (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry, 4*(5), 231-244. https://doi.org/10.3109/10673229709030550

Khubchandani, J., Sharma, S., Webb, F. J., Wiblishauser, M. J., & Bowman, S. L. (2021). Post-lockdown depression and anxiety in the USA during the COVID-19 pandemic. *Journal of Public Health, 43*(2), 246-253. https://doi.org/10.1093/pubmed/fdaa250

Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin, 127*(4), 472-503. https://doi.org/10.I037//0033-2909.127.4.472

Kiecolt-Glaser, J. K., & Wilson, S. J. (2017). Lovesick: How couples' relationships influence health. *Annual Review of Clinical Psychology, 13*, 421-443. https://doi.org/10.1146/annurev-clinpsy-032816-045111

Kifle, M. E., Aychiluhm, S. B., & Anbesu, E. W. (2024). Global prevalence of intimate partner violence during the COVID-19 pandemic among women: Systematic review and meta-analysis. *BMC Womens Health, 24*(1), 127. https://doi.org/10.1186/s12905-023-02845-8

Kilian, C., O'Donnell, A., Potapova, N., Lopez-Pelayo, H., Schulte, B., Miquel, L., Paniello Castillo, B., Schmidt, C. S., Gual, A., Rehm, J., & Manthey, J. (2022). Changes in alcohol use during the COVID-19 pandemic in Europe: A meta-analysis of observational studies. *Drug and Alcohol Review, 41*(4), 918-931. https://doi.org/10.1111/dar.13446

Kim, A. J., Smith, M. M., Sherry, S. B., Rodriguez, L. M., Meier, S. M., Nogueira-Arjona, R., Deacon, S. H., Abbass, A., & Stewart, S. H. (2022). Depressive symptoms and conflict behaviors: A test of the stress generation hypothesis in romantic couples during the COVID-19 pandemic. *Journal of Social and Clinical Psychology, 41*(6), 517-540. https://doi.org/10.1521/jscp.2022.41.6.517

Kim, H. S., & Hodgins, D. C. (2018). Component model of addiction treatment: A pragmatic transdiagnostic treatment model of behavioral and substance addictions. *Frontiers in Psychiatry, 9*, 406. https://doi.org/10.3389/fpsyt.2018.00406

Kim, H. S., Hodgins, D. C., Kim, B., & Wild, T. C. (2020a). Transdiagnostic or disorder specific? Indicators of substance and behavioral addictions nominated by people with lived experience. *Journal of Clinical Medicine, 9*(2). https://doi.org/10.3390/jcm9020334

Kim, H. S., Poole, J. C., Hodgins, D. C., McGrath, D. S., & Dobson, K. S. (2019). Betting to deal: Coping motives mediate the relationship between urgency and problem gambling severity. *Addiction Research & Theory, 27*(2), 95-103. https://doi.org/10.1080/16066359.2018.1455188

Kim, J. U., Majid, A., Judge, R., Crook, P., Nathwani, R., Selvapatt, N., Lovendoski, J., Manousou, P., Thursz, M., Dhar, A., Lewis, H., Vergis, N., & Lemoine, M. (2020b). Effect of COVID-19 lockdown on alcohol consumption in patients with pre-existing alcohol use disorder. *The Lancet Gastroenterology & Hepatology, 5*(10), 886-887. https://doi.org/10.1016/S2468-1253(20)30251-X

Kimball, T. G., Hune, N. D., Shumway, S. T., Gerber, W., Bradshaw, S. D., & Macey, P. (2021). Romantic relationships in alcohol use disorder recovery: A qualitative content analysis. *Alcoholism Treatment Quarterly, 40*(1), 116-130. https://doi.org/10.1080/07347324.2021.1977206

Kimerling, R., Alvares, J., Pavao, J., Mack, K., Smith, M. W., & Baumrind, N. (2009). Unemployment among women: Examining the relationship of physical and psychological intimate partner violence and post-traumatic stress disorder. *Journal of Interpersonal Violence, 24*, 450-463. https://doi.org/https://doi.org/10.1177/0886260508317191

King, S. M., Iacono, W. G., & McGue, M. (2004). Childhood externalizing and internalizing psychopathology in the prediction of early substance use. *Addiction, 99*(12), 1548-1559. https://doi.org/10.1111/j.1360-0443.2004.00893.x

Knobloch, L. K., & Basinger, E. D. (2020). Communication mediators of the link between depressive symptoms and relationship satisfaction among army soldiers. *Family Relations, 70*(2), 422-436. https://doi.org/10.1111/fare.12447

Koob, G. F., & Volkow, N. D. (2016). Neurobiology of addiction: A neurocircuitry analysis. *Lancet Psychiatry, 3*(8), 760-773. https://doi.org/10.1016/S2215-0366(16)00104-8

Korman, L., J, C., McMain, S., & Skinner, W. (2005). *Concurrent gambling, substance use and anger: Development of a brief integrated treatment*. https://www.researchgate.net/profile/Lorne-Korman/publication/253970225_Concurrent_Gambling_Substance_Use_and_Anger_Development_of_a_Brief_Integrated_Treatment/links/53ecc2270cf2981ada10de0d/Concurrent-Gambling-Substance-Use-and-Anger-Development-of-a-Bri

Korman, L. M., Collins, J., Dutton, D., Dhayananthan, B., Littman-Sharp, N., & Skinner, W. (2008). Problem gambling and intimate partner violence. *Journal of Gambling Studies, 24*(1), 13-23. https://doi.org/10.1007/s10899-007-9077-1

Kosiba, J. D., Maisto, S. A., & Ditre, J. W. (2019). Patient-reported use of medical cannabis for pain, anxiety, and depression symptoms: Systematic review and meta-analysis. *Social Science and Medicine, 233*, 181-192. https://doi.org/10.1016/j.socscimed.2019.06.005

Kosty, D. B., Seeley, J. R., Farmer, R. F., Stevens, J. J., & Lewinsohn, P. M. (2017). Trajectories of cannabis use disorder: Risk factors, clinical characteristics and outcomes. *Addiction, 112*(2), 279-287. https://doi.org/10.1111/add.13557

Kouros, C. D., Papp, L. M., & Cummings, E. M. (2008). Interrelations and moderators of longitudinal links between marital satisfaction and depressive symptoms among couples in established relationships. *Journal of Family Psychology, 22*(5), 667-677. https://doi.org/10.1037/0893-3200.22.5.667

Kraanen, F. L., Vedel, E., Scholing, A., & Emmelkamp, P. M. (2014). Prediction of intimate partner violence by type of substance use disorder. *Journal of Substance Abuse Treatment, 46*(4), 532-539. https://doi.org/10.1016/j.jsat.2013.10.010

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606-613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Kroenke, K., Wu, J., Yu, Z., Bair, M. J., Kean, J., Stump, T., & Monahan, P. O. (2016). Patient Health Questionnaire Anxiety and Depression Scale: Initial validation in three clinical trials. *Psychosomatic Medicine, 78*(6), 716-727. https://doi.org/10.1097/psy.0000000000000322

Kruis, N. E., Seo, C., & Kim, B. (2020). Revisiting the empirical status of social learning theory on substance use: A systematic review and meta-analysis. *Substance Use and Misuse, 55*(4), 666-683. https://doi.org/10.1080/10826084.2019.1696821

Krumpal, I. (2011). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity, 47*(4), 2025-2047. https://doi.org/10.1007/s11135-011-9640-9

Kuhns, L., Kroon, E., Colyer-Patel, K., & Cousijn, J. (2022). Associations between cannabis use, cannabis use disorder, and mood disorders: Longitudinal, genetic, and neurocognitive evidence. *Psychopharmacology, 239*(5), 1231-1249. https://doi.org/10.1007/s00213-021-06001-8

Kuntsche, E., Knibbe, R., Gmel, G., & Engels, R. (2005). Why do young people drink? A review of drinking motives. *Clinical Psychology Review, 25*(7), 841-861. https://doi.org/10.1016/j.cpr.2005.06.002

Kuntsche, E., & Stewart, S. H. (2009). Why my classmates drink: Drinking motives of classroom peers as predictors of individual drinking motives and alcohol use in adolescence: A mediational model. *Journal of Health Psychology, 14*(4), 536-546. https://doi.org/10.1177/1359105309103573

Kurdek, L. A. (1995). Predicting change in marital satisfaction from husbands' and wives' conflict resolution styles. *Journal of Marriage and the Family, 57*(1), 153-164. https://doi.org/10.2307/353824

LaFlair, L. N., Bradshaw, C. P., Storr, C. L., Green, K. G., Alvanzo, A., A. H., & Crum, R. M. (2012). Intimte partner violence and patterns of alcohol abuse and dependence criteria among women: A latent class analysis. *Journal of Studies on Alcohol and Drugs, 73*(3), 351-360. https://doi.org/https://doi.org/10.15288/jsad.2012.73.351

Lai, H. M. X., Cleary, M., Sitharthan, T., & Hunt, G. E. (2015). Prevalence of comorbid substance use, anxiety and mood disorders in epidemiological surveys, 1990-2014: A systematic review and meta-analysis. *Drug and Alcohol Dependence, 154*, 1-13. https://doi.org/10.1016/j.drugalcdep.2015.05.031

Lambe, L., Mackinnon, S. P., & Stewart, S. H. (2015). Dyadic conflict, drinking to cope, and alcohol-related problems: A psychometric study and longitudinal actor-partner interdependence model. *Journal of Family Psychology, 29*(5), 697-707. https://doi.org/10.1037/fam0000098

Lambe, L. J., Yunus, F. M., Moore, M., Keough, M. T., Thompson, K., Krank, M., Conrod, P., & Stewart, S. H. (2023). Inhibited personality traits, internalizing symptoms, and drinking to cope during the COVID-19 pandemic among emerging adults. *Cognitive Behavior Therapy, 52*(3), 198-212. https://doi.org/10.1080/16506073.2022.2152726

Langham, E., Thorne, H., Browne, M., Donaldson, P., Rose, J., & Rockloff, M. (2016). Understanding gambling related harm: A proposed definition, conceptual framework, and taxonomy of harms. *BMC Public Health, 16*, 80. https://doi.org/10.1186/s12889-016-2747-0

Langhinrichsen-Rohling, J., Schroeder, G. E., Langhinrichsen-Rohling, R. A., Mennicke, A., Harris, Y. J., Sullivan, S., Gray, G., & Cramer, R. J. (2022). Couple conflict and intimate partner violence during the early lockdown of the pandemic: The good, the bad, or is it just the same in a North Carolina, low-resource population? *International Journal of Environmental Research and Public Health, 19*(5). https://doi.org/10.3390/ijerph19052608

LaPlante, D. A., Nelson, S. E., LaBrie, R. A., & Shaffer, H. J. (2011). Disordered gambling, type of gambling and gambling involvement in the British Gambling Prevalence Survey 2007. *European Journal of Public Health, 21*(4), 532-537. https://doi.org/10.1093/eurpub/ckp177

Latanè, B. (1981). The psychology of social impact. *American Psychologist, 36*, 343-356. https://doi.org/https://doi.org/10.1037/0003-066X.36.4.343

Laurenceau, J. P., Troy, A. B., & Carver, C. S. (2005). Two distinct emotional experiences in romantic relationships: Effects of perceptions regarding approach of intimacy and avoidance of conflict. *Personality and Social Psychology Bulletin, 31*(8), 1123-1133. https://doi.org/10.1177/0146167205274447

Laursen, B., & Hafen, C. (2010). Future directions in the study of close relationships: Conflict is bad (except when it's not). *Social Development, 19*(4), 858-872. https://doi.org/10.1111/j.1467-9507.2009.00546.x

Leach, D., & Kranzler, H. R. (2013). An interpersonal model of addiction relapse. *Addictive Disorders and their Treatment, 12*(4), 183-192. https://doi.org/10.1097/ADT.0b013e31826ac408

Leach, L. S., & Butterworth, P. (2020). Depression and anxiety in early adulthood: Consequences for finding a partner, and relationship support and conflict. *Epidemiology and Psychiatric Sciences, 29*, e141. https://doi.org/10.1017/S2045796020000530

Leach, L. S., Christensen, H., Mackinnon, A. J., Windsor, T. D., & Butterworth, P. (2008). Gender differences in depression and anxiety across the adult lifespan: The role of psychosocial mediators. *Social Psychiatry and Psychiatric Epidemiology, 43*, 983-998. https://doi.org/10.1007/s00127-008-0388-z

Lee, C. M., Neighbors, C., Hendershot, C. S., & Grossband, J. R. (2009). Development and preliminary validation of a Comprehensive Marijuana Motives Questionnaire. *Journal of Studies on Alcohol and Drugs, 70*(2), 279-287. https://doi.org/https://doi.org/10.15288/jsad.2009.70.279

Lee, C. M., Neighbors, C., & Woods, B. A. (2007). Marijuana motives: Young adults' reasons for using marijuana. *Addictive Behaviors, 32*(7), 1384-1394. https://doi.org/10.1016/j.addbeh.2006.09.010

Lee, N. K., Greely, J., & Oei, T. P. S. (1999). The relationship of positive and negative alcohol expectancies to patterns of consumption of alcohol in social drinkers. *Addictive Behaviors, 24*(3), 359-369.

Lee, R. D., & Chen, J. (2017). Adverse childhood experiences, mental health, and excessive alcohol use: Examination of race/ethnicity and sex differences. *Child Abuse and Neglect, 69*, 40-48. https://doi.org/10.1016/j.chiabu.2017.04.004

Lee, S. J., Ward, K. P., & Rodriguez, C. M. (2022). Longitudinal analysis of short-term changes in relationship conflict during covid-19: A risk and resilience perspective. *Journal of Interpersonal Violence, 37*(15-16), 14239-14261. https://doi.org/10.1177/08862605211006359

Lee, S. K., Bassick, M. A., & Mumpower, S. W. (2016). Fighting electronically: Long-distance romantic couples' conflict management over mediated communication. *Journal in the Social Sciences, 26*, 3-4. http://www.cios.org/EJCPUBLIC/026/3/026341.html

Lehavot, K., Stappenbeck, C. A., Luterek, J. A., Kaysen, D., & Simpson, T. L. (2014). Gender differences in relationships among PTSD severity, drinking motives, and alcohol use in a comorbid alcohol dependence and PTSD sample. *Psychology of Addictive Behaviors, 28*(1), 42-52. https://doi.org/10.1037/a0032266

Lembke, A. (2012). Time to abandon the self-medication hypothesis in patients with psychiatric disorders. *American Journal of Drug and Alcohol Abuse, 38*(6), 524-529. https://doi.org/10.3109/00952990.2012.694532

Lemmens, G. M., Buysse, A., Heene, E., Eisler, I., & Demyttenaere, K. (2007). Marital satisfaction, conflict communication, attachment style and psychological distress in couples with a hospitalized depressed patient. *Acta Neuropsychiatrica, 19*(2), 109-117. https://doi.org/10.1111/j.1601-5215.2006.00168.x

Leonard, K. E. (1999). Alcohol and the marriage effect. *Journal of Studies on Alcohol and Drugs, s13*, 139-146. https://doi.org/https://doi.org/10.15288/jsas.1999.s13.139

Leonard, K. E., & Homish, G. G. (2008). Predictors of heavy drinking and drinking problems over the first four years of marriage. *Psychology of Addictive Behaviors, 22*(1), 25-35. https://doi.org/doi:10.1037/0893-164X.22.1.25.

Leonard, K. E., & Quigley, B. M. (1999). Drinking and marital aggression in newlyweds: An event-based analysis of drinking and the occurrence of husband marital aggression. *Journal of Studies on Alcohol and Drugs, 60*(4), 537-545. https://doi.org/https://doi.org/10.15288/jsa.1999.60.537

Leonard, K. E., & Roberts, L. J. (1998). The effects of alcohol on the marital interactions of aggressive and nonaggressive husbands and their wives. *Journal of Abnormal Psychology, 107*(4).

Leonard, K. E., & Senchak, M. (1996). Prospective predictors of husband marital aggression within newlywed couples. *Journal of attention disorders, 105*(3), 369-380. https://doi.org/https://doi.org/10.1037/0021-843X.105.3.369

Leonard, K. E., Smith, P. H., & Homish, G. G. (2014). Concordant and discordant alcohol, tobacco, and marijuana use as predictors of marital dissolution. *Psychology of Addictive Behaviors, 28*(3), 780-789. https://doi.org/10.1037/a0034053

Leonard, M. T., Giraud, C., & Abraham, C. (2022). Coupling with COVID: The role of dyadic coping in relationship satisfaction and psychological distress during the COVID-19 pandemic. *Journal of Family Issues, 43*(8), 2234-2252. https://doi.org/10.1177/0192513x211030028

Leung, C. M. C., Ho, M. K., Bharwani, A. A., Cogo-Moreira, H., Wang, Y., Chow, M. S. C., Fan, X., Galea, S., Leung, G. M., & Ni, M. Y. (2022). Mental disorders following COVID-19 and other epidemics: A systematic review and meta-analysis. *Translational Psychiatry, 12*(1), 205. https://doi.org/10.1038/s41398-022-01946-6

Leung, J., Chan, G. C. K., Hides, L., & Hall, W. D. (2020). What is the prevalence and risk of cannabis use disorders among people who use cannabis? A systematic review and meta -analysis. *Addictive Behaviors, 109*, 106479. https://doi.org/10.1016/j.addbeh.2020.106479

Levey, D. F., Le-Niculescu, H., Frank, J., Ayalew, M., Jain, N., Kirlin, B., Learman, R., Winiger, E., Rodd, Z., Shekhar, A., Schork, N., Kiefer, F., Wodarz, N., Muller-Myhsok, B., Dahmen, N., Consortium, G., Nothen, M., Sherva, R., Farrer, L., Smith, A. H., Kranzler, H. R., Rietschel, M., Gelernter, J., & Niculescu, A. B. (2014). Genetic risk prediction and neurobiological understanding of alcoholism. *Translational Psychiatry, 4*(5), e391. https://doi.org/10.1038/tp.2014.29

Levitt, A., & Cooper, M. L. (2010). Daily alcohol use and romantic relationship functioning: Evidence of bidirectional, gender-, and context-specific effects. *Personality and Social Psychology Bulletin, 36*(12), 1706-1722. https://doi.org/10.1177/0146167210388420

Levitt, A., & Leonard, K. E. (2013). Relationship-specific alcohol expectancies and relationship-drinking contexts: Reciprocal influence and gender-specific effects over the first 9 years of marriage. *Psychology of Addictive Behaviors, 27*(4), 986-996. https://doi.org/10.1037/a0030821

Lewis, N., & Sznitman, S. R. (2022). Too much information? Excessive media use, maladaptive coping, and increases in problematic cannabis use during the COVID-19 pandemic. *Journal of Psychoactive Drugs, 54*(3), 207-216. https://doi.org/10.1080/02791072.2022.2031355

Leza, L., Siria, S., Lopez-Goni, J. J., & Fernandez-Montalvo, J. (2021). Adverse childhood experiences (ACEs) and substance use disorder (SUD): A scoping review. *Drug and Alcohol Dependence, 221*, 108563. https://doi.org/10.1016/j.drugalcdep.2021.108563

Li, E., Browne, M., Rawat, V., Langham, E., & Rockloff, M. (2017). Breaking bad: Comparing gambling harms among gamblers and affected others. *Journal of Gambling Studies, 33*(1), 223-248. https://doi.org/10.1007/s10899-016-9632-8

Li, Y., & Samp, J. A. (2021). The impact of the COVID-19 pandemic on same-sex couples' conflict avoidance, relational quality, and mental health. *Journal of Social and Personal Relationships, 38*(6), 1819-1843. https://doi.org/10.1177/02654075211006199

Liebregts, N., Van Der Pol, P., Van Laar, M., De Graaf, R., Van Den Brink, W., & Korf, D. J. (2013). The role of parents, peers and partners in cannabis use and dependence trajectories among young adult frequent users. *Contemporary Drug Problems, 40*(4), 531. https://doi.org/https://doi.org/10.1177/009145091304000405

Lijffijt, M., Hu, K., & Swann, A. C. (2014). Stress modulates illness-course of substance use disorders: A translational review. *Frontiers in Psychiatry, 5*, 83. https://doi.org/10.3389/fpsyt.2014.00083

Linder, J. R., & Collins, W. A. (2005). Parent and peer predictors of physical aggression and conflict management in romantic relationships in early adulthood. *Journal of Family Psychology, 19*(2), 252-262. https://doi.org/10.1037/0893-3200.19.2.252

Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. Guilford press.

Liu, R. X., & Chen, Z. Y. (2006). The effects of marital conflict and marital disruption on depressive affect: A comparison between women in and out of poverty. *Social Science Quarterly, 87*(2), 250-271. https://doi.org/10.1111/j.1540-6237.2006.00379.x

Lloyd, J., Nicklin, L. L., Rhodes, S. K., & Hurst, G. (2021). A qualitative study of gambling, deprivation and monetary motivations. *International Gambling Studies, 21*(2), 307-325. https://doi.org/10.1080/14459795.2021.1883093

Londahl, E. A., Tverskoy, A., & D'Zurilla, T. J. (2005). The relations of internalizing symptoms to conflict and interpersonal problem solving in close relationships. *Cognitive Therapy and Research, 29*(4), 445-462. https://doi.org/10.1007/s10608-005-4442-9

Loo, J. M. Y., Kraus, S. W., & Potenza, M. N. (2019). A systematic review of gambling-related findings from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Behavioral Addictions, 8*(4), 625-648. https://doi.org/10.1556/2006.8.2019.64

Lorents, A., Ruitenberg, M. F. L., & Schomaker, J. (2023). Novelty-induced memory boosts in humans: The when and how. *Heliyon, 9*(3), e14410. https://doi.org/10.1016/j.heliyon.2023.e14410

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy, 33*(3), 335-343. https://doi.org/10.1007/BF02511245

Low, S., Tiberio, S. S., Shortt, J. W., Capaldi, D. M., & Eddy, J. M. (2017). Associations of couples' intimate partner violence in young adulthood and substance use: A dyadic approach. *Psychology of Violence, 7*(1), 120-127. https://doi.org/10.1037/vio0000038

Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. (2008). Validation and standarization of the Generalized Anxiety Disorder (GAD-7) in the general population. *Medical Care, 46*(3), 266-274.

Lowe, D. J. E., Sasiadek, J. D., Coles, A. S., & George, T. P. (2019). Cannabis and mental illness: A review. *European Archives of Psychiatry and Clinical Neuroscience, 269*(1), 107-120. https://doi.org/10.1007/s00406-018-0970-7

Luce, C., Kairouz, S., Nadeau, L., & Monson, E. (2016). Life events and problem gambling severity: A prospective study of adult gamblers. *Psychology of Addictive Behaviors, 30*(8), 922-930. https://doi.org/10.1037/adb0000227

Luetke, M., Hensel, D., Herbenick, D., & Rosenberg, M. (2020). Romantic relationship conflict due to the COVID-19 pandemic and changes in intimate and sexual behaviors in a nationally representative sample of American adults. *Journal of Sex and Marital Therapy, 46*(8), 747-762. https://doi.org/10.1080/0092623X.2020.1810185

Luoma, J. B., Guinther, P. M., DesJardins, N. M. L., & Vilardaga, R. (2018). Is shame a proximal trigger for drinking? A daily process study with a community sample. *Experimental and Clinical Psychopharmacology, 26*(3), 290-301. https://doi.org/10.1037/pha0000189

Lyons, M., & Brewer, G. (2022). Experiences of intimate partner violence during lockdown and the COVID-19 pandemic. *Journal of Family Violence, 37*(6), 969-977. https://doi.org/10.1007/s10896-021-00260-x

Lyvers, M., Coundouris, S., Edwards, M. S., & Thorberg, F. A. (2017). Alexithymia, reward sensitivity and risky drinking: The role of internal drinking motives. *Addiction Research & Theory, 26*(2), 114-122. https://doi.org/10.1080/16066359.2017.1333110

Machado, A. S., Covelo, V., & Vieira-Coelho, M. A. (2021). Cards on the table: The huge growth in online gambling during the COVID-19 pandemic in portugal. *Journal of Gambling Issues*(47), 403-408. https://doi.org/10.4309/jgi.2021.47.16

Mackinnon, S. P., Kehayes, I.-l. L., Clark, R., Sherry, S. B., & Stewart, S. H. (2014). Testing the four-factor model of personality vulnerability to alcohol misuse: A three-wave, one-year longitudinal study. *Psychology of Addictive Behaviors, 28*(4), 1000-1012. https://doi.org/https://doi.org/10.1037/a0037244

Mackinnon, S. P., Lambe, L., & Stewart, S. H. (2017). Relations of five-factor personality domains to gambling motives in emerging adult gamblers: A longitudinal study. *Journal of Gambling Issues*(34), 179-200. https://doi.org/10.4309/jgi.2016.34.10

Mackinnon, S. P., Sherry, S. B., Antony, M. M., Stewart, S. H., Sherry, D. L., & Hartling, N. (2012). Caught in a bad romance: Perfectionism, conflict, and depression in romantic relationships. *Journal of Family Psychology, 26*(2), 215-225. https://doi.org/10.1037/a0027402

Mackinnon, S. P., Tougas, M. E., Kehayes, I. L., & Stewart, S. H. (2022). Friendship conflict, drinking to cope, and alcohol-related problems: A longitudinal actor-partner interdependence model. *Emerging Adulthood, 10*(3), 595-608. https://doi.org/10.1177/21676968211060945

Maggs, J. L., Patrick, M. E., & Feinstein, L. (2008). Childhood and adolescent predictors of alcohol use and problems in adolescence and adulthood in the National Child Development Study. *Addiction, 103*, 7-22. https://doi.org/10.1111/j.1360-0443.2008.02173.x

Mahu, I. T., Conrod, P. J., Barrett, S. P., Sako, A., Swansburg, J., Lawrence, M., Laroque, F., Morin, J. F., Chinneck, A., Nogueira-Arjona, R., & Stewart, S. H. (2019). Specificity of personality relationships to particular forms of concurrent substance use among methadone maintenance therapy clients. *Addictive Behaviors, 98*, 106056. https://doi.org/10.1016/j.addbeh.2019.106056

Mair, C., Cunradi, C. B., Gruenewald, P. J., Todd, M., & Remer, L. (2013). Drinking context-specific associations between intimate partner violence and frequency and volume of alcohol consumption. *Addiction, 108*(12), 2102-2111. https://doi.org/10.1111/add.12322

Maisto, A., O'Farrell, T. O., Connors, J., McKay, R., & Pelcovits, M. (1988). Alcoholics' attributions of factors affecting their relapse to drinking and reasons for terminating relapse episodes. *Addictive Behaviors, 13*(1), 79-82. https://doi.org/https://doi.org/10.1016/0306-4603(88)90028-7

Marchand-Reilly, J. F. (2012). Attachment anxiety, conflict behaviors, and depressive symptoms in emerging adults' romantic relationships. *Journal of Adult Development, 19*(3), 170-176. https://doi.org/10.1007/s10804-012-9144-4

Marchand, J. F., & Hock, E. (2000). Avoidance and attacking conflict-resolution strategies among married couples: Relations to depressive symptoms and marital satisfaction. *Family Relations, 49*(2), 201-206. https://doi.org/10.1111/j.1741-3729.2000.00201.x

Marchica, L. A., Keough, M. T., Montreuil, T. C., & Derevensky, J. L. (2020). Emotion regulation interacts with gambling motives to predict problem gambling among emerging adults. *Addictive Behaviors, 106*, 106378. https://doi.org/10.1016/j.addbeh.2020.106378

Marlatt, G. A. (1996). Taxonomy of high-risk situations for alcohol relapse: Evolution and development of a cognitive-behavioral model. *Addiction, 91*(12s1), 37-50. https://doi.org/10.1046/j.1360-0443.91.12s1.15.x

Marroquin, B., & Nolen-Hoeksema, S. (2015). Emotion regulation and depressive symptoms: Close relationships as social context and influence. *Journal of Personality and Social Psychology, 109*(5), 836-855. https://doi.org/10.1037/pspi0000034

Marshal, M. P. (2003). For better or for worse? The effects of alcohol use on marital functioning. *Clinical Psychology Review, 23*(7), 959-997. https://doi.org/doi:10.1016/j.cpr.2003.09.002

Mathersul, D. C., & Ruscio, A. M. (2020). Forecasting the future, remembering the past: Misrepresentations of daily emotional experience in generalized anxiety disorder and major depressive disorder. *Cognitive Therapy and Research, 44*(1), 73-88. https://doi.org/10.1007/s10608-019-10048-5

Mathews, C. A., & Reus, V. I. (2001). Assortative mating in the affective disorders: A systematic review and meta-analysis. *Comprehensive Psychiatry, 42*(4), 257-262. https://doi.org/10.1053/comp.2001.24575

Mathie, N. L., & Wakeling, H. C. (2011). Assessing socially desirable responding and its impact on self-report measures among sexual offenders. *Psychology, Crime and Law, 17*(3), 215-237. https://doi.org/10.1080/10683160903113681

Maxwell, S. E., Cole, D. A., & Mitchell, M. A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behavioral Research, 46*(5), 816-841. https://doi.org/10.1080/00273171.2011.606716

Mazar, A., Zorn, M., Becker, N., & Volberg, R. A. (2020). Gambling formats, involvement, and problem gambling: Which types of gambling are more risky? *BMC Public Health, 20*(1), 711. https://doi.org/10.1186/s12889-020-08822-2

McCabe, C. J., Rhew, I. C., Walukevich-Dienst, K., Graupensperger, S., & Lee, C. M. (2023). Increased coping motives during the COVID-19 pandemic widen cannabis disparities between sexual minoritized and nonminoritized young adults: A bimonthly assessment of data preceding and spanning the pandemic. *Psychology of Addictive Behavior, 37*(5), 670-680. https://doi.org/10.1037/adb0000939

McCormick, M. P., Hsueh, J., Chou, P., & Geneseo, Y. (2017). Mood, stressors, and severity of marital conflict: A daily diary study of low-income families. *Interdisiplinary Jounral of Family Studies, 66*, 425-440. https://doi.org/10.1111/fare.12258

McCrady, B. S., Wilson, A. D., Munoz, R. E., Fink, B. C., Fokas, K., & Borders, A. (2016). Alcohol-focused behavioral couple therapy. *Family Process, 55*(3), 443-459. https://doi.org/10.1111/famp.12231

McHugh, R. K., Chase, A., Trinh, C. D., & Weiss, R. D. (2022). Are pain and negative affect coping distinct motives for opioid misuse? *Substance Use & Misuse, 57*(6), 848-852. https://doi.org/10.1080/10826084.2022.2046094

McHugh, R. K., & Weiss, R. D. (2019). Alcohol use disorder and depressive disorders. *Alcohol Research: Current Review, 40*(1), e1-e8. https://doi.org/10.35946/arcr.v40.1.01

Meacham, M. C., Bailey, J. A., Hill, K. G., Epstein, M., & Hawkins, J. D. (2013). Alcohol and tobacco use disorder comorbidity in young adults and the influence of romantic partner environments. *Drug and Alcohol Dependence, 132*(1-2), 149-157. https://doi.org/10.1016/j.drugalcdep.2013.01.017

Medel-Herrero, A., Shumway, M., Smiley-Jewell, S., Bonomi, A., & Reidy, D. (2020). The impact of the great recession on California domestic violence events, and related hospitalizations and emergency service visits. *Preventive Medicine, 139*, 106186. https://doi.org/10.1016/j.ypmed.2020.106186

Mehra, K., Rup, J., Wiese, J. L., Watson, T. M., Bonato, S., & Rueda, S. (2023). Changes in self-reported cannabis use during the COVID-19 pandemic: A scoping review. *BMC Public Health, 23*(1), 2139. https://doi.org/10.1186/s12889-023-17068-7

Meisel, M. K., & Goodie, A. S. (2014). Descriptive and injunctive social norms' interactive role in gambling behavior. *Psychology of Addictive Behavior, 28*(2), 592-598. https://doi.org/10.1037/a0036444

Memedovich, K. A., Dowsett, L. E., Spackman, E., Noseworthy, T., & Clement, F. (2018). The adverse health effects and harms related to marijuana use: An overview review. *Canadian Medical Association Journal Open, 6*(3), E339-E346. https://doi.org/10.9778/cmajo.20180023

Meque, I., Salom, C., Betts, K. S., & Alati, R. (2019). Predictors of alcohol use disorders among young adults: A systematic review of longitudinal studies. *Alcohol and Alcoholism, 54*(3), 310-324. https://doi.org/10.1093/alcalc/agz020

Merkouris, S. S., Thomas, A. C., Shandley, K. A., Rodda, S. N., Oldenhof, E., & Dowling, N. A. (2016). An update on gender differences in the characteristics associated with problem gambling: A systematic review. *Current Addiction Reports, 3*(3), 254-267. https://doi.org/10.1007/s40429-016-0106-y

Merrill, J. E., & Thomas, S. E. (2013). Interactions between adaptive coping and drinking to cope in predicting naturalistic drinking and drinking following a lab-based psychosocial stressor. *Addictive Behaviors, 38*(3), 1672-1678. https://doi.org/10.1016/j.addbeh.2012.10.003

Metrik, J., Jackson, K., Bassett, S. S., Zvolensky, M. J., Seal, K., & Borsari, B. (2016). The mediating roles of coping, sleep, and anxiety motives in cannabis use and problems among returning Veterans with PTSD and MDD. *Psychology of Addictive Behaviors, 30*(7), 743-754. https://doi.org/10.1037/adb0000210

Meyerowitz-Katz, G., Bhatt, S., Ratmann, O., Brauner, J. M., Flaxman, S., Mishra, S., Sharma, M., Mindermann, S., Bradley, V., Vollmer, M., Merone, L., & Yamey, G. (2021). Is the cure really worse than the disease? The health impacts of lockdowns during COVID-19. *BMJ Global Health, 6*(8). https://doi.org/10.1136/bmjgh-2021-006653

Mezaache, S., Donadille, C., Martin, V., Le Brun Gadelius, M., Appel, L., Spire, B., Briand Madrid, L., Bastien, M., & Roux, P. (2022). Changes in cannabis use and associated correlates during france's first COVID-19 lockdown in daily cannabis users: Results from a large community-based online survey. *Harm Reduction Journal, 19*(1), 26. https://doi.org/10.1186/s12954-022-00611-x

Mezquita, L., Stewart, S. H., Ibanez, M. I., Ruiperez, M. A., Villa, H., Moya, J., & Ortet, G. (2011). Drinking motives in clinical and general populations. *European Addiction Research, 17*(5), 250-261. https://doi.org/10.1159/000328510

Mineka, S., Watson, D., & Clark, L. A. (1998). Comorbidity of anxiety and unipolar mood disorders. *Annual Review of Psychology, 49*(1), 377-412. https://doi.org/10.1146/annurev.psych.49.1.377

Mohr, C. D., Armeli, S., Tennen, H., Temple, M., Todd, M., Clark, J., & Carney, M. A. (2005). Moving beyond the keg party: A daily process study of college student drinking motivations. *Psychology of Addictive Behaviours, 19*(4), 392-403. https://doi.org/10.1037/0893-164X.19.4.392

Moitra, E., Anderson, B. J., Herman, D. S., & Stein, M. D. (2021). Longitudinal examination of coping-motivated marijuana use and problematic outcomes among emerging adults. *Addictive Behaviours, 113*, 106691. https://doi.org/10.1016/j.addbeh.2020.106691

Monden, C. (2007). Partners in health? Exploring resemblance in health between partners in married and cohabiting couples. *Sociology of Health and Illness, 29*(3), 391-411. https://doi.org/10.1111/j.1467-9566.2007.01003.x

Moore, L. H., III, & Grubbs, J. B. (2021). Gambling disorder and comorbid PTSD: A systematic review of empirical research. *Addictive Behaviors, 114*, 106713. https://doi.org/10.1016/j.addbeh.2020.106713

Moore, T. M., Stuart, G. L., Meehan, J. C., Rhatigan, D. L., Hellmuth, J. C., & Keen, S. M. (2008). Drug abuse and aggression between intimate partners: A meta-analytic review. *Clinical Psychology Review, 28*(2), 247-274. https://doi.org/10.1016/j.cpr.2007.05.003

Morasco, B. J., Weinstock, J., Ledgerwood, D. M., & Petry, N. M. (2007). Psychological factors that promote and inhibit pathological gambling. *Cognitive and Behavioral Practice, 14*(2), 208-217. https://doi.org/10.1016/j.cbpra.2006.02.005

Mouton, C., Rodabough, R., Rovi, S., Hunt, J., Talamantes, M., Brzyski, R., & Burge, S. (2004). Prevelance and 3-year incidence of abuse amongst postmenopausal women. *Research and Practice, 94*(4), 605-612. https://doi.org/https://doi.org/10.2105/AJPH.94.4.605

Murray, S. L., Rose, P., Griffin, D. W., & Bellavia, G. M. (2003). Calibrating the sociometer: The relational contingencies of self-esteem. *Journal of Personality and Social Psychology, 85*(1), 63-84. https://doi.org/10.1037/0022-3514.85.1.63

Mushquash, A. R., Stewart, S. H., Sherry, S. B., Mackinnon, S. P., Antony, M. M., & Sherry, D. L. (2013a). Heavy episodic drinking among dating partners: A longitudinal actor-partner interdependence model. *Psychology of Addictive Behaviors, 27*(1), 178-183. https://doi.org/10.1037/a0026653

Mushquash, A. R., Stewart, S. H., Sherry, S. B., Sherry, D. L., Mushquash, C. J., & MacKinnon, A. L. (2013b). Depressive symptoms are a vulnerability factor for heavy episodic drinking: A short-term, four-wave longitudinal study of undergraduate women. *Addictive Behaviors, 38*(5), 2180-2186. https://doi.org/10.1016/j.addbeh.2012.11.008

Muyingo, L., Smith, M. M., Sherry, S. B., McEachern, E., Leonard, K. E., & Stewart, S. H. (2020). Relationship on the rocks: A meta-analysis of romantic partner effects on alcohol use. *Psychology of Addictive Behaviors, 34*(6), 629-640. https://doi.org/https://doi.org/10.1037/adb0000578

Myers, B., McLaughlin, K. A., Wang, S., Blanco, C., & Stein, D. J. (2014). Associations between childhood adversity, adult stressful life events, and past-year drug use disorders in the National Epidemiological Study of Alcohol and Related Conditions (NESARC). *Psychology of Addictive Behavior, 28*(4), 1117-1126. https://doi.org/10.1037/a0037459

Nedegaard, R. C., Sbrocco, T., & S. Jayasundara, D. (2019). Impulsivity and decision-making among men engaging in mild intimate partner violence. *Journal of Psychology & Behavioral Science, 7*(1), 8-16. https://doi.org/10.15640/jpbs.v7n1a2

Nilsson, A., Magnusson, K., Carlbring, P., Andersson, G., & Hellner, C. (2019). Behavioral couples therapy versus cognitive behavioral therapy for problem gambling : A randomized controlled trial. *Addiction, 115*, 1330-1342. https://doi.org/10.1111/add.14900

Nolen-Hoeksema, S., & Watkins, E. R. (2011). A heuristic for developing transdiagnostic models of psychopathology: Explaining multifinality and divergent trajectories. *Perspectives on Psychological Science, 6*(6), 589-609. https://doi.org/10.1177/1745691611419672

Nordsletten, A. E., Larsson, H., Crowley, J. J., Almqvist, C., Lichtenstein, P., & Mataix-Cols, D. (2016). Patterns of nonrandom mating within and across 11 major psychiatric disorders. *JAMA Psychiatry, 73*(4), 354-361. https://doi.org/10.1001/jamapsychiatry.2015.3192

O'Connor, C., Downs, J., Shetty, H., & McNicholas, F. (2020). Diagnostic trajectories in child and adolescent mental health services: Exploring the prevalence and patterns of diagnostic adjustments in an electronic mental health case register. *European Child and Adolescent Psychiatry, 29*(8), 1111-1123. https://doi.org/10.1007/s00787-019-01428-z

O'Hara, R. E., Armeli, S., & Tennen, H. (2015). College students' drinking motives and social-contextual factors: Comparing associations across levels of analysis. *Psychology of Addictive Behaviours, 29*(2), 420-429. https://doi.org/10.1037/adb0000046

O'Laughlin, K. D., Martin, M. J., & Ferrer, E. (2018). Cross-sectional analysis of longitudinal mediation processes. *Multivariate Behavioral Research, 53*(3), 375-402. https://doi.org/10.1080/00273171.2018.1454822

Ogden, S. N., Dichter, M. E., & Bazzi, A. R. (2022). Intimate partner violence as a predictor of substance use outcomes among women: A systematic review. *Addictive Behaviors, 127*, 107214. https://doi.org/10.1016/j.addbeh.2021.107214

Okey, S. A., Waddell, J. T., & Corbin, W. R. (2022). I smoke alone: Indirect effects of solitary cannabis use on negative consequences through coping motives. *Journal of Studies on Alcohol and Drugs, 83*(5), 721-730. https://doi.org/10.15288/jsad.21-00200

Okuda, M., Olfson, M., Wang, S., Rubio, J. M., Xu, Y., & Blanco, C. (2015). Correlates of intimate partner violence perpetration: Results from a national epidemiologic survey. *Journal of Traumatic Stress, 28*(1), 49-56. https://doi.org/10.1002/jts.21986

Olatunji, B. O., Naragon-Gainey, K., & Wolitzky-Taylor, K. B. (2013). Specificity of rumination in anxiety and depression: A multimodal meta-analysis. *Clinical Psychology: Science and Practice, 20*(3), 225-257. https://doi.org/10.1111/cpsp.12037

Olthuis, J. V., Watt, M. C., Mackinnon, S. P., & Stewart, S. H. (2015). Cbt for high anxiety sensitivity: Alcohol outcomes. *Addictive Behaviors, 46*, 19-24. https://doi.org/10.1016/j.addbeh.2015.02.018

Onaemo, V. N., Fawehinmi, T. O., & Arcy, C. D. (2021). Comorbid cannabis use disorder with major depression and Generalized Anxiety Disorder: A systematic review with meta-analysis of nationally representative epidemiological surveys. *Journal of Affective Disorders, 281*, 467-475. https://doi.org/10.1016/j.jad.2020.12.043

Orlowski, S., Tietjen, E., Bischof, A., Brandt, D., Schulte, L., Bischof, G., Besser, B., Trachte, A., & Rumpf, H. J. (2020). The association of cognitive distortions and the type of gambling in problematic and disordered gambling. *Addictive Behaviors, 108*, 106445. https://doi.org/10.1016/j.addbeh.2020.106445

Ortzel, J. G., & Ting-Toomey, S. (2006). *Sage Handbook of Conflict Communication: Integrating Theory, Research, and Practice*. Sage Publications.

Overall, N. C., & McNulty, J. K. (2017). What type of communication during conflict is beneficial for intimate relationships? *Current Opinion in Psychology, 13*, 1-5. https://doi.org/10.1016/j.copsyc.2016.03.002

Overall, N. C., & Simpson, J. A. (2013). Regulation processes in close relationships. In J. A. Simpson & L. Campbell (Eds.), *The Oxford Handbook of Close Relationships* (pp. 427-451). Oxford Library of Psychology.

Pacek, L. R., Weinberger, A. H., Zhu, J., & Goodwin, R. D. (2020). Rapid increase in the prevalence of cannabis use among people with depression in the United States, 2005-17: The role of differentially changing risk perceptions. *Addiction, 115*(5), 935-943. https://doi.org/10.1111/add.14883

Pallesen, S., Mentzoni, R. A., Morken, A. M., Engebo, J., Kaur, P., & Erevik, E. K. (2021). Changes over time and predictors of online gambling in three norwegian population studies 2013-2019. *Frontiers in Psychiatry, 12*, 597615. https://doi.org/10.3389/fpsyt.2021.597615

Papp, L. M. (2017). Topics of marital conflict in the everyday lives of empty nest couples and their implications for conflict resolution. *Journal of Couple & Relationship Therapy, 17*(1), 7-24. https://doi.org/10.1080/15332691.2017.1302377

Papp, L. M., Goeke-Morey, M. C., & Cummings, E. M. (2007). Linkages between spouses' psychological distress and marital conflict in the home. *Journal of Family Psychology, 21*(3), 533-537. https://doi.org/10.1037/0893-3200.21.3.533

Park, C. L., & Levenson, M. R. (2002). Drinking to cope among college students: Prevalence, problems, and coping processes. *Journal of Studies on Alcohol, 63*, 486-497. https://doi.org/https://doi.org/10.15288/jsa.2002.63.486

Park, T., Thompson, K., Wekerle, C., Al-Hamdani, M., Smith, S., Hudson, A., Goldstein, A., & Stewart, S. H. (2019). Posttraumatic stress symptoms and coping motives mediate the association between childhood maltreatment and alcohol problems. *Journal of Traumatic Stress, 32*(6), 918-926. https://doi.org/10.1002/jts.22467

Parks, K. A., Hsieh, Y. P., Bradizza, C. M., & Romosz, A. M. (2008). Factors influencing the temporal relationship between alcohol consumption and experiences with aggression among college women. *Psychology of Addictive Behaviors, 22*(2), 210-218. https://doi.org/10.1037/0893-164X.22.2.210

Parrott, D. J., Halmos, M. B., Stappenbeck, C. A., & Moino, K. (2022). Intimate partner aggression during the COVID-19 pandemic: Associations with stress and heavy drinking. *Psychology of Violence, 12*(2), 95-103. https://doi.org/10.1037/vio0000395

Patrick, M. E., & Lee, C. M. (2010). Comparing numbers of drinks: College students' reports from retrospective summary, followback, and prospective daily diary measures. *Journal of Studies on Alcohol and Drugs, 71*(4), 554-561. https://doi.org/10.15288/jsad.2010.71.554

Patrick, M. E., Terry-McElrath, Y. M., Miech, R. A., Keyes, K. M., Jager, J., & Schulenberg, J. E. (2022). Alcohol use and the COVID-19 pandemic: Historical trends in drinking, contexts, and reasons for use among U.S. Adults. *Social Science and Medicine, 301*, 114887. https://doi.org/10.1016/j.socscimed.2022.114887

Peele, S., & Brodsky, A. (2000). Exploring psychological benefits associated with moderate alcohol use: A necessary corrective to assessments of drinking outcomes? *Drug and Alcohol Dependence, 60*, 221–247. https://doi.org/https://doi.org/10.1016/S0376-8716(00)00112-5

Peltier, M. R., Verplaetse, T. L., Mineur, Y. S., Petrakis, I. L., Cosgrove, K. P., Picciotto, M. R., & McKee, S. A. (2019). Sex differences in stress-related alcohol use. *Neurobiology of Stress, 10*, 100149. https://doi.org/10.1016/j.ynstr.2019.100149

Piasecki, T. M., Cooper, M. L., Wood, P. K., Sher, K. J., Shiffman, S., & Heath, A. C. (2014). Dispositional drinking motives: Associations with appraised alcohol effects and alcohol consumption in an ecological momentary assessment investigation. *Psychological Assessment, 26*(2), 363-369. https://doi.org/10.1037/a0035153

Pietromonaco, P. R., & Overall, N. C. (2021). Applying relationship science to evaluate how the COVID-19 pandemic may impact couples' relationships. *American Psychology, 76*(3), 438-450. https://doi.org/10.1037/amp0000714

Pilver, C. E., Libby, D. J., Hoff, R. A., & Potenza, M. N. (2013). Problem gambling severity and the incidence of Axis I psychopathology among older adults in the general population. *Journal of Psychiatric Research, 47*(4), 534-541. https://doi.org/10.1016/j.jpsychires.2012.12.013

Pingault, J. B., Cote, S. M., Galera, C., Genolini, C., Falissard, B., Vitaro, F., & Tremblay, R. E. (2013). Childhood trajectories of inattention, hyperactivity and oppositional behaviors and prediction of substance abuse/dependence: A 15-year longitudinal population-based study. *Molecular Psychiatry, 18*(7), 806-812. https://doi.org/10.1038/mp.2012.87

Piper, M. E., Piasecki, T. M., Federman, E. B., Bolt, D. M., Smith, S. S., Fiore, M. C., & Baker, T. B. (2004). A multiple motives approach to tobacco dependence: The Wisconsin Inventory of Smoking Dependence Motives (WISDM-68). *Journal of Consulting and Clinical Psychology, 72*(2), 139-154. https://doi.org/10.1037/0022-006X.72.2.139

Piquero, A. R., Jennings, W. G., Jemison, E., Kaukinen, C., & Knaul, F. M. (2021). Domestic violence during the COVID-19 pandemic: Evidence from a systematic review and meta-analysis. *Journal of Criminal Justice, 74*, 101806. https://doi.org/10.1016/j.jcrimjus.2021.101806

Pollard, M. S., Tucker, J. S., & Green, H. D. J. (2020). Changes in adult alcohol use and consequences during the COVID-19 pandemic in the US. *JAMA Network Open, 3*(9). https://doi.org/10.1001/jamanetworkopen.2020.22942

Ponti, L., Ilari, A., & Tani, F. (2021). Pathological gambling and romantic relationships: The perception of the members of the couple regarding the quality of their relationship. *Current Psychology, 40*(9), 4438-4445. https://doi.org/10.1007/s12144-019-00385-9

Postler, K. B., Helms, H. M., & Anastopoulos, A. D. (2022). Examining the linkages between marital quality and anxiety: A meta-analytic review. *Family Process, 61*(4), 1456-1472. https://doi.org/10.1111/famp.12798

Potenza, M., Xian, H., Shah, K., Scherrer, J. F., & Eisen, S. A. (2005). Shared genetic contributions to pathological gambling and major depression in men. *Archives of General Psychiatry, 62*, 1015-1021.

Prager, K. J., Shirvani, F., Poucher, J., Cavallin, G., Truong, M., & Garcia, J. J. (2015). Recovery from conflict and revival of intimacy in cohabiting couples. *Personal Relationships, 22*(2), 308-334. https://doi.org/10.1111/pere.12082

Price, A. (2022). Online gambling in the midst of COVID-19: A nexus of mental health concerns, substance use and financial stress. *International Journal of Mental Health and Addiction, 20*(1), 362-379. https://doi.org/10.1007/s11469-020-00366-1

Qi, J., Zhang, D., Zhang, X., Yin, P., Liu, J., Pan, Y., Takana, T., Xie, P., Wang, Z., Liu, S., Gao, G. F., He, G., & Zhou, M. (2020). Do lockdowns bring about additional mortality benefits or costs? Evidence based on death records from 300 million Chinese people *medRxiv*. https://doi.org/10.1101/2020.08.28.20183699

Quaglino, V., Naassila, M., Kaladjian, A., Lannoy, S., Benzerouk, F., De Wever, E., & Gierski, F. (2020). Disentangling the relationship between self-esteem and problematic alcohol use among college students: Evidence from a cluster analytic approach. *Alcohol and Alcoholism, 55*(2), 196-203. https://doi.org/10.1093/alcalc/agz097

Quigley, B. M., & Leonard, K. E. (2000). Alcohol and the continuation of early marital aggression. *Alcoholism: Clinical and Experimental Research, 24*(7), 1003-1010. https://doi.org/https://doi.org/10.1111/j.1530-0277.2000.tb04643.x

Quilty, L. C., Watson, C., Toneatto, T., & Bagby, R. M. (2017). A prospective investigation of affect, the desire to gamble, gambling motivations and gambling behavior in the mood disorders. *Journal of Gambling Studies, 33*(1), 115-129. https://doi.org/10.1007/s10899-016-9616-8

Quinlan, C. K., Goldstein, A. L., & Stewart, S. H. (2013). An investigation of the link between gambling motives and social context of gambling in young adults. *International Gambling Studies, 14*(1), 115-131. https://doi.org/10.1080/14459795.2013.855252

Rabinovitz, S. (2014). Drowning your sorrows? Social exclusion and anger effects on alcohol drinking. *Addiction Research & Theory, 22*(5), 363-370. https://doi.org/10.3109/16066359.2013.857661

Racine, N., McArthur, B. A., Cooke, J. E., Eirich, R., Zhu, J., & Madigan, S. (2021). Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19: A meta-analysis. *JAMA Pediatrics, 175*(11), 1142-1150. https://doi.org/10.1001/jamapediatrics.2021.2482

Raines, A. M., Ennis, C. R., Allan, N. P., McGrew, S. J., Walton, J. L., Rogers, A. H., Zvolensky, M. J., Schmidt, N. B., & Laurel Franklin, C. (2021). Anxiety sensitivity and substance use: Differential levels across individuals primarily using opioids, cannabis, or stimulants. *Addictive Behaviors, 116*, 106791. https://doi.org/10.1016/j.addbeh.2020.106791

Rehm, J. (2011). The risks associated with alcohol use and alcoholism. *Alcohol Research & Health, 34*(2), 135-143.

Reingle, J. M., Staras, S. A. S., Jennings, W. G., Branchini, J., & Maldonado-Molina, M. M. (2011). The relationship between marijuana use and intimate partner violence in a nationally representative, longitudinal sample. *Journal of Interpersonal Violence, 27*(8), 1562-1578. https://doi.org/10.1177/0886260511425787

Renner, L. M., Habib, L., Stromquist, A. M., & Peek-Asa, C. (2014). The association of intimate partner violence and depressive symptoms in a cohort of rural couples. *Journal of Rural Health, 30*(1), 50-58. https://doi.org/10.1111/jrh.12026

Ribeiro, E. O., Afonso, N. H., & Morgado, P. (2021). Non-pharmacological treatment of gambling disorder: A systematic review of randomized controlled trials. *BMC Psychiatry, 21*(1), 105. https://doi.org/10.1186/s12888-021-03097-2

Richard, J., Fletcher, E., Boutin, S., Derevensky, J., & Temcheff, C. (2020). Conduct problems and depressive symptoms in association with problem gambling and gaming: A systematic review. *Journal of Behavioral Addictions, 9*(3), 497–533. https://doi.org/10.1556/2006.2020.00045

Rivara, F. P., Anderson, M. L., Fishman, P., Reid, R. J., Bonomi, A. E., Carrell, D., & Thompson, R. S. (2009). Age, period, and cohort effects on intimate partner violence. *Violence and Victims, 24*(5), 627-638. https://doi.org/10.1891/0886-6708.24.5.627

Roberson, P. N. E., Norona, J. C., Lenger, K. A., & Olmstead, S. B. (2018). How do relationship stability and quality affect wellbeing?: Romantic relationship trajectories, depressive symptoms, and life satisfaction across 30 years. *Journal of Child and Family Studies, 27*(7), 2171-2184. https://doi.org/10.1007/s10826-018-1052-1

Roberts, A., Landon, J., Sharman, S., Hakes, J., Suomi, A., & Cowlishaw, S. (2018). Gambling and physical intimate partner violence: Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). *American Journal on Addictions, 27*(1), 7-14. https://doi.org/10.1111/ajad.12656

Roberts, A., Rogers, J., Mason, R., Siriwardena, A. N., Hogue, T., Whitley, G. A., & Law, G. R. (2021). Alcohol and other substance use during the COVID-19 pandemic: A systematic review. *Drug and Alcohol Dependence, 229*(Pt A), 109150. https://doi.org/10.1016/j.drugalcdep.2021.109150

Roberts, A., Sharman, S., Coid, J., Murphy, R., Bowden-Jones, H., Cowlishaw, S., & Landon, J. (2017). Gambling and negative life events in a nationally representative sample of uk men. *Addictive Behaviors, 75*, 95-102. https://doi.org/10.1016/j.addbeh.2017.07.002

Roberts, A. L., Gilman, S. E., Fitzmaurice, G., Decker, M. R., & Koenen, K. C. (2010). Witness of intimate partner violence in childhood and perpetration of intimate partner violence in adulthood. *Epidemiology, 21*(6), 809-818. https://doi.org/10.1097/EDE.0b013e3181f39f03

Roberts, L. J. (2000). Fire and ice in marital communication: Hostile and distancing behaviors as predictors of marital distress. *Journal of Marriage and Family, 62*(3), 693-707. https://doi.org/10.1111/j.1741-3737.2000.00693.x

Roberts, L. J., & Leonard, K. E. (1998). An empirical typology of drinking partnerships and their relationship to marial functioning and drinking consequences. *Journal of Marriage and the Family, 60*(2), 515-515. https://doi.org/10.2307/353866

Rodriguez, L. M., Dell, J. B., Lee, K. D. M., & Onufrak, J. (2019). Effects of a brief cognitive reappraisal intervention on reductions in alcohol consumption and related problems. *Psychology of Addictive Behaviors, 33*(7), 637-643. https://doi.org/10.1037/adb0000509

Rodriguez, L. M., & Derrick, J. (2017). Breakthroughs in understanding addiction and close relationships. *Current Opinion in Psychology, 13*, 115-119. https://doi.org/10.1016/j.copsyc.2016.05.011

Rodriguez, L. M., Gius, B. K., Derrick, J. L., & Leonard, K. E. (2020a). A dyadic approach to attachment anxiety and avoidance, marital conflict, and drinking. *Journal of Social and Personal Relationships, 37*(8-9), 2386-2408. https://doi.org/10.1177/0265407520922612

Rodriguez, L. M., Litt, D. M., & Stewart, S. H. (2020b). Drinking to cope with the pandemic: The unique associations of COVID-19- related perceived threat and psychological distress to drinking behaviors in American men and women. *Addictive Behaviors, 110*, 106532. https://doi.org/https://doi.org/10.1016/j.addbeh.2020.106532

Rodriguez, L. M., Neighbors, C., & Knee, C. R. (2014). Problematic alcohol use and marital distress: An interdependence theory perspective. *Addiction Research and Theory, 22*(4), 294-312. https://doi.org/10.3109/16066359.2013.841890

Rodriguez, L. M., Neighbors, C., Rinker, D. V., & Tackett, J. L. (2015). Motivational profiles of gambling behavior: Self-determination theory, gambling motives, and gambling behavior. *Journal of Gambling Studies, 31*(4), 1597-1615. https://doi.org/10.1007/s10899-014-9497-7

Rodriguez, L. M., Stewart, S. H., & Neighbors, C. (2021). Effects of a brief web-based interpersonal conflict cognitive reappraisal expressive-writing intervention on changes in romantic conflict during the COVID-19 quarantine. *Couple and Family Psychology: Research and Practice, 10*(3), 212-222. https://doi.org/https://doi.org/10.1037/cfp0000173

Rogers, A. A., Ha, T., Updegraff, K. A., & Iida, M. (2018). Adolescents' daily romantic experiences and negative mood: A dyadic, intensive longitudinal study. *Journal of Youth and Adolescence, 47*(7), 1517-1530. https://doi.org/10.1007/s10964-017-0797-y

Rogosch, F. A., Oshri, A., & Cicchetti, D. (2010). From child maltreatment to adolescent cannabis abuse and dependence: A developmental cascade model. *Development and Psychopathology, 22*(4), 883-897. https://doi.org/10.1017/S0954579410000520

Rolle, L., Giardina, G., Caldarera, A. M., Gerino, E., & Brustia, P. (2018). When intimate partner violence meets same sex couples: A review of same sex intimate partner violence. *Frontiers in Psychology, 9*, 1506. https://doi.org/10.3389/fpsyg.2018.01506

Ronzitti, S., Soldini, E., Lutri, V., Smith, N., Clerici, M., & Bowden-Jones, H. (2016). Types of gambling and levels of harm: A uk study to assess severity of presentation in a treatment-seeking population. *Journal of Behavioral Addictions, 5*(3), 439-447. https://doi.org/10.1556/2006.5.2016.068

Room, R., & Jernigan, D. (2000). The ambiguous role of alcohol in economic and social development. *Addiction, 95 (Suppl 4)*, S523-535. https://doi.org/10.1080/09652140020013755

Rosenberg, M., Luetke, M. C., Hensel, D., Kianersi, S., Fu, T.-c., & Herbenick, D. (2021). Depression and loneliness during COVID-19 restrictions in the United States, and their associations with frequency of social and sexual connections. *Social Psychiatry and Psychiatric Epidemiology, 56*, 1221-1232. https://doi.org/10.1007/s00127-020-02002-8

Rossi, R., Socci, V., Talevi, D., Mensi, S., Niolu, C., Pacitti, F., Di Marco, A., Rossi, A., Siracusano, A., & Di Lorenzo, G. (2020). COVID-19 pandemic and lockdown measures impact on mental health among the general population in italy. *Frontiers in Psychiatry, 11*, 7-12. https://doi.org/10.3389/fpsyt.2020.00790

Rossow, I., & Mäkelä, P. (2021). Public health thinking around alcohol-related harm: Why does per capita consumption matter? *Journal of Studies on Alcohol and Drugs, 82*(1), 9-17.

Rotterman, M., & Gilmour, H. (2022). *Who gambles and who experiences gambling problems in Canada?* Insights on Canadian Society.

Rotunda, R. J., Alter, J. A., & O'Farrell, T. J. (2013). Behavioral couples therapy for comorbid substance abuse and psychiatric problems. In M. M. Macfarlane (Ed.), *Family therapy and mental health: Innovations in theory and practice* (pp. 289-310). Routledge.

Russell, A. M. T., Browne, M., Hing, N., Visintin, T., Begg, S., Rawat, V., & Rockloff, M. (2022). Stressful life events precede gambling problems, and continued gambling problems exacerbate stressful life events: A life course calendar study. *Journal of Gambling Studies, 38*(4), 1405-1430. https://doi.org/10.1007/s10899-021-10090-7

Sachser, C., Olaru, G., Pfeiffer, E., Brahler, E., Clemens, V., Rassenhofer, M., Witt, A., & Fegert, J. M. (2021). The immediate impact of lockdown measures on mental health and couples' relationships during the COVID-19 pandemic: Results of a representative population survey in Germany. *Social Science and Medicine, 278*, 113954. https://doi.org/10.1016/j.socscimed.2021.113954

Saha, T. D., Grant, B. F., Chou, S. P., Kerridge, B. T., Pickering, R. P., & Ruan, W. J. (2018). Concurrent use of alcohol with other drugs and DSM-5 alcohol use disorder comorbid with other drug use disorders: Sociodemographic characteristics, severity, and psychopathology. *Drug and Alcohol Dependence, 187*, 261-269. https://doi.org/10.1016/j.drugalcdep.2018.03.006

Salinger, J. M., Whisman, M. A., Randall, A. K., & Hilpert, P. (2021). Associations between marital discord and depressive symptoms: A cross-cultural analysis. *Family Process, 60*(2), 493-506. https://doi.org/10.1111/famp.12563

Sallie, S. N., Ritou, V., Bowden-Jones, H., & Voon, V. (2020). Assessing international alcohol consumption patterns during isolation from the COVID-19 pandemic using an online survey: Highlighting negative emotionality mechanisms. *BMJ Open, 10*(11), e044276. https://doi.org/10.1136/bmjopen-2020-044276

Salvatore, J. E., Gardner, C. O., & Kendler, K. S. (2020). Marriage and reductions in men's alcohol, tobacco, and cannabis use. *Psychological Medicine, 50*(15), 2634-2640. https://doi.org/10.1017/S0033291719002964

Samp, J. A., & Monahan, J. L. (2009). Alcohol-influenced nonverbal behaviors during discussions about a relationship problem. *Journal of Nonverbal Behavior, 33*(3), 193-211. https://doi.org/10.1007/s10919-009-0069-y

Santabarbara, J., Lasheras, I., Lipnicki, D. M., Bueno-Notivol, J., Perez-Moreno, M., Lopez-Anton, R., De la Camara, C., Lobo, A., & Gracia-Garcia, P. (2021). Prevalence of anxiety in the COVID-19 pandemic: An updated meta-analysis of community-based studies. *Progress in Neuropsychopharmacology & Biological Psychiatry, 109*, 110207. https://doi.org/10.1016/j.pnpbp.2020.110207

Saunders, K. R. K., Landau, S., Howard, L. M., Fisher, H. L., Arseneault, L., McLeod, G. F. H., & Oram, S. (2023). Past-year intimate partner violence perpetration among people with and without depression: An individual participant data (IPD) meta-mediation analysis. *Social Psychiatry and Psychiatric Epidemiology, 58*(12), 1735-1747. https://doi.org/10.1007/s00127-021-02183-w

Schauer, G. L., Dilley, J. A., Roehler, D. R., Sheehy, T. J., Filley, J. R., Broschart, S. C., Holland, K. M., Baldwin, G. T., Holmes-Chavez, A. K., & Hoots, B. E. (2021). Cannabis sales increases during COVID-19: Findings from Alaska, Colorado, Oregon, and Washington. *International Journal of Drug Policy, 98*, 103384. https://doi.org/10.1016/j.drugpo.2021.103384

Schellenberg, B. J. I., McGrath, D. S., & Dechant, K. (2016). The Gambling Motives Questionnaire financial: Factor structure, measurement invariance, and relationships with gambling behaviour. *International Gambling Studies, 16*(1), 1-16. https://doi.org/10.1080/14459795.2015.1088559

Schick, M. R., Nalven, T., & Spillane, N. S. (2022). Drinking to fit in: The effects of drinking motives and self-esteem on alcohol use among female college students. *Substance Use & Misuse, 57*(1), 76-85. https://doi.org/10.1080/10826084.2021.1990334

Schlagintweit, H. E., Thompson, K., Goldstein, A. L., & Stewart, S. H. (2017). An investigation of the association between shame and problem gambling: The mediating role of maladaptive coping motives. *Journal of Gambling Studies, 33*(4), 1067-1079. https://doi.org/10.1007/s10899-017-9674-6

Schluter, M. G., & Hodgins, D. C. (2022). Measuring recent cannabis use across modes of delivery: Development and validation of the Cannabis Engagement Assessment. *Addictive Behavior Reports, 15*, 100413. https://doi.org/10.1016/j.abrep.2022.100413

Schmier, J. K., & Halpern, M. T. (2004). Patient recall and recall bias of health state and health status. *Expert Review of Pharmacoeconomics & Outcomes Research, 4*(2), 159-163. https://doi.org/DOI:10.1586/14737167.4.2.159

Schmits, E., & Glowacz, F. (2021). Changes in alcohol use during the COVID-19 pandemic: Impact of the lockdown conditions and mental health factors. *International Journal of Mental Health and Addiction, 20*(2), 1147-1158. https://doi.org/10.1007/s11469-020-00432-8

Schneider, D., Harknett, K., & McLanahan, S. (2016). Intimate partner violence in the great recession. *Demography, 53*(2), 471-505. https://doi.org/10.1007/s13524-016-0462-1

Schokkenbroek, J. M., Hardyns, W., Anrijs, S., & Ponnet, K. (2021). Partners in lockdown: Relationship stress in men and women during the COVID-19 pandemic. *Couple and Family Psychology: Research and Practice, 10*(3), 149-157. https://doi.org/10.1037/cfp0000172

Schreiber, E., & Georgia Salivar, E. (2021). Using a vulnerability-stress-adaptation framework to model intimate partner violence risk factors in late life: A systematic review. *Aggression and Violent Behavior, 57*, 101493. https://doi.org/10.1016/j.avb.2020.101493

Sesar, K., Šimic, N., & Dodaj, A. (2015). Differences in symptoms of depression, anxiety and stress between victims and perpetrators of intimate partner violence. *Journal of Sociology and Social Work, 3*(2), 63-72. https://doi.org/10.15640/jssw.v3n2a7

Shaffer, H. J., Tom, M. A., Wiley, R. C., Wong, M. F. Y., Chan, E. M. L., Cheng, G. L. F., Lo, C. K. M., Ma, E. K. Y., Wong, R. H. Y., & Lee, M. (2018). Using the syndrome model of addiction: A preliminary consideration of psychological states and traits. *International Journal of Mental Health and Addiction, 16*(6), 1373-1393. https://doi.org/10.1007/s11469-018-9952-2

Sharman, S., Roberts, A., Bowden-Jones, H., & Strang, J. (2021). Gambling in COVID-19 lockdown in the uk: Depression, stress, and anxiety. *Frontiers in Psychiatry, 12*, 621497. https://doi.org/10.3389/fpsyt.2021.621497

Shorey, R. C., Haynes, E., Brem, M., Florimbio, A. R., Grigorian, H., & Stuart, G. L. (2018). Marijuana use is associated with intimate partner violence perpetration among men arrested for domestic violence. *Translational Issues in Psychological Science, 4*(1), 108-118. https://doi.org/10.1037/tps0000140

Shorey, R. C., McNulty, J. K., Moore, T. M., & Stuart, G. L. (2016a). Being the victim of violence during a date predicts next-day cannabis use among female college students. *Addiction, 111*(3), 492-498. https://doi.org/10.1111/add.13196

Shorey, R. C., Moore, T. M., McNulty, J. K., & Stuart, G. L. (2016b). Do alcohol and marijuana increase the risk for female dating violence victimization? A prospective daily diary investigation. *Psychology of Violence, 6*(4), 509-518. https://doi.org/10.1037/a0039943

Shorey, R. C., Sherman, A. E., Kivisto, A. J., Elkins, S. R., Rhatigan, D. L., & Moore, T. M. (2011). Gender differences in depression and anxiety among victims of intimate partner violence: The moderating effect of shame proneness. *Journal of Interpersonal Violence, 26*(9), 1834-1850. https://doi.org/10.1177/0886260510372949

Shorey, R. C., Stuart, G. L., McNulty, J. K., & Moore, T. M. (2014a). Acute alcohol use temporally increases the odds of male perpetrated dating violence: A 90-day diary analysis. *Addictive Behaviors, 39*(1), 365-368. https://doi.org/10.1016/j.addbeh.2013.10.025

Shorey, R. C., Stuart, G. L., Moore, T. M., & McNulty, J. K. (2014b). The temporal relationship between alcohol, marijuana, angry affect, and dating violence perpetration: A daily diary study with female college students. *Psychology of Addictive Behavior, 28*(2), 516-523. https://doi.org/10.1037/a0034648

Simons, J. S., Correia, C. J., Carey, K. B., & Borsari, B. E. (1998). Validating a five-factor marijuana motives measure: Relations with use, problems, and alcohol motives. *Journal of Counseling Psychology, 45*(3), 265-273. https://doi.org/https://doi.org/10.1037/0022-0167.45.3.265

Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Personality and Social Psychology, 71*(5), 899-914.

Skopek, J., Schulz, F., & Blossfeld, H. P. (2010). Who contacts whom? Educational homophily in online mate selection. *European Sociological Review, 27*(2), 180-195. https://doi.org/10.1093/esr/jcp068

Skrzynski, C. J., & Creswell, K. G. (2020). Associations between solitary drinking and increased alcohol consumption, alcohol problems, and drinking to cope motives in adolescents and young adults: A systematic review and meta-analysis. *Addiction, 115*(11), 1989-2007. https://doi.org/10.1111/add.15055

Slade, T., Chapman, C., Swift, W., Keyes, K., Tonks, Z., & Teesson, M. (2016). Birth cohort trends in the global epidemiology of alcohol use and alcohol-related harms in men and women: Systematic review and metaregression. *BMJ Open, 6*(10), e011827. https://doi.org/10.1136/bmjopen-2016-011827

Slep, A. M. S., Foran, H. M., Heyman, R. E., & Snarr, J. D. (2010). Unique risk and protective factors for partner aggression in a large scale air force survey. *Journal of Community Health, 35*(4), 375-383. https://doi.org/10.1007/s10900-010-9264-3

Slep, A. M. S., Foran, H. M., Heyman, R. E., & United States Air Force Family Advocacy Research Program. (2014). An ecological model of intimate partner violence perpetration at different levels of severity. *Journal of Family Psychology, 28*(4), 470-482. https://doi.org/10.1037/a0037316

Sliedrecht, W., de Waart, R., Witkiewitz, K., & Roozen, H. G. (2019). Alcohol use disorder relapse factors: A systematic review. *Psychiatry Research, 278*, 97-115. https://doi.org/10.1016/j.psychres.2019.05.038

Slutske, W. S. (2006). Natural recovery and treatment-seeking in pathological gambling: Results of two U.S. National surveys. *American Journal of Psychiatry, 163*(2), 297–303. https://doi.org/https://doi.org/10.1176/appi.ajp.163.2.297

Slutske, W. S., Eisen, S. A., True, W. R., Lyons, M. J., Goldberg, J., & Tsuang, M. (2000). Common genetic vulnerability for pathological gambling and alcohol dependence in men. *Archives of General Psychiatry, 57*(7), 666-673.

Smith, L., Ciarrochi, J., & Heaven, P. C. L. (2008). The stability and change of trait emotional intelligence, conflict communication patterns, and relationship satisfaction: A one-year longitudinal study. *Personality and Individual Differences, 45*(8), 738-743. https://doi.org/10.1016/j.paid.2008.07.023

Smith, P. H., Homish, G. G., Leonard, K. E., & Cornelius, J. R. (2012). Intimate partner violence and specific substance use disorders: Findings from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychology of Addictive Behavior, 26*(2), 236-245. https://doi.org/10.1037/a0024855

Sobell, L. C., & Sobell, M. B. (1992). Timeline follow-back. In *Measuring alcohol consumption: Psychosocial and biochemical methods* (pp. 41-72). Humana Press.

Sohal, A., Khalid, S., Green, V., Gulati, A., & Roytman, M. (2022). The pandemic within the pandemic: Unprecedented rise in alcohol-related hepatitis during the COVID-19 pandemic. *Journal of Clinical Gastroenterology, 56*(3), e171-e175. https://doi.org/10.1097/MCG.0000000000001627

Sorocco, K. H., & Ferrell, S. W. (2006). Alcohol use among older adults. *Journal of General Psychology, 133*(4), 453-467. https://doi.org/10.3200/GENP.133.4.453-467

South, S. C., Boudreaux, M. J., & Oltmanns, T. F. (2021). Personality disorders and intimate partner aggression: A replication and extension in older, married couples. *Personality Disorders, 12*(1), 70-80. https://doi.org/10.1037/per0000458

Spadine, M., & Patterson, M. S. (2022). Social influence on fad diet use: A systematic literature review. *Nutrition and Health, 28*(3), 369-388. https://doi.org/10.1177/02601060211072370

Spinella, T. C., Stewart, S. H., & Barrett, S. P. (2019). Context matters: Characteristics of solitary versus social cannabis use. *Drug and Alcohol Review, 38*(3), 316-320. https://doi.org/10.1111/dar.12912

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092-1097.

Stappenbeck, C. A., Hammett, J. F., Grom, J. L., Halmos, M. B., Lee, C. M., & Parrott, D. J. (2023). The effects of alcohol and marijuana co-use patterns on intimate partner aggression perpetration. *Addictive Behaviors, 143*, 107691. https://doi.org/10.1016/j.addbeh.2023.107691

Stark, E. (2012). Looking beyond domestic violence: Policing coercive control. *Journal of Police Crisis Negotiations, 12*(2), 199-217. https://doi.org/10.1080/15332586.2012.725016

Stets, J. E., & Henderson, D. A. (1991). Contextual factors surrounding conflict resolution while dating: Results from a national study. *National Council on Family Relationss, 40*(1), 29-36.

Stevenson, B. L., Dvorak, R. D., Kramer, M. P., Peterson, R. S., Dunn, M. E., Leary, A. V., & Pinto, D. (2019). Within- and between-person associations from mood to alcohol consequences: The mediating role of enhancement and coping drinking motives. *Journal of Abnormal Psychology, 128*(8), 813-822. https://doi.org/https://doi.org/10.1037/abn0000472

Stewart, S. H. (2020, February). Dyadic conflict and alcohol in romantic couples: Are these links particularly strong in women? University of South Florida - St. Petersburg campus' Department of Psychology brown bag speaker series, St. Petersburg, Florida.

Stewart, S. H., Castellanos-Ryan, N., Vitaro, F., & Conrod, P. J. (2014). Why my friends drink is why I drink. *Alcoholism, Clinical and Experimental Research, 38*(Supplement 1), 187a-187a.

Stewart, S. H., & Devine, H. (2000). Relations between personality and drinking motives in young adults. *Personality and Individual Differences, 29*, 495-511.

Stewart, S. H., Grant, V. V., Mackie, C. J., & Conrod, P. J. (2016). Comorbidity of anxiety and depression with substance use disorders. In K. J. Sher (Ed.), *The Oxford Handbook of Substance Use and Substance Use Disorders* (Vol. 2, pp. 149-186). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199381708.013.19

Stewart, S. H., Samoluk, S. B., & MacDonald, A. B. (1999). Anxiety sensitivity and substance use and abuse. In S. Taylor (Ed.), *Anxiety sensitivity: Theory, research, and treatment of the fear of anxiety* (pp. 287–319). Routledge.

Stewart, S. H., & Zack, M. (2008). Development and psychometric evaluation of a three-dimensional Gambling Motives Questionnaire. *Addiction, 103*(7), 1110-1117. https://doi.org/10.1111/j.1360-0443.2008.02235.x

Stewart, S. H., Zack, M., Collins, P., Klein, R. M., & Fragopoulos, F. (2008). Subtyping pathological gamblers on the basis of affective motivations for gambling: Relations to gambling problems, drinking problems, and affective motivations for drinking. *Psychology of Addictive Behaviors, 22*(2), 257-268. https://doi.org/10.1037/0893-164X.22.2.257

Stillman, M. A., & Sutcliff, J. (2020). Predictors of relapse in alcohol use disorder: Identifying individuals most vulnerable to relapse. *Addiction and Substance Abuse, 1*(1), 3-8. https://doi.org/10.46439/addiction.1.002

Stith, S. M., Green, N. M., Smith, D. B., & Ward, D. B. (2007). Marital satisfaction and marital discord as risk markers for intimate partner violence: A meta-analytic review. *Journal of Family Violence, 23*(3), 149-160. https://doi.org/10.1007/s10896-007-9137-4

Storaasli, R. D., & Markman, H. J. (1990). Relationship problems in the early stages of marriage: A longitudinal investigation. *Journal of Family Psychology, 4*(1), 80-98. https://doi.org/https://doi.org/10.1037/0893-3200.4.1.80

Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The Revised Conflict Tactics Scale (CTS2). *Journal of Family Issues, 17*(3), 283-427. https://doi.org/https://doi.org/10.1177/019251396017003001

Straus, M. A., & Sweet, S. (1992). Verbal/symbolic aggression in couples: Incidence rates and relationship to personal characteristics. *Journal of Marriage and Family, 54*(2), 346-357. https://doi.org/https://doi.org/10.2307/353066

Stubbs, A., & Szoeke, C. (2022). The effect of intimate partner violence on the physical health and health-related nehaviors of women: A systematic review of the literature. *Trauma, Violence, and Abuse, 23*(4), 1157-1172. https://doi.org/10.1177/1524838020985541

Subbaraman, M. S., & Kerr, W. C. (2015). Simultaneous versus concurrent use of alcohol and cannabis in the national alcohol survey. *Alcoholism: Clinical and Experimental Research, 39*(5), 872-879. https://doi.org/10.1111/acer.12698

Substance Abuse and Metal Health Services Administration. (2020). *Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health*.

Sundqvist, K., Jonsson, J., & Wennberg, P. (2016). Gambling motives in a representative Swedish sample of risk gamblers. *J Gambl Stud, 32*(4), 1231-1241. https://doi.org/10.1007/s10899-016-9607-9

Sundqvist, K., & Rosendahl, I. (2019). Problem gambling and psychiatric comorbidity-risk and temporal sequencing among women and men: Results from the Swelogs Case-Control Study. *Journal of Gambling Studies, 35*(3), 757-771. https://doi.org/10.1007/s10899-019-09851-2

Suomi, A., Dowling, N. A., Thomas, S., Abbott, M., Bellringer, M., Battersby, M., Koziol-McLain, J., Lavis, T., & Jackson, A. C. (2019). Patterns of family and intimate partner violence in problem gamblers. *Journal of Gambling Studies, 35*(2), 465-484. https://doi.org/10.1007/s10899-018-9768-9

Swendsen, J., Conway, K. P., Degenhardt, L., Dierker, L., Glantz, M., Jin, R., Merikangas, K. R., Sampson, N., & Kessler, R. C. (2009). Socio-demographic risk factors for alcohol and drug dependence: The 10-year follow-up of the National Comorbidity Survey. *Addiction, 104*(8), 1346-1355. https://doi.org/10.1111/j.1360-0443.2009.02622.x

Swendsen, J., Conway, K. P., Degenhardt, L., Glantz, M., Jin, R., Merikangas, K. R., Sampson, N., & Kessler, R. C. (2010). Mental disorders as risk factors for substance use, abuse and dependence: Results from the 10-year follow-up of the National Comorbidity Survey. *Addiction, 105*, 1117-1128. https://doi.org/10.1111/j.1360-0443.2010.02902.x

Sznitman, S. R. (2022). Changes in cannabis use risk behaviors during the first and second COVID-19 lockdown in Israel: A short-term 2-wave longitudinal study. *Journal in the Social Sciences, Journal of Addiction Medicine*(6), 639-644. https://doi.org/10.1097/ADM.0000000000000977

Tabri, N., Xuereb, S., Cringle, N., & Clark, L. (2022). Associations between financial gambling motives, gambling frequency and level of problem gambling: A meta-analytic review. *Addiction, 117*(3), 559-569. https://doi.org/10.1111/add.15642

Takahashi, K. (2005). Toward a life span theory of close relationships: The affective relationships model. *Human Development, 48*(1-2), 48-66. https://doi.org/10.1159/000083215

Tarter, R. E., Kirisci, L., Ridenour, T., & Vanyukov, M. (2008). Prediction of cannabis use disorder between childhood and young adulthood using the Child Behavior Checklist. *Journal of Psychopathology and Behavioral Assessment, 30*(4), 272-278. https://doi.org/10.1007/s10862-008-9083-3

Taverna, E., & Marshall, A. D. (2023). Development and validation of the Moral Outcomes of Relationship Aggression Scale: A measure of moral distress following intimate partner violence perpetration. *Aggressive Behavior, 49*(1), 33-48. https://doi.org/10.1002/ab.22051

Taverna, E. C., McGuier, D. J., & Marshall, A. D. (2021). Perpetration of intimate partner violence and guilt: The role of parenting status. *Journal of Family Trauma, Child Custody & Child Development, 19*(3-4), 274-294. https://doi.org/10.1080/26904586.2021.1994508

Temple, J. R., Weston, R., & Marshall, L. L. (2005). Physical and mental health outcomes of women in nonviolent, unilaterally violent, and mutually violent relationships. *Violence and Victims, 20*(3), 355-359. https://doi.org/DOI:10.1891/088667005780997947

ten Have, M., de Graaf, R., van Dorsselaer, S., & Beekman, A. (2013). Lifetime treatment contact and delay in treatment seeking after first onset of a mental disorder. *Psychiatriatic Services, 64*(10), 981-989. https://doi.org/10.1176/appi.ps.201200454

Terry-McElrath, Y. M., O'Mallery, P. M., & Johnston, L. D. (2010). Reasons for drug use among American youth by consumption level, gender, and race/ethnicity: 1976-2005. *Journal of Drug Issues, 39*(3), 677-714. https://doi.org/https://doi.org/10.1177/002204260903900310

Testa, M., Derrick, J. L., Wang, W., Leonard, K. E., Kubiak, A., Brown, W. C., & Collins, R. L. (2018a). Does marijuana contribute to intimate partner aggression? Temporal effects in a community sample of marijuana-using couples. *Journal of Studies on Alcohol and Drugs, 79*(3), 432-440.

Testa, M., Livingston, J. A., & Leonard, K. E. (2003). Women's substance use and experiences of intimate partner violence: A longitudinal investigation among a community sample. *Addictive Behaviors, 28*(9), 1649-1664. https://doi.org/10.1016/j.addbeh.2003.08.040

Testa, M., Wang, W., Derrick, J. L., Brown, W. C., & Collins, R. L. (2019). Does morning affect contribute to daily cannabis use? *Addictive Behaviors, 95*, 64-69. https://doi.org/10.1016/j.addbeh.2019.03.001

Testa, M., Wang, W., Derrick, J. L., & Leonard, K. E. (2018b). Marijuana use by intimate partners: Does discrepant use impair relationship functioning? *Psychology of Addictive Behaviors, 32*(4), 475-484. https://doi.org/10.1037/adb0000357

The Canadian Press. (2020). *A timeline of events in canada's fight against COVID-19.* https://www.cp24.com/news/a-timeline-of-events-in-canada-s-fight-against-covid-19-1.5231865?cache=noluapbixfwukoj%3FclipId%3D89563

Thompson, R. S., Bonomi, A. E., Anderson, M., Reid, R. J., Dimer, J. A., Carrell, D., & Rivara, F. P. (2006). Intimate partner violence: Prevalence, types, and chronicity in adult women. *American Journal of Preventive Medicine, 30*(6), 447-457. https://doi.org/10.1016/j.amepre.2006.01.016

Till, B., Tran, U. S., & Niederkrotenthaler, T. (2017). Relationship satisfaction and risk factors for suicide. *Crisis, 38*(1), 7-16. https://doi.org/10.1027/0227-5910/a000407

Todd, M., Armeli, S., & Tennen, H. (2009). Interpersonal problems and negative mood as predictors of within-day time to drinking. *Psychology of Addictive Behaviors, 23*(2), 205-215. https://doi.org/10.1037/a0014792

Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin, 133*(5), 859-883. https://doi.org/10.1037/0033-2909.133.5.859

Tovmasyan, A., Monk, R. L., & Heim, D. (2022a). Towards an affect intensity regulation hypothesis: Systematic review and meta-analyses of the relationship between affective states and alcohol consumption. *PLoS ONE, 17*(1), e0262670. https://doi.org/10.1371/journal.pone.0262670

Tovmasyan, A., Monk, R. L., Sawicka, I., & Heim, D. (2022b). Positive but not negative affect is associated with increased daily drinking likelihood in non-clinical populations: Systematic review and meta-analyses. *American Journal of Drug and Alcohol Abuse, 48*(4), 382-396. https://doi.org/10.1080/00952990.2022.2082300

Towers, E. B., Williams, I. L., Qillawala, E. I., Rissman, E. F., & Lynch, W. J. (2023). Sex/gender differences in the time-course for the development of substance use disorder: A focus on the telescoping effect. *Pharmacological Review, 75*(2), 217-249. https://doi.org/10.1124/pharmrev.121.000361

Tozzi, F., Thornton, L. M., Klump, K. L., Fichter, M. M., Halmi, K. A., Kaplan, A. S., Strober, M., Woodside, D. B., Crow, S., Mitchell, J., Rotondo, A., Mauri, M., Cassano, G., Keel, P., Plotnicov, K. H., Pollice, C., Lilenfeld, L. R., Berrettini, W. H., Bulik, C. M., Kaye, W. H. (2005). Symptom fluctuation in eating disorders: Correlates of diagnostic crossover. *American Journal of Psychiatry, 162*, 732-740. https://doi.org/https://doi.org/10.1176/appi.ajp.162.4.732

Tran, D. D., Fitzke, R. E., Wang, J., Davis, J. P., & Pedersen, E. R. (2023). Substance use, financial stress, employment disruptions, and anxiety among veterans during the COVID-19 pandemic. *Psychological Reports, 126*(4), 1684-1700. https://doi.org/10.1177/00332941221080413

Treeby, M., & Bruno, R. (2012). Shame and guilt-proneness: Divergent implications for problematic alcohol use and drinking to cope with anxiety and depression symptomatology. *Personality and Individual Differences, 53*(5), 613-617. https://doi.org/10.1016/j.paid.2012.05.011

Tucker, J. A., Chandler, S. D., & Witkiewitz, K. (2020). Epidemiology of recovery from alcohol use disorder. *Alcohol Research, 40*(3), 02. https://doi.org/10.35946/arcr.v40.3.02

Tucker, J. S., Troxel, W. M., Rodriguez, A., Seelam, R., & D'Amico, E. J. (2023). Alcohol and cannabis use within emerging adults' committed romantic relationships: Associations with relationship functioning and quality of life. *Emerging Adulthood, 11*(3), 698-703. https://doi.org/10.1177/21676968221149079

Tulloch, C., Browne, M., Hing, N., Rockloff, M., & Hilbrecht, M. (2021). How gambling harms the wellbeing of family and others: A review. *International Gambling Studies, 22*(3), 522-540. https://doi.org/10.1080/14459795.2021.2002384

Turliuc, M. N., & Candel, O. S. (2021). Not all in the same boat. Socioeconomic differences in marital stress and satisfaction during the covid-19 pandemic. *Frontiers in Psychology, 12*, 635148. https://doi.org/10.3389/fpsyg.2021.635148

Turner, S., Mota, N., Bolton, J., & Sareen, J. (2018). Self-medication with alcohol or drugs for mood and anxiety disorders: A narrative review of the epidemiological literature. *Depression and Anxiety, 35*(9), 851-860. https://doi.org/10.1002/da.22771

Uecker, J. E. (2012). Marriage and mental health among young adults. *Journal of Health and Social Behavior, 53*(1), 67-83. https://doi.org/10.1177/0022146511419206

Umberson, D., Crosnoe, R., & Reczek, C. (2010). Social relationships and health behavior across the life course. *Annual Review of Sociology, 36*, 139-157. https://doi.org/10.1146/annurev-soc-070308-120011

Umberson, D., Thomeer, M. B., Pollitt, A. M., & Mernitz, S. E. (2020). The psychological toll of emotion work in same-sex and different-sex marital dyads. *Journal of Marriage and Family, 82*(4), 1141-1158. https://doi.org/10.1111/jomf.12686

Ummels, S. A., Seldenrijk, A., Bos, E. H., de Graaf, R., Batelaan, N. M., & Ten Have, M. (2022). The bidirectional relationship between anxiety disorders and alcohol use disorders in adults: Findings from a longitudinal population-based study. *Journal of Affective Disorders, 314*, 126-132. https://doi.org/10.1016/j.jad.2022.06.091

Vaeth, P. A., Wang-Schweig, M., & Caetano, R. (2017). Drinking, alcohol use disorder, and treatment access and utilization among U.S. Racial/ethnic groups. *Alcoholism: Clinical and Experimental Research, 41*(1), 6-19. https://doi.org/10.1111/acer.13285

Valleur, M., Codina, I., Venisse, J. L., Romo, L., Magalon, D., Fatseas, M., Chereau-Boudet, I., Gorsane, M. A., Guilleux, A., Groupe, J. E. U., Grall-Bronnec, M., & Challet-Bouju, G. (2016). Towards a validation of the three pathways model of pathological gambling. *Journal of Gambling Studies, 32*(2), 757-771. https://doi.org/10.1007/s10899-015-9545-y

van der Pol, P., Liebregts, N., de Graaf, R., Korf, D. J., van den Brink, W., & van Laar, M. (2013). Predicting the transition from frequent cannabis use to cannabis dependence: A three-year prospective study. *Drug and Alcohol Dependence, 133*(2), 352-359. https://doi.org/10.1016/j.drugalcdep.2013.06.009

Vatcheva, K. P., & Lee, M. (2016). Multicollinearity in regression analyses conducted in epidemiologic studies. *Epidemiology: Open Access, 6*(2), 1-20. https://doi.org/10.4172/2161-1165.1000227

Vedelago, L., Wardell, J. D., Kempe, T., Patel, H., Amlung, M., MacKillop, J., & Keough, M. T. (2022). Getting high to cope with COVID-19: Modelling the associations between cannabis demand, coping motives, and cannabis use and problems. *Addictive Behaviors, 124*, 107092. https://doi.org/10.1016/j.addbeh.2021.107092

Verdejo-Garcia, A., Lawrence, A. J., & Clark, L. (2008). Impulsivity as a vulnerability marker for substance-use disorders: Review of findings from high-risk research, problem gamblers and genetic association studies. *Neuroscience and Biobehavioral Reviews, 32*(4), 777-810. https://doi.org/10.1016/j.neubiorev.2007.11.003

Verissimo, A. D., & Grella, C. E. (2017). Influence of gender and race/ethnicity on perceived barriers to help-seeking for alcohol or drug problems. *Journal of Substance Abuse and Treatment, 75*, 54-61. https://doi.org/10.1016/j.jsat.2016.12.013

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity, 89*, 531-542. https://doi.org/10.1016/j.bbi.2020.05.048

Volberg, R. A., McNamara, L. M., & Carris, K. L. (2018). Risk factors for problem gambling in California: Demographics, comorbidities and gambling participation. *Journal of Gambling Studies, 34*(2), 361-377. https://doi.org/10.1007/s10899-017-9703-5

Votaw, V. R., Stein, E. R., & Witkiewitz, K. (2021). A longitudinal mediation model of negative emotionality, coping motives and drinking intensity among individuals receiving community treatment for alcohol use disorder. *Alcohol and Alcoholism, 56*(5), 573-580. https://doi.org/10.1093/alcalc/agab012

Votaw, V. R., & Witkiewitz, K. (2021). Motives for substance use in daily life: A systematic review of studies using ecological momentary assessment. *Clinical Psychological Science, 9*(4), 535-562. https://doi.org/10.1177/2167702620978614

Vowels, L. M., Francois-Walcott, R. R. R., Perks, R. E., & Carnelley, K. B. (2021). "Be free together rather than confined together": A qualitative exploration of how relationships changed in the early COVID-19 pandemic. *Journal of Social and Personal Relationships, 38*(10), 2921-2943. https://doi.org/10.1177/02654075211041412

Waddell, J. T., King, S. E., & Corbin, W. R. (2022). Dynamic longitudinal relations among solitary drinking, coping motives, and alcohol problems during emerging adulthood. *Drug and Alcohol Dependence, 238*, 109576. https://doi.org/10.1016/j.drugalcdep.2022.109576

Waddell, J. T., Sher, K. J., & Piasecki, T. M. (2021). Coping motives and negative affect: An ecological study of the antecedents of alcohol craving and alcohol use. *Psychology of Addictive Behaviors, 35*(5), 565-576. https://doi.org/10.1037/adb0000696

Wallis, D., Coatsworth, J. D., Mennis, J., Riggs, N. R., Zaharakis, N., Russell, M. A., Brown, A. R., Rayburn, S., Radford, A., Hale, C., & Mason, M. J. (2022). Predicting self-medication with cannabis in young adults with hazardous cannabis use. *International Journal of Environmental Research and Public Health, 19*(3). https://doi.org/10.3390/ijerph19031850

Walsh, A. R., & Stephenson, R. (2021). Positive and negative impacts of the COVID-19 pandemic on relationship satisfaction in male couples. *American Journal of Men's Health, 15*(3), 15579883211022180. https://doi.org/10.1177/15579883211022180

Wang, C., Cunningham-Erdogdu, P., Steers, M. N., Weinstein, A. P., & Neighbors, C. (2020). Stressful life events and gambling: The roles of coping and impulsivity among college students. *Addictive Behaviors, 107*, 106386. https://doi.org/10.1016/j.addbeh.2020.106386

Wanic, R., & Kulik, J. (2011). Toward an understanding of gender differences in the impact of marital conflict on health. *Sex Roles, 65*(5-6), 297-312. https://doi.org/10.1007/s11199-011-9968-6

Wardell, J. D., Egerton, G. A., & Read, J. P. (2020a). Does cannabis use predict more severe types of alcohol consequences? Longitudinal associations in a 3-year study of college students. *Alcoholism: Clinical and Experimental Research, 44*(5), 1141-1150. https://doi.org/10.1111/acer.14320

Wardell, J. D., Kempe, T., Rapinda, K. K., Single, A., Bilevicius, E., Frohlich, J. R., Hendershot, C. S., & Keough, M. T. (2020b). Drinking to cope during COVID-19 pandemic: The role of external and internal factors in coping motive pathways to alcohol use, solitary drinking, and alcohol problems. *Alcoholism: Clinical and Experimental Research, 44*(10), 2073-2083. https://doi.org/10.1111/acer.14425

Wardell, J. D., Quilty, L. C., Hendershot, C. S., & Bagby, R. M. (2015). Motivational pathways from reward sensitivity and punishment sensitivity to gambling frequency and gambling-related problems. *Psychology of Addictive Behaviors, 29*(4), 1022-1030. https://doi.org/10.1037/adb0000066

Wareham, J. D., & Potenza, M. N. (2010). Pathological gambling and substance use disorders. *American Journal of Drug and Alcohol Abuse, 36*(5), 242-247. https://doi.org/10.3109/00952991003721118

Wargo Aikins, J., Simon, V. A., & Prinstein, M. J. (2010). Romantic partner selection and socialization of young adolescents' substance use and behavior problems. *Journal of Adolescence, 33*(6), 813-826. https://doi.org/10.1016/j.adolescence.2010.07.007

Warttig, S. L., Forshaw, M. J., South, J., & White, A. K. (2013). New, normative, English-sample data for the Short Form Perceived Stress Scale (PSS-4). *Journal of Health Psychology, 18*(12), 1617-1628. https://doi.org/10.1177/1359105313508346

Waszczuk, M. A., Kotov, R., Ruggero, C., Gamez, W., & Watson, D. (2017). Hierarchical structure of emotional disorders: From individual symptoms to the spectrum. *Journal of Abnormal Psychology, 126*(5), 613-634. https://doi.org/10.1037/abn0000264

Watkins, L. E., DiLillo, D., & Maldonado, R. C. (2015). The interactive effects of emotion regulation and alcohol intoxication on lab-based intimate partner aggression. *Psychology of Addictive Behaviors, 29*(3), 653-663. https://doi.org/10.1037/adb0000074

Weber, D. M., Wojda, A. K., Carrino, E. A., & Baucom, D. H. (2021). Love in the time of COVID-19: A brief report on relationship and individual functioning among committed couples in the United States while under shelter-in-place orders. *Family Process, 60*(4), 1381-1388. https://doi.org/10.1111/famp.12700

Weiss, N. H., Kiefer, R., Goncharenko, S., Raudales, A. M., Forkus, S. R., Schick, M. R., & Contractor, A. A. (2022). Emotion regulation and substance use: A meta-analysis. *Drug and Alcohol Dependence, 230*, 109131. https://doi.org/10.1016/j.drugalcdep.2021.109131

Welte, J. W., Barnes, G. M., Tidwell, M. C. O., Hoffman, J. H., & Wieczorek, W. F. (2015). Gambling and problem gambling in the United States: Changes between 1999 and 2013. *Journal of Gambling Studies, 31*(3), 695-715. https://doi.org/10.1007/s10899-014-9471-4

West, R., & Brown, J. (2013). *Theory of addiction* (Second ed.). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781118484890

Whisman, M. A. (2013). Relationship discord and the prevalence, incidence, and treatment of psychopathology. *Journal of Social and Personal Relationships, 30*(2), 163-170. https://doi.org/10.1177/0265407512455269

Whisman, M. A., & Bruce, M. L. (1999). Marital dissatisfaction and incidence of major depressive episode in a community sample. *Journal of Abnormal Psychology, 108*(4), 674-678. https://doi.org/https://doi.org/10.1037/0021-843X.108.4.674

Whisman, M. A., Sheldon, C. T., & Goering, P. (2000). Psychiatric disorders and dissatisfaction with social relationships: Does type of relationship matter? *Journal of Abnormal Psychology, 109*(4), 803-808. https://doi.org/10.1037/0021-843X.109.4.803

Whisman, M. A., & Uebelacker, L. A. (2009). Prospective associations between marital discord and depressive symptoms in middle-aged and older adults. *Psychology of Aging, 24*(1), 184-189. https://doi.org/10.1037/a0014759

Whisman, M. A., Weinstock, L. M., & Uebelacher, L. A. (2002). Mood reactivity to marital conflict: The influence of marital dissatisfaction and depression. *Behavior Therapy, 33*, 229-314. https://doi.org/https://doi.org/10.1016/S0005-7894(02)80030-2

Whitaker, D. J., Haileyesus, T., Swahn, M., & Saltzman, L. S. (2007). Differences in frequency of violence and reported injury between relationships with reciprocal and nonreciprocal intimate partner violence. *American journal of public health, 97*(5), 941-947. https://doi.org/10.2105/AJPH.2005.079020

White, A. M. (2020). Gender differences in the epidemiology of alcohol use and related harms in the United States. *Alcohol Research, 40*(2), 01. https://doi.org/10.35946/arcr.v40.2.01

Williams, R. J., Leonard, C. A., Belanger, Y. D., Christensen, D. R., El-Guebaly, N., Hodgins, D. C., McGrath, D. S., Nicoll, F., & Stevens, R. M. G. (2021). Gambling and problem gambling in Canada in 2018: Prevalence and changes since 2002. *Canadian Journal of Psychiatry, 66*(5), 485-494. https://doi.org/10.1177/0706743720980080

Wilsnack, R. W., Wilsnack, S. C., Gmel, G., & Kantor, L. W. (2018). Gender differences in binge drinking: Prevalence, predictors, and consequences. *Alcohol Research: Current Review, 39*(1), 57-76.

Wilson, S. J., & Marini, C. M. (2022). The days add up: Daily marital discord and depressive reactivity linked to past-month depressed mood and marital risk across 10 years. *Journal of Social and Personal Relationships, 40*(4), 1172-1193. https://doi.org/10.1177/02654075221116277

Windle, M., & Windle, R. C. (2019). Partner conflict and support as moderators of alcohol use on alcohol problems and marital satisfaction in young adult marital dyads. *Alcoholism: Clinical and Experimental Research, 43*(4), 668-678. https://doi.org/10.1111/acer.13977

Winters, J., Fals-Stewart, W., O'Farrell, T. J., Birchler, G. R., & Kelley, M. L. (2002). Behavioral couples therapy for female substance-abusing patients: Effects on substance use and relationship adjustment. *Journal of Consulting and Clinical Psychology, 70*(2), 344-355. https://doi.org/10.1037//0022-006x.70.2.344

Witkiewitz, K., Dearing, R., & Maisto, S. A. (2014). Alcohol use trajectories among non–treatment-seeking heavy drinkers. *Journal of Studies on Alcohol and Drugs, 75*(3), 415-422. https://doi.org/https://doi.org/10.15288/jsad.2014.75.415

Wittchen, H., Fröhlich, C., Behrendt, B., Günther, A., Rehm, J., Zimmermann, P., Lieb, R., & Perkonigg, A. (2007). Cannabis use and cannabis use disorders and their relationship to mental disorders: A 10-year prospective-longitudinal community study in adolescents. *Drug and Alcohol Dependence, 88*, S60-S70. https://doi.org/https://doi.org/10.1016/j.drugalcdep.2006.12.013

Woicik, P. A., Stewart, S. H., Pihl, R. O., & Conrod, P. J. (2009). The Substance Use Risk Profile Scale: A scale measuring traits linked to reinforcement-specific substance use profiles. *Addictive Behaviors, 34*(12), 1042-1055. https://doi.org/10.1016/j.addbeh.2009.07.001

Wolfson, J. A., & Leung, C. W. (2020). Food insecurity and COVID-19: Disparities in early effects for US adults. *Nutrients, 12*(6), 1648. https://doi.org/10.3390/nu12061648

Wolitzky-Taylor, K., Drazdowski, T. K., Niles, A., Roy-Byrne, P., Ries, R., Rawson, R., & Craske, M. G. (2018). Change in anxiety sensitivity and substance use coping motives as putative mediators of treatment efficacy among substance users. *Behavior Research and Therapy, 107*, 34-41. https://doi.org/10.1016/j.brat.2018.05.010

Woodin, E. M. (2011). A two-dimensional approach to relationship conflict: Meta-analytic findings. *Journal of Family Psychology, 25*(3), 325-335. https://doi.org/10.1037/a0023791

World Health Organization. (2020). *Coronavirus disease 2019 (COVID-19): Situation report, 79*. https://bit.ly/2HOdqiK.

Wright, E. M. (2012). The relationship between social support and intimate partner violence in neighborhood context. *Crime & Delinquency, 61*(10), 1333-1359. https://doi.org/10.1177/0011128712466890

Wycoff, A. M., Metrik, J., & Trull, T. J. (2018). Affect and cannabis use in daily life: A review and recommendations for future research. *Drug and Alcohol Dependence, 191*, 223-233. https://doi.org/10.1016/j.drugalcdep.2018.07.001

Xuereb, S., Kim, H. S., Clark, L., & Wohl, M. J. A. (2021). Substitution behaviors among people who gamble during COVID-19 precipitated casino closures. *International Gambling Studies, 21*(3), 411-425. https://doi.org/10.1080/14459795.2021.1903062

Yakovenko, I., Clark, C. M., Hodgins, D. C., & Goghari, V. M. (2016). A qualitative analysis of the effects of a comorbid disordered gambling diagnosis with schizophrenia. *Schizophrenia Research, 171*(1-3), 50-55. https://doi.org/10.1016/j.schres.2015.12.008

Yakovenko, I., & Hodgins, D. C. (2018). A scoping review of co-morbidity in individuals with disordered gambling disordered gambling. *International Gambling Studies, 9795*, 1-30. https://doi.org/10.1080/14459795.2017.1364400

Yang, H., & Ma, J. (2020). How an epidemic outbreak impacts happiness: Factors that worsen (vs protect) emotional well-being during the coronavirus pandemic. *Psychiatry Research, 289*, 113045. https://doi.org/10.1016/j.psychres.2020.113045

Yehuda, R. (2002). Post-traumatic stress disorder. *New England Journal of Medicine, 346*, 108-114. https://doi.org/10.1056/NEJMra012941

Young-Wolff, K. C., Kendler, K. S., & Prescott, C. A. (2012). Interactive effects of childhood maltreatment and recent stressful life events on alcohol consumption. *Journal of Studies on Alcohol and Drugs, 73*(4), 559-569. https://doi.org/10.15288/jsad.2012.73.559

Yu, R., Nevado-Holgado, A. J., Molero, Y., D'Onofrio, B. M., Larsson, H., Howard, L. M., & Fazel, S. (2019). Mental disorders and intimate partner violence perpetrated by men towards women: A Swedish population-based longitudinal study. *PLoS Medicine, 16*(12), e1002995. https://doi.org/10.1371/journal.pmed.1002995

Zakiniaeiz, Y., & Potenza, M. N. (2018). Gender-related differences in addiction: A review of human studies. *Current Opinion in Behavioral Sciences, 23*, 171-175. https://doi.org/10.1016/j.cobeha.2018.08.004

Zeisser, C., Thompson, K., Stockwell, T., Duff, C., Chow, C., Vallance, K., Ivsins, A., Michelow, W., Marsh, D., & Lucas, P. (2011). A 'standard joint'? The role of quantity in predicting cannabis-related problems. *Addiction Research & Theory, 20*(1), 82-92. https://doi.org/10.3109/16066359.2011.569101

Zhu, J., Racine, N., Devereux, C., Hodgins, D. C., & Madigan, S. (2023). Associations between adverse childhood experiences and substance use: A meta-analysis. *Child Abuse and Neglect*, 106431. https://doi.org/10.1016/j.chiabu.2023.106431

Zoglauer, M., Czernecka, R., Bühringer, G., Kotter, R., & Kräplin, A. (2021). The relationship between physical availability of gambling and gambling behaviour or gambling disorder: A systematic review. *Journal of Gambling Issues, 47*, 20-78. https://doi.org/10.4309/jgi.2021.47.2

Zohsel, K., Baldus, C., Schmidt, M. H., Esser, G., Banaschewski, T., Thomasius, R., & Laucht, M. (2016). Predicting later problematic cannabis use from psychopathological symptoms during childhood and adolescence: Results of a 25-year longitudinal study. *Drug and Alcohol Dependence, 163*, 251-255. https://doi.org/10.1016/j.drugalcdep.2016.04.012

Zvolensky, M., Vujanovic, A. A., Bernstein, A., Bonn-Miller, M. O., Marshall, E. C., & Leyro, T. M. (2007). Marijuana use motives: A confirmatory test and evaluation among young adult marijuana users. *Addictive Behaviors, 32*(12), 3122-3130.

Appendix A

This Agreement between Dalhousie University -- Amanda Hagen ("You") and American Psychological Association ("American Psychological Association") consists of your license details and the terms and conditions provided by American Psychological Association and Copyright Clearance Center.

Copyright © 2003, American Psychological Association. Reproduced with permission. Murray, S. L., Rose, P., Griffin, D. W., & Bellavia, G. M. (2003). Calibrating the sociometer: The relational contingencies of self-esteem. *Journal of Personality and Social Psychology*, *85*(1), 63-84. https://doi.org/10.1037/0022-3514.85.1.63.

License Number	5786501253943
License date	May 12, 2024
Licensed Content Publisher	American Psychological Association
Licensed Content Publication	Journal of Personality and Social Psychology
Licensed Content Title	Calibrating the sociometer: The relational contingencies of self-esteem.
Licensed copyright line	Copyright © 2003, American Psychological Association
Licensed Content Author	Murray, Sandra L.; Griffin, Dale W.; Rose, Paul; Bellavia, Gina M.
Licensed Content Date	Jul 1, 2003
Licensed Content Volume	85
Licensed Content Issue	1
I would like to...	Thesis/Dissertation
Requestor type	Academic institution
Format	Electronic
Portion	Measure, scale or instrument
Rights for	Main product
Duration of use	life of current edition
Creation of copies for the disabled	No
With minor editing privileges	No
In the following language(s)	Original language of publication
With incidental promotional use	No
Lifetime unit quantity of new product	0 to 499
Title of new work	Romantic conflict, coping motives, and addictive behaviours during the COVID-19 pandemic

Institution name	Dalhousie University
Expected presentation date	Aug 2024
Order reference number	050921
Portions	Description of the scale, Table 1.1 in the dissertation includes a list of the items in this scale. The items in the scale are listed in-text in the original published paper.
Requestor Location	Dalhousie University 1355 Oxford St

RightsLink Plus Terms and Conditions
American Psychological Association

The publisher for this copyrighted material is the American Psychological Association ("APA"). By clicking "accept" in connection with completing this licensing transaction, you agree that the following terms and conditions apply to this transaction (along with the Billing and Payment terms and conditions established by the Copyright Clearance Center, Inc. ("CCC") at the time that you opened your CCC account.

APA hereby grants you a non-exclusive license to use this material, subject to the conditions below.

1. Limited License.
   Licenses are for one-time use only with a maximum distribution equal to the number that you identified in the licensing process; any form of republication must be completed with 12 months from the date hereof (although copies prepared before then may be distributed thereafter); and any electronic posting is limited to a period of 12 months.

2. Credit Lines and Translation Disclaimer.
   The reproduced material must include one of the following credit lines:

   For English language content: Copyright © [year] by [Copyright Owner]. Reproduced [or Adapted] with permission. [Full bibliographic citation.]

   For translated language content: This material originally appeared in English as [full bibliographic citation]. Copyright © [year] by [Copyright Owner]. Translated and reproduced [or adapted] with permission. [Copyright Owner] is not responsible for the quality or accuracy of this translation. This translation cannot be reproduced or distributed further without prior written permission.

3. Author Permission.
   You must obtain the author's (or, in case of multiple authorship, one author's) permission. A good faith effort must be made to locate the author and obtain the author's permission. Author permission is not required for the reuse of small

excepts or 1 to 3 figures or 1 to 3 tables; or for course pack or electronic reserve use.

4. Geographic Rights.
   Licenses may be exercised anywhere in the world.

5. Book Edition Limit.
   If the APA content will be reproduced in a book, then permission is limited to the life of the current edition.

6. Online Use Limitations.
   APA full-text articles or book chapters may only be posted on a secure and restricted web site. The credit line specified in Section 2 shall appear on the first screen on which the APA content appears and shall be amended to include the following additional wording: No further reproduction or distribution is permitted without written permission from the American Psychological Association.

7. Reservation of Rights.
   APA reserves all rights not specifically granted in the combination of (i) the license details provided by you and accepted in the course of this licensing transaction, (ii) these terms and conditions and (iii) CCC's Billing and Payment terms and conditions.

8. License Contingent on Payment.
   While you may exercise the rights licensed immediately upon issuance of the license at the end of the licensing process for the transaction, provided that you have disclosed complete and accurate details of your proposed use, no license is finally effective unless and until full payment is received from you (either by APA or by CCC) as provided in CCC's Billing and Payment terms and conditions. If full payment is not received on a timely basis, then any license preliminarily granted shall be deemed automatically revoked and shall be void as if never granted. Further, in the event that you breach any of these terms and conditions or any of CCC's Billing and Payment terms and conditions, the license is automatically revoked and shall be void as if never granted. Use of materials as described in a revoked license, as well as any use of the materials beyond the scope of an unrevoked license, may constitute copyright infringement and APA reserves the right to take any and all action to protect its copyright in the materials. "$0.00" fee means that APA waived the fee.

9. License Revocation.
   APA or CCC may, within 60 days from the date of license, deny the permissions described in this License at their sole discretion, for any reason or no reason, with a full refund payable to you. Notice of such denial will be made using the contact information provided by you. Failure to receive such notice will not alter or invalidate the denial. In no event will APA or CCC be responsible or liable for any costs, expenses or damage incurred by you as a result of a denial of your

permission request, other than a refund of the amount(s) paid by you to CCC for denied permissions.

10. Warranties.
    APA warrants that it has, to the best of its knowledge, the rights to license reuse of this content. However, you must ensure that the material you are requesting is original to APA and does not carry the copyright of another entity (as credited in the published version). If any part of the material you have requested indicates that it was reprinted or adapted with permission from another source, then you should also seek permission from that original source to reuse the material.

11. Indemnity.
    You hereby indemnify and agree to hold harmless APA and CCC, and their respective officers, directors, employees and agents, from and against any and all claims arising out of your use of the licensed material other than as specifically authorized pursuant to this license.

12. No Transfer of License.
    This license is personal to you, but may be assigned or transferred by you to your employer or a business associate if you give prompt written notice of the assignment or transfer to the APA. No such assignment or transfer shall relieve you of the obligation to pay the designated license fee on a timely basis (although payment by the identified assignee can fulfill your obligation).

13. No Amendment except in Writing.
    This license may not be amended except in a writing signed by both parties (or, in the case of APA, by CCC on APA's behalf).

14. Objection to Contrary Terms.
    APA hereby objects to any terms contained in any purchase order, acknowledgment, check endorsement or other writing prepared by you, which terms are inconsistent with these terms and conditions or CCC's Billing and Payment terms and conditions. These terms and conditions, together with CCC's Billing and Payment terms and conditions (which are incorporated herein), comprise the entire agreement between you and APA (and CCC) concerning this licensing transaction. In the event of any conflict between your obligations established by these terms and conditions and those established by CCC's Billing and Payment terms and conditions, these terms and conditions shall control.

15. Jurisdiction.
    This license transaction shall be governed by and construed in accordance with the laws of the District of Columbia. You hereby agree to submit to the jurisdiction of the federal courts located in the District of Columbia for purposes of resolving any disputes that may arise in connection with this licensing transaction.