

**EXPLORING THE EXPERIENCES OF
FIRST-TIME ULTRAMARATHON ATHLETES**

by

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Abstract

In recent years, the growing popularity of ultramarathon events (endurance footraces longer than the 42.2km marathon) has attracted a wide range of participants from elite endurance athletes to recreational runners. Using a phenomenological approach, this study addresses a gap in the existing ultramarathon literature by highlighting the experiences of first-time ultramarathon participants. This research builds on existing literature investigating ultrarunners' psychology by investigating the development and application of mental skills used by these athletes while training for and competing in an ultramarathon. Eight individuals participated in this study, with data collection taking place at three time-points in their journey via a pre-race questionnaire, post-race journal entry, and follow-up one-on-one virtual interview. Qualitative data from interview transcripts and journals were analyzed together using reflexive thematic analysis, and results are presented in five major themes: (1) Preparation for the Race, (2) Physical Challenges, (3) Mental Challenges, (4) Relationships and Support, and (5) Personal Transformation. These results highlight a range of mental skills (e.g., goal-setting, imagery, self-talk, and attentional control) used by participants in their first ultramarathon. Barriers and facilitators for developing these skills are discussed (e.g., access to course-specific information). Results suggest that training for and completing in one's first ultramarathon can be a transformative experience with impacts beyond the sport. This research expands on the existing literature by highlighting the experiences of first-time participants, and has practical applications for athletes, coaches, and race directors. It also offers insight on the development of mental skills that has applications beyond the ultramarathon, for example when persevering through other challenging life events.

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Chapter 1: Introduction

Background

The purpose of this research project is to explore the experiences of first-time ultramarathon participants and to investigate how they develop and apply mental skills in the sport and in other domains of their life. An ultramarathon is defined as any endurance footrace event longer than the standard 42.2 kilometre marathon (Roebuck et al., 2018). Typically, ultramarathons or ‘ultras’ take place over distances of 50km, 80km (50 miles), 100km, 161km (100 miles), and 322km (200 miles). The time it takes to complete these distances can take anywhere from several hours to several days depending on the course and the individual. Time-limited events are another common format for ultramarathons, with runners competing to complete the greatest distance within six-hour, 12-hour, 24-hour, or even multi-day events. Ultramarathon courses may be held on any surface, but races typically include a large amount of ‘singletrack’ on rugged wilderness trails (Hoffman et al., 2010; Roebuck et al., 2018). Completing these challenging events over extreme distances and lengths requires athletes to draw on a complex variety of physical and mental abilities (Noakes, 2006).

There has been considerable growth in the popularity of ultramarathon events since the early 1970s. As noted by Hoffman and colleagues (2010), the number of ultramarathon running competitions in North America, and the number of participants in those races, has increased exponentially since first becoming popular in the 1960s. As the sport has grown in popularity over the last few decades, competitions have attracted a wide range of participants, from elite endurance athletes to recreational runners (Hoffman et al., 2010).

Associated with this increase in popularity has been a growing interest from sport and exercise researchers to understand the physiological effects of running an ultramarathon event

and the factors that impact performance (Roebuck et al., 2018). In a recent review of PubMed-Indexed publications related to ultramarathon running, Hoffman and colleagues (2020) described a rapid increase in the number of publications since 2010 with a recent plateau of approximately 49 publications annually between 2014-2018, although they noted that it still represents a small portion of sport science research publications overall. Existing research has focused mainly on the physiological factors of performance in these ultra-endurance events; studies have examined the physical challenges that individuals competing in ultramarathons must cope with, for example: dehydration (Bowen et al., 2006), sleep deprivation (Martin et al., 2018; Poussel et al., 2015), nutrition intake and gastro-intestinal distress (Rehrer et al., 1992; Stuempfle & Hoffman, 2015; Wardenaar et al., 2015) and common injuries or illnesses experienced by ultramarathon runners (Khodaei & Ansari, 2012).

There is a relatively small but growing number of researchers interested in investigating the psychology of ultramarathon runners to better understand the mental aspects of these athletes. A systematic review of existing research on the psychology of ultramarathon runners conducted by Roebuck and colleagues (2018) summarized results from fifty-one studies that investigated ultramarathon runners' personality traits, mood, cognitive function, pain perception, motivations, psychopathology, and response to a sport psychology intervention. This critical analysis revealed that the subject is still a developing area within sport psychology – half of the studies included in the review dated from 2010 or later – and that there are many results that display inconsistency or need further exploration. However, Roebuck and colleagues (2018) suggest that three main conclusions can be drawn about ultramarathon runners' psychology: (1) running an ultramarathon appears to have acute effects on mood including increased fatigue and decreased vigour; (2) almost all studies investigating the motivation of ultramarathon runners have found

that individuals tend to be motivated to participate by a desire to achieve personal goals; and (3) phenomenological studies of ultramarathon runners suggest relatively consistent findings that ultrarunners tend to have a strong psychological drive to explore physical and mental limits.

Initial investigations of ultramarathon runners' phenomenology have explored how participants themselves describe their experience of a particular ultramarathon event or their experiences of ultramarathon running generally (Roebuck et al., 2018). While mental skills were not a direct focus of any of these studies, several researchers noted overlapping themes of participants' descriptions use of mental strategies during the race. For example, Holt and colleagues (2014) describe how participants in a 125km race used goal-setting, social support seeking, and monitoring of pace to deal with stressors during the race.

Mental skills (also referred to as psychological processes, strategies, techniques, and methods) refer to "an individual's ability to use learned psychological strategies (e.g. imagery or self-talk) that allow for the regulation or enhancement of more innate psychological components (e.g., self-confidence or motivation)" (Dohme et al., 2017, p.22). Despite themes emerging related to mental skills-use in the sport psychology literature, only one study has focused specifically on the psychological strategies used by ultramarathon athletes during racing and training. Acevedo and colleagues (1992) asked participants in two different 100-mile races to report their use of mental skills and found that a variety of strategies were used by participants including visualization, setting goals, self-talk, and thought-control.

Existing studies on the psychology of ultramarathon runners generally report very little information about participants' competition level (i.e., previous race results, finish times) or previous running experiences. Previous research has focused mostly on elite athletes or recruited participants from races for which individuals must qualify, indicating some level of previous

experience with ultramarathon running (Roebuck et al., 2018). In recent years, demographics of ultramarathon participants have shifted from mostly middle-aged men to an increase in younger participants in the 25-35 year old age bracket, who Hoffman (2019) points out are likely to be less experienced runners. With these changes in participant demographics there is an opportunity for researchers to investigate the experiences of recreational/beginner runners, a population that has largely been left out of previous ultramarathon research.

This research study addressed a gap in the existing literature by focusing on the experiences of first-time ultramarathon runners. It builds on the foundational work investigating ultramarathon runners' psychology by employing a qualitative phenomenological approach to understand the experiences of these individuals and will further investigate the use of mental skills while training for and competing in an ultra. Considering that previous research has highlighted how ultrarunners have described the experience as a transformative life event (Holt et al., 2014) and that sport can be a context which aids in the development of transferable skills (Pierce et al., 2017), this study also explored how individuals develop mental skills in one context and apply them in another – for example, applying the skills they used to complete their first ultramarathon in other non-sport domains of their lives.

Purpose, Methodology and Research Questions

Despite increasing prevalence of ultramarathon races there is relatively little research on the psychology of ultramarathon runners and no existing research focusing on individuals who are competing in their first ultramarathon event (Roebuck et al., 2018). The purpose of this research study is to explore the experiences of first-time ultramarathon runners. Qualitative data were collected from eight first-time ultramarathon runners through semi-structured interviews and post-race journal entries. Data were analyzed following methods outlined in Braun and

Clarke's (2019) process for conducting reflexive thematic analysis (RTA). The theoretical framework of phenomenology was used to guide recruitment, data collection, and analysis.

The overall purpose of this research study is to explore the experiences of first-time ultramarathon athletes and to investigate how these individuals develop and apply mental skills during training and racing. This exploratory study addresses the following four primary research questions:

1. How do individuals describe the experience and impact of training for and competing in their first ultramarathon race?
2. How do first-time ultramarathon runners develop and apply mental skills during training and while competing in first ultramarathon race?
3. What experiences facilitate and inhibit the development of beneficial mental skills during training and competition?
4. How do individuals apply the mental skills they used to overcome challenges during a race to other domains of their (non-running) life?

Overview of Study Design

This research is exploratory in nature; it seeks to understand and describe the experience of training for and competing in a first ultramarathon race, including the development and application of mental skills. The qualitative lens of phenomenology was used to guide the study design. Cresswell and Cresswell (2018) describe phenomenological research as an inquiry in which the researcher documents the lived experiences of individuals who all have experience of the same phenomenon, in this case the shared experience of participating in one's first ultramarathon race. As is typical in phenomenological research, rich qualitative data were gathered to get a picture of the experiences of individual ultramarathon runners. Participants

shared their reflections on their experiences at three stages in their first-ultramarathon journey: in a pre-race questionnaire, post-race journal entry, and a follow-up one-on-one semi-structured interview. This study design allowed for significant breadth and depth of exploration to understand the unique experiences of first-time ultramarathon runners throughout the process. Data were analyzed using an interpretive phenomenological lens and following Braun and Clarke's (2017) six phases for conducting RTA.

Significance and Implications

This research contributes new knowledge about the psychology of non-elite endurance athletes to the existing literature. It also has practical applications for coaches, mental performance consultants, and athletes. The results of this study highlight mental skills that individuals use to persevere through a challenging ultramarathon race. Considering that the ultramarathon could be used as a model for examining an individual's response to extreme physical and psychological stress (Hoffman, 2019), the results of this research also have the potential to provide insights to a wider audience. Overall, this study contributes to the growing body of sport psychology literature investigating the psychology of ultramarathoners and other endurance athletes. Concurrently, it expands upon the well-established body of research investigating the use and application of mental skills in different sport settings.

The potential benefits of regular physical activity are well-documented, including improved physical health, mental health, quality of life, and well-being (World Health Organization, 2022). Training for an ultramarathon requires a significant amount of regular physical activity, with some ultramarathon athletes investing an average of nine hours of consistent weekly training (Knechtle, 2012). As ultramarathons are becoming increasingly popular around the world and in North America (Hoffman et al., 2010), the potential impacts,

risks, and benefits for runners of all performance levels are understudied. Understanding and promoting skills that recreational or beginner athletes may use to complete their first ultramarathon event can help address barriers for entry and promote opportunities to participate in the sport. Increased accessibility and visibility of the sport via more training groups and races spanning a wide variety of geographical locations and styles are attracting individuals with a variety of experience to the sport. As more individuals choose to participate in the sport, it is important to situate ultramarathon running in the sport science research (Roebuck et al., 2018). This research offers a unique lens to invite future researchers to investigate the potential psychological benefits of training for and competing in ultramarathons – for beginner runners and elite athletes alike.

Chapter Summary

The primary focus of this research is to explore the experiences of first-time ultramarathon athletes and to investigate their use and development of mental skills. Existing literature in this area suggests that experienced ultramarathon athletes draw on a variety of mental skills to overcome the extreme physical and psychological challenges presented in a race setting (Roebuck et al., 2018). Furthermore, previous qualitative research has revealed that participants who complete an ultramarathon may perceive it as a significant transformative event in one's life (Holt et al., 2014), suggesting that participating in the event may aid in the development of psychological skills. This chapter introduced the objectives of this exploratory study, highlighting how this research with first-time ultramarathoners expands upon the existing literature and can deepen our understanding of how individuals in the sport develop and apply mental tools.

To provide the reader with an overview of the trail ahead, I will provide a brief summary of the full “course map” of this thesis. Chapter Two expands on the existing literature surrounding ultramarathoners’ psychology and mental skills. Chapter Three provides an overview on the research design and methodology chosen for this research study. Chapter Four presents the results from this research, and the final chapter provides a discussion of the results to situate them in the context of practical applications and future research directions.

Chapter 2: Literature Review

This chapter offers a review of key literature that situates this research study in the existing ultramarathon-related research. It begins with a review of sport-specific literature, providing an overview of the history of ultramarathon participation and existing research on the psychology of ultramarathon runners. Next, it summarizes the sport psychology literature investigating psychological skills transfer and discusses the use of mental skills in ultramarathon running. Finally, this chapter highlights the unique contributions this study makes to address gaps in the existing literature.

Overview of Ultramarathon Participation

To provide context for the growing body of literature on ultramarathon running events, this section will review historical trends in the growth of ultramarathon events and participation to date. As noted in the previous chapter, the prevalence of ultramarathon events has grown considerably since these races first became popular in the 1960s, although researchers acknowledge that foot races longer than the marathon have existed for centuries (Hoffman, 2020). Research related to ultramarathon running has also seen an increase in recent years, however the number of published studies with ultramarathon participants is still small relative to other sports (for reference, a search of PubMed-indexed publications from 1970-2019 resulted in 616 studies for ultramarathons compared to 10,900 for soccer and 8500 for tennis) and there are many opportunities for future research as participation in the sport continues to grow (Hoffman, 2020).

A historical analysis of participation trends in 100 mile (161km) ultramarathon running events in North America revealed that the annual number of events and recorded finishers increased exponentially from 1977 through to 2008 (Hoffman et al., 2010). A more recent study

by Hoffman (2020) noted that this exponential growth lasted until roughly 2010, after which participation has tapered but still displayed steady growth. In contrast, Hoffman (2020) compared this to marathon participation which increased steadily for three decades until 2016, then showed a decline in numbers. The study by Hoffman and colleagues (2010) also revealed trends in the participants themselves, highlighting three key changes in demographics: (1) an increase in participation among runners under 40 years old – from 40% of the total finishers in the mid-1980s to 65-70% of finishers in races between 1996 and 2008; (2) an increase in female participants from almost non-existent in the late 1970s to nearly 20% in races occurring since 2004; and (3) an increase in the average annual number of races each individual completes to 1.3 (Hoffman et al., 2010).

As research into this sport continues to develop, it will be important for ultramarathon researchers to consider these changes in participation demographics to provide a holistic understanding of the experience of ultramarathon runners. Researchers have recommended that future studies report pertinent details on study participants including their age, sex, race results, and relative experience (Hoffman, 2020; Roebuck et al., 2018). I will provide description of the latter in the following section and highlight some gaps in existing research in relation to this particular participant demographic.

Reporting Participant Experience

Despite the changes in ultramarathon participation trends in recent years, most of the existing research in the sport psychology literature has focused on elite runners or recruited participants from competitive events for which individuals must qualify. An example of the latter would be Holt and colleagues' (2014) examination of runners' experiences competing in the Canadian Death Race (CDR), in which all participants had previously completed ultramarathons

and several had competed in the CDR multiple times. Additionally, few studies have included the performance level of participants (i.e., previous experience and race results) and those that do have inconsistently reported this information (Roebuck et al., 2018). Most studies that report these data simply indicate that individuals have previously competed in x number of ultramarathon events. For example, a study by Simpson and colleagues (2014) grouped participants as “experienced (more than 10 ultramarathons completed), “inexperienced” (10 or fewer ultramarathons completed), and “elite” (professional status). Future research should continue to define the previous race experience of individuals included in a study sample and expand upon the experiences of mostly elite or highly competitive runners that have been included in research thus far.

To date, no existing studies on the psychology of ultramarathon runners have specifically focused on the experiences of first-time competitors in these events, a gap this study has addressed by capturing the experiences of this participant demographic. The following section will provide an overview of the small but growing body of literature that does exist on the psychology of experienced ultramarathon runners, which provided foundational knowledge to inform this research study.

Psychology of Ultramarathon Runners

As noted in the previous chapter, research on the psychology of ultramarathon participants is still relatively small in comparison to other sport psychology literature (Hoffman, 2020), however with the growth in popularity of ultramarathon events in recent years there has been increased interest from researchers on the psychological effects of ultrarunning and the psychological characteristics of the runners themselves. A systematic review conducted by Roebuck and colleagues (2018) included 51 studies regarding the psychology of ultramarathon

runners that investigated a range of topics: ultramarathon runners' personality traits, mood states, cognitive function, pain tolerance/perception, motivations, psychopathology, phenomenology, response to a sport psychology intervention, and one study investigating the cognitive processes of ultramarathon runners during a race. While the researchers noted that several areas of inquiry demonstrated inconsistent results, key findings from this review indicated that studies had similar conclusions in three main areas, which are summarized in the following paragraphs.

First, previous studies demonstrated consistent results that participants experience changes in mood following the completion of an ultramarathon race. These changes include an increase in fatigue and decrease in vigour and tension, both of which usually resolve one week to one month after the event (Roebuck et al., 2018). Eight of the studies included in this review used the Profile of Mood States (POMS) or the Brunel Mood Scale (BRUMS) to measure how running an ultra affected six mood states: anger, confusion, depression, fatigue, tension, and vigour. Seven of the studies displayed highly consistent results that running an ultra was associated with increased fatigue and decreased vigour. Tension was also found to decrease after running an ultramarathon in four of these studies. These mood effects associated with running an ultra were found to resolve within one week to one month after the event according to three of the studies included in the review.

Second, the opportunity to achieve personal goals has been found to be the most important motivating factor for ultramarathon runners (Roebuck et al., 2018). Six studies explored motivations of these athletes using the Motivation of Marathoners Scale (MOMS) or an adapted version of this scale created for ultramarathon runners, and this factor was found to be almost universally the most important reason for taking part in the sport. Roebuck and colleagues (2018) noted that this finding differs from existing research on motivations for marathon runners,

who tend to report mixed motivations that include self-esteem and health-related reasons for participation as well as goal achievement.

Third, Roebuck and colleagues (2018) noted that phenomenological studies of ultramarathon runners have identified relatively consistent results with several overlapping themes. Of the 51 studies included in this review, seven employed a phenomenological approach to understand how ultramarathon runners describe their experiences of a particular ultramarathon event or their experiences with ultramarathon running generally (Roebuck et al., 2018). Data collection in these studies has included interviews, focus groups, and participants' written materials (i.e., journals), with the analysis involving searching for themes among the participants' responses. Common themes from these studies included participants' descriptions of a personal drive to explore physical and mental limits (Crust, 2008; Simpson et al., 2014), a sense of community among participants in an ultramarathon race (Holt et al., 2014; Jaeschke et al., 2016; Simpson et al., 2014), viewing finishing the race as success (rather than placing significance on finish time or position among other competitors) (Holt et al., 2014; Simpson et al., 2014), and a sense of pain being a normal part of racing (Crust, 2008; Simpson et al., 2014). Based on appropriateness and effectiveness of this approach in existing research, the researchers recommended that future studies continue to employ this methodology. Thus, the theoretical framework of phenomenology was selected to guide all steps in the research process for this research study. This methodology will be described in further detail in the following chapter.

Roebuck and colleagues (2018) provided a foundational review of the existing literature on the psychology of ultramarathon athletes and suggested several avenues of exploration for future research. They discuss exploring psychological factors related to ultramarathon runners' performance (including pain perception and other cognitive skills) as potential avenues for future

inquiry, noting that there may be wider applications for public health related to understanding the psychological factors that contribute to ultramarathon runners' abilities to take part in extreme levels of physical activity. As noted by Hoffman (2020) after nearly half a century of ultramarathon research the field is still seeing continued growth and there is still much that is unknown about these endurance athletes. This research study contributes to the growing body of research on the psychology of ultramarathon runners by focusing on an understudied demographic (first-time ultramarathon runners), employing a phenomenological approach which has been used effectively in previous studies, and exploring mental skills-use in ultramarathon runners – the last of which will be outlined in further detail in the following sections.

Defining Mental Toughness

Mental toughness has been a topic of inquiry in previous ultramarathon research (Crust, 2008; Jaeschke et al., 2016) and has also come up as a theme in the results of qualitative studies with ultramarathon runners (Holt et al., 2014), however the concept of mental toughness is generally poorly defined in the literature. A recent study sought to define this term for ultramarathon running based on the survey responses of 408 ultramarathon runners (Jaeschke et al., 2016). Qualitative analysis of the open-ended responses resulted in the following definition: “mental toughness in ultramarathon running is the ability to persist and utilize mental skills to overcome perceived physical, psychological, emotional, and environmental obstacles in relentless pursuit of a goal” (Jaeschke et al., 2016, p. 64). This definition captures several important constructs in relation to how researchers can understand the mental aspects of ultramarathon running: it highlights that individuals in the sport must draw on mental skills to persevere, and it also summarizes the kinds of barriers (i.e., physical, psychological, emotional, and environmental) that individuals in the sport often face.

Building on this topic, a recent study sought to understand how mental toughness related to performance in elite ultramarathon athletes competing in the Hawaiian Ultrarunning Team's Trail 100 mile endurance run, also known as the HURT100 (Brace et al., 2020). While the researchers found no significant correlations between scores on a standardized mental toughness questionnaire (the Sports Mental Toughness Questionnaire, or SMTQ) and performance (measured in whether or not they finished, and in performance time/position), they did find that a sample of participants in the HURT100 scored significantly higher on a standardized mental toughness questionnaire than individuals in other sports (Brace et al., 2020). The researchers suggested that these findings indicate it may be likely that individuals must meet a certain threshold of mental toughness before being able to train for and compete in elite ultramarathon events such as the HURT100. Based on these results, they also noted that psychological skills use/training could play a role in helping non-elite individuals advance to participating in more challenging races.

Taken together, the definition of mental toughness provided by Jaeschke and colleagues (2016) and the results from Brace and colleagues' (2020) research with elite ultramarathon runners suggests that a deeper understanding of how individuals develop 'mental toughness' could contribute to understanding how individuals advance in the sport. Furthermore, since the application of mental skills plays a critical role in this definition, exploring how individuals develop and apply these skills at early stages of their participation in the sport will contribute new insight to this field of research. The following section will expand upon this topic, providing an overview into the existing research on psychological skills, their transferability to other non-sport domains of life, and existing research on the use of mental skills in ultramarathon running.

Psychological Skills Transfer

Skill transferability refers to the ability to apply a skill that is learned in one context to another context that is different from the one where a skill was originally developed (Sebri et al., 2020). There is extensive support from the existing literature that skills developed in the sport context can help individuals succeed in their everyday lives. Researchers have noted that sports provide an opportunity for athletes to develop skills that they can then transfer to other domains of life (Gould & Carson, 2008; Sebri et al., 2020). In particular, existing studies have highlighted how participation in sport fosters athletes' development of cognitive and emotional skills such as goal-setting, emotional regulation, decision-making, and focus which can be applied in other domains of their life (Gould & Carson, 2008). As noted by Pierce and colleagues (2018), the process of skills transfer from sport to non-sport settings may be implicit (i.e., athletes acquire and apply skills on their own without intention) or explicit (i.e., a coach or other mentor intentionally focuses on training the athlete to develop certain abilities).

Although psychological skills transfer has not been the specific focus of previous research in the ultramarathon context, existing studies have identified it as an area for potentially fruitful exploration. For example, Hughes and colleagues' (2003) noted that future studies should examine how individuals change as a result of their participation in these endurance events. Similarly, Holt and colleagues (2014) found that participants described competing in an ultramarathon as the most challenging thing they had done in their life. They noted how the ultramarathon event presented an opportunity to learn important lessons and suggested that, "it would be reasonable to conclude that such races are significant moments in individuals' lives. Coping with extremely challenging circumstances may create conditions for psychological growth" (Holt et al., 2014, p.33). Given this, the theoretical framework of psychological skills-

transfer informed this research study to understand how ultramarathon runners might develop and apply mental skills in the sport and in other non-sport domains of their lives.

Mental Skills for Ultramarathons

Ultramarathon races present a unique opportunity to learn more about the skills individuals draw on to respond to “self-induced” levels of extreme stress (Hoffman, 2020). While most of the research with ultramarathon participants has focused on the physiological effects (examining the body’s response to and recovery from the stress induced from these endurance events), researchers have suggested that the sport presents a rich opportunity to understand the mental skills that one must learn and apply to complete an ultramarathon race. Since individuals who compete in these distances rarely replicate the challenges of the race in their training (i.e., a training plan for a 50km or 100km race does not usually include doing the full distance at any point prior to the event), it is possible that the event itself may act as a training ground to develop some of these critical mental strategies. Running an ultra thus has the potential to act as a learning ground to develop mental skills, which could then be transferred to future races as well as other non-sport domains of life.

Previous studies have suggested that experienced ultramarathon runners use a combination of mental strategies during racing and training. Mental skills-use has emerged as a theme in existing phenomenological studies (Crust, 2008; Holt et al., 2014; Jaeschke et al., 2016; Simpson et al., 2014), in which researchers identified a variety of strategies that participants used in training and racing including: focus, goal-setting, self-talk, thought control, imagery, and using social supports. Two previous studies have specifically investigated the use of mental skills during an ultramarathon race and found similar results. Acevedo and colleagues (1992) found that participants used a variety of strategies including visualization, reading race materials before

the competition to prepare, self-talk, and thought control (focusing attention on either internal sensations or “disassociating” by focusing thoughts externally) during racing and training.

Another study investigated the impact of a sport psychology intervention where ultramarathon runners who were taught to use motivational self-talk were compared to a control group and found that their race performance did not differ significantly, but that the individuals who took part in the intervention reported that they found it helpful and they continued to use self-talk in future training and races (McCormick et al., 2018).

Although research on mental skills-use in ultramarathons is still quite limited, these findings provide important insight into the variety of mental strategies that experienced ultramarathon runners use during training and racing. Given that existing studies have included samples of participants who are experienced or elite ultramarathon runners, little is known about how individuals at the early stages of their participation in this sport develop and apply these important mental skills. This research study contributes new understanding about how first-time ultramarathon runners use these skills and whether the ultra itself may act as a training ground for developing these beneficial mental skills for future races and other non-sport domains of life.

Chapter Summary

This chapter highlighted key findings from the existing research on ultramarathon participation trends, ultramarathon runners’ psychology, and the development and transferability of mental strategies from sport to other domains of life. Researchers have highlighted significant growth in the prevalence of ultramarathon events and observed increased participation in races over the past half a century (Hoffman et al., 2010; Hoffman, 2020). Similarly, this growth in popularity has been followed by considerable attention from researchers on the physiological characteristics of ultramarathon athletes, and a small but growing body of literature investigating

the psychology of ultramarathon runners (Roebuck et al., 2018). Initial research on the psychology of ultramarathon runners has demonstrated consistent results related to mood states following ultras (increased fatigue and decreased vigour), motivation for achieving personal goals, and phenomenological findings that suggest ultramarathon runners share a desire for achieving personal limits and find a sense of community from running ultras (Roebuck et al., 2018). Finally, this review also summarized initial findings related to mental skills-use in ultramarathons (i.e. self-talk, goal setting, imagery, thought control, and focus) and provided a summary of the existing literature on psychological skills transfer, which discusses how sport can be a context to develop beneficial mental skills that one can transfer to other non-sport domains of life (Sebri et al., 2020).

This research builds upon the existing literature, furthering our understanding of the psychology of these endurance athletes by focusing on first-time ultramarathon runners, a growing demographic in the sport which to date has been understudied. It will employ the use of phenomenology to investigate the lived experiences of these athletes, which has been identified by previous researchers as an effective methodology for this area of inquiry. Finally, it will draw on existing theories about psychological skills-transfer from the sport psychology literature to contribute new understanding about the development and application of mental skills used by ultramarathon athletes in training and racing as well as in other non-sport domains of their lives.

Chapter 3: Research Design and Methods

In this exploratory qualitative study, I employed a phenomenological approach to explore the experience of running one's first ultramarathon. In this chapter, I provide insight into the methodology that guided my study design, reflect on my own positionality as a researcher in relation to the topic, and describe the methods used throughout the research process. To reiterate the objectives highlighted in the first chapter, the purpose of this research study was to explore the experiences of first-time ultramarathon athletes and to investigate how individuals in the sport develop and apply mental skills during training and racing. This study addressed the following four primary research questions:

1. How do individuals describe the experience and impact of training for and competing in their first ultramarathon race?
2. How do first-time ultramarathon runners develop and apply mental skills during training and while competing in first ultramarathon race?
3. What experiences facilitate and inhibit the development of beneficial mental skills during training and competition?
4. How do individuals apply the mental skills they used to overcome the challenges during a race to other domains of their (non-running) life?

Research Approach and Methodology

This research study employed a qualitative lens of inquiry to explore the psychology of ultramarathoners and to understand phenomena that have been previously understudied in the literature. As noted in the previous chapter, the existing literature on the psychology of ultramarathon athletes suggests that there is much to be learned from exploring the phenomenology of ultrarunning. Several existing studies examining the psychology of

ultrarunners have used this approach and found considerable overlap in themes of how ultrarunners describe their experiences of running an ultramarathon (Roebuck et al., 2018). Thus, this research will continue to build on this approach and will be guided by a theoretical framework of phenomenology in order to understand the lived experiences of first-time ultramarathon runners.

Phenomenology is often employed in qualitative research to explore a phenomenon experienced by individuals by gathering detailed information about the participants' lived experiences with that phenomenon (Creswell & Cresswell, 2018). Interpretive phenomenology is concerned with interpreting and understanding the lived experiences of participants. It is also concerned with how someone's personal background may influence how they interact with a particular phenomenon (Woll, 2013). Phenomenology as a discipline was first introduced in the early 20th century by philosopher and mathematician Edmund Husserl, who challenged notions of logic at the time by asserting that much could be learned by studying the subjective conscious experience of phenomena. In his text *Logical Investigations*, Husserl laid the foundations for phenomenological research and described the concept of "intentionality" or the directed (intentional) experience of the world through thoughts, feelings, and ideas (Smith, 2005). Alternative methods of phenomenology were later developed by Husserl's student Heidegger, who challenged the original theorist's method of "bracketing" (the researcher setting aside personal beliefs) to objectively research a phenomena. Instead, Heidegger suggested that the researcher's experiences played a key role in the interpretation of the data. This study will be based on Heidegger's approach to phenomenology, which ultimately suggests that the researcher's lived experience in relation to a phenomena being studied expands the quality of the work (Smith, 2005).

In this study, the central phenomenon being studied is an individual's lived experiences participating in their first ultramarathon event. The use of phenomenology guided all stages of the research design and process. For example, at the recruitment stage of this research participants were invited to participate using criterion sampling, a common method in phenomenological research to select individuals who have a shared experience of a particular phenomenon or significant life event but differ in other aspects of their background and experiences (Moser & Korstjens, 2018). Phenomenology also informed how I collected and analyzed data, which I describe in further detail later in this chapter. I approached data collection with open-ended inquiry to support participants in making meaning of their experiences, providing prompts that elicited stories and reflections of their first ultramarathon. I followed Braun and Clarke's (2019) methods for RTA to generate a set of themes reflective of participants' experiences, guided by an interpretive phenomenological lens to code and interpret the data.

Researcher Reflexivity

As noted by Cresswell and Cresswell (2018), the researcher in qualitative studies holds certain biases, values, and identities that shape the interpretations during the research process. My own identity is shaped by my experiences as a white middle-class female from a rural community in Atlantic Canada. I have the privilege of higher education with an undergraduate degree in psychology and leadership studies, and I am currently pursuing graduate studies in sport psychology as part of the certification process to practice as a Mental Performance Consultant.

My personal experiences as a young female ultramarathon runner have inspired my interest in this research topic. I participated in my first ultramarathon (a 150km multi-day self-

supported stage race) in 2016 and since then have competed in races ranging from 50km to 200miles. Running ultras has helped me to hone mental skills (particularly goal setting, self-talk, and imagery), which I have applied in the sport as well as in other aspects of my life.

Additionally, I have been inspired by witnessing many strangers and friends discover the sport and cross the finish line of their first ultramarathon race. Post-race conversations with running friends have often touched on the mental aspects of their race – from needing to adjust goals mid-race to overcoming unplanned challenges and embracing discomfort. Anecdotally, many ultrarunners talk about how running these endurance events requires “mental toughness” (a term which I investigated in the sport psychology literature, and learned that previous researchers have sought to define specifically for the ultramarathon context). My ultrarunning mentor and coach, Canadian adventurer and endurance athlete Ray Zahab, says that in this sport “Limitations are 90% mental, and the other 10% is all in your head” (Zahab, n.d.). All of this to say, I hold biases that there is a mental aspect to running ultramarathons that has influenced the choice of this research topic.

As an athlete and mentor in the ultramarathon community, my positionality enriches the research process by contributing to my access to potential participants as well as my ability to understand and communicate with participants in this study. As noted by Braun and Clarke (2021), my own beliefs, values, and biases as a researcher are an inherent part of the process. Pointing out the interpretive role of a researcher in conducting RTA, they note that an individual “reads data through the lenses of their particular social, cultural, historical, disciplinary, political, and ideological positionings. They edit and evoke participant ‘voices’ but ultimately tell their story about the data” (Braun & Clarke, 2021, p. 12). My own biases and experiences shaped my interpretation and understanding of participants’ descriptions of their experiences as well as my

choices about what elements of their descriptions are meaningful. This influenced how I conducted the interviews with participants, transcribed them, and analyzed the data. Rather than trying to achieve objectivity, reflecting on these biases and naming the theoretical underpinnings that guided the research process are a part of striving for research quality. As a young researcher still developing my skills as an analyst, I have also benefitted throughout this process from feedback and guidance from my thesis supervisory committee, the institutional Research Ethics Board process, and from following theoretically-informed methodological processes.

Participants

Eligibility Criteria

This research set out to explore the experiences of first-time ultramarathon runners, therefore the main recruitment criteria was individuals who were competing in their first ultramarathon event. Participants also needed to meet the following criteria: (1) over the age of 18 years, (2) registered for their first trail ultramarathon race between August-October 2022, (3) reside in Canada, and (4) able to communicate in English. Individuals may have had previous experience competing in running events under 50km (for example, a marathon runner), or may have completed over 50km in a self-organized run (for example, during training), but should not have competed in an ultramarathon race prior to taking part in this research.

For the purpose of this study, participants were able to continue in the research if they started the race but did not finish (known in the ultrarunning world as a ‘DNF’), which in ultramarathons is a relatively high possibility compared to shorter-distance races. The DNF rate for an ultramarathon race can vary depending on the course conditions, weather, and other variables. A 2014 article published by the online trail and ultrarunning publication iRunFar examined the finish rates of 127 different 100-mile races, and noted that “most hover near 50%

and drop as low as 3%. It doesn't matter if the event is new, established, large, or small" (Torrence, 2014). Previous research on individuals who DNF a race indicates that participants still gained valuable experience from the event, suggesting that it may be an opportunity to develop important skills even if an individual was unable to complete the race (Rochat et al., 2017; Roebuck et al., 2018).

Although ultramarathon events take place throughout the year, this research targeted participants who were registered for events taking place between August-October 2022. This timeline was selected to fit with both the academic timeline for my thesis, and also because it aligns well with a typical race season for recreational runners. First-time ultramarathoners may begin training in the spring for competitions in the late summer and fall, the time period selected for data collection. This timeline also allowed for data collection to begin at least two weeks before and continue for up to eight weeks after their first ultramarathon event. A non-exhaustive list of local races that took place within this timeframe were compiled to demonstrate feasibility for this study (Appendix A).

Recruitment and Participant Selection

Participants were recruited through posts on social media sites (Appendix B) and, with the support of race directors, via targeted email outreach to registered participants of ultramarathon events taking place within the research timeframe (Appendix A). Interested individuals were screened via email to ensure they met the eligibility criteria, and criterion sampling was used to invite participants based on having a balance of gender and participation in different ultramarathon races.

These criteria were used to ensure the sample of participants reflected a range of first-time ultramarathon experiences. It was important to me to recruit a balance of male- and female-

identifying or gender diverse individuals for this study. There are typically more men than women who compete in ultramarathon races, and previous research has largely included samples that are either entirely or mostly male (Hoffman et al., 2010). There is a lack of female experiences reflected in the existing literature, which is a gap this study aimed to address by recruiting an equal balance of men and women for the study sample. Having a variety of ultramarathon events included in the sample would increase the generalizability of the results, since participants would have varied experiences in terms of the race variables – i.e., weather, trail conditions, participant size, and communication from race directors.

Selected participants were informed of study information, the research timeline, and invited to complete a written consent form indicating that they understood and agreed to participate in the research process. Participants were also informed that they would be compensated for their time with a \$25.00 gift certificate to an outdoor gear retailer of their choice upon completion of the interview.

Eight individuals participated in this study (four men and four women). This number was selected to fit with suggested sample size for phenomenological research, which suggests that anywhere from three to ten participants are sufficient for phenomenological research (Cresswell & Cresswell, 2018). It also ensured that I would have sufficient data to work with if participants needed to withdraw from the research process at any point, for example if they were unable to start their race due to injury.

Participants completed races ranging in distance from 46km-165km, with the most common distance being 50km ($n=5$). All of the events took place in Eastern Canada (Quebec, Nova Scotia, and Newfoundland) between August-October 2022, and in total there were six

different races represented in this sample. Participants all lived in Atlantic Canada, and their ages ranged from 33 to 45 years old. All eight participants finished their first ultramarathon.

Data Collection

Phenomenological research requires rich detailed data and typically uses open-ended methods for data collection to gather insights about the participants' lived experiences (Cresswell & Cresswell, 2018; Woll, 2013). To explore the depth and breadth of individuals' first ultramarathon experiences, a combination of qualitative data collection methods were employed. Each participant was asked to complete a brief pre-race questionnaire, a post-race journal, and a one-on-one semi-structured interview. The participants' timeline for data collection is detailed in the diagram below (Figure 1).

Figure 1.

Participants' timeline for taking part in the research process



Participants completed the online pre-race questionnaire at least two weeks before their scheduled race to collect demographic information and answer open-ended questions about their race plans (Appendix C). Obtaining this information allowed me to send reminder emails for the participant to complete the journal entry and schedule the follow-up interview within the

appropriate timeframe after their race. It also provided important context about each participant's background to inform our interview and my own interpretation of the data. To gather each person's thoughts and feelings shortly after completing the race, participants were given instructions and prompts to complete a reflective journal entry within one week of finishing their race (Appendix D). Journals are a useful method of data collection to capture the participants' experiences in their own words close to the time of the event (in this case, completion of the race) (Creswell & Cresswell, 2018). The use of diaries/journal entries has also been highlighted as a useful research tool for data collection in phenomenological research (Morrell-Scott, 2018; Woll, 2013). Finally, post-race interviews were conducted virtually one-on-one with participants to gather information about their experiences 6-8 weeks after their race (Appendix E). Interviews are a common tool for data collection in phenomenology (Creswell & Cresswell, 2018), and the use of semi-structured interviews allowed the participants to reflect further on their experiences during the race as well as any lessons learned since their first ultramarathon, for example by discussing potential applications of mental skills they used during the race to non-sport settings since the race.

Participants submitted their post-race reflection to me via email upon completion of their race, and I reviewed each journal prior to the follow-up interview to highlight important points to explore further during our discussion. Interviews took place on the Zoom video conferencing platform, and were audio-recorded then transcribed verbatim using a transcription software. I then reviewed each transcript while listening to the recording to ensure correctness and edit for clarity. By conducting the interviews and transcribing the data, I was immersing myself in the data early in the analysis process. Braun and Clarke (2019) suggest that the process of

transcription allows the researcher to become familiar with the data through the slow and meticulous process of capturing the information provided by participants.

Ethical Considerations

This research was approved by Dalhousie University's Health Sciences Research Ethics Board (Appendix F). Participants were informed of the research objectives and process, invited to ask questions about their participation, and provided written consent (Appendix G) for their participation in this research.

Data Analysis and Interpretation

The data analysis for this research was underpinned by the theoretical framework of phenomenology, in which the researcher seeks to describe and interpret the meaning of an individual's lived experience by identifying common themes within the data (Moser & Korstjens, 2018). RTA was selected as the method for systematically organizing and analyzing the data (Braun & Clarke, 2019) to find patterns of meaning across the data and generate a set of themes reflective of my interpretation of the participants' descriptions of participating in their first ultramarathon. RTA differs from Interpretive Phenomenological Analysis (IPA) in several ways, but most obviously in that it has a focus on patterns of meaning across datasets rather than a more ideographic focus on personal narratives of participants (Braun & Clarke, 2019), which is why it was selected for this research study. As noted by the researchers (Braun & Clarke, 2017), RTA offers a flexible approach to qualitative data analysis that can be used with a wide range of theoretical frameworks. It can be used within phenomenological research to identify patterns in data in relation to participants' lived experiences and views. RTA can be used in research with small sample sizes and with a range of qualitative data collection techniques, including interviews and written documents as were used in this research project (Braun & Clarke, 2017).

My method for data analysis was guided by Braun and Clarke's (2019) six-phased process for conducting RTA. While RTA offers a systematic method for conducting data analysis, Braun and Clarke also note that "the process involves immersion in the data, reading, reflecting, questioning, imagining, wondering, writing, retreating, returning. It is far from mechanical and is a process that requires 'headspace' and time for inspiration to strike and insight to develop" (Braun & Clarke, 2021, p.5). The first phase of RTA involved familiarizing myself with the entire dataset, a process which began during data collection when I read through the participants' journal entries and then conducted the interviews with participants. Audio recordings were transcribed verbatim using an online transcription software, and immersion in the data continued as I listened to the audio recordings to check each transcript and ensure it accurately captured the participants' information. Once data collection was complete, I further immersed myself in the entire dataset by re-reading through each data item in one sitting. I read through each participant's race questionnaire, journal entry, and transcript – first making notes on each individual item, then summarizing across all three data items key ideas I might want to explore further in the coding process. I did this for each participant's data items, then read through my summary notes to highlight initial insights across the dataset.

After familiarizing myself with the entire dataset, I then moved to the second phase of RTA – coding the data (Braun & Clarke, 2019). I reviewed the journal entries and interview transcripts together in the NVivo software for analysis, generating codes to capture important features in the data relevant to my research questions. This process involved labeling mostly 'semantic' codes that captured participants' descriptions of their experiences as well as identifying 'latent' codes that reflected my own interpretations of meaning behind their descriptions. As noted by Braun and Clarke (2021), the process of coding can occur across a

spectrum of semantic to latent code development to explore meaning in the data. This coding process was situated in an open interpretive and reflexive process and did not involve the use of any pre-existing coding framework or guidebook.

The third phase of RTA involved examining all the codes in the data and grouping them together to identify broader patterns of meaning across the dataset. Searching for patterns of meaning across codes meant that potential themes were developed directly from the data in this process. In RTA, themes are conceptualized as “patterns of shared meaning, united by a central concept or idea” (Braun & Clarke, 2021, p.14). In this process of early theme development, I looked for patterns in the data connected to a particular central concept and grouped the relevant codes together. This iterative process was connected to the fourth phase of RTA, which involved developing and reviewing potential themes. I checked the initial themes against the entire dataset to ensure that they captured meaningful concepts across participants’ experiences. I also reviewed the themes in relation to my initial research questions to determine whether they adequately addressed the questions, which led to revising the themes to ensure they reflected a clear story. For example, I noted in the first round of this process that I had answered the first research question (i.e., capturing participants’ *experiences*) but did not adequately address the research questions related to mental skills-use. This phase involved combining, revising or discarding potential themes to ensure that they both addressed the research questions and captured patterns of shared meaning across the dataset.

Moving to phase five, I refined the scope and focus of each theme. This involved organizing the subthemes of data into a coherent story, as well as deciding on names for each theme and a sequence to present them in that made sense. The five major themes reflect the story of a participants’ first ultramarathon experience and follow the flow of a participants’ journey

(e.g., from preparation to the race to the post-race reflections). This phase often overlaps with the sixth and final phase of RTA, which involves producing a final report (i.e., a written thesis) that weaves together the data extracts and includes an interpretation of the data for each topic (Braun & Clarke, 2019). The next chapter presents the results of this analysis in five major themes: (1) Preparation for the Race, (2) Physical Challenges, (3) Mental Challenges, (4) Relationships and Support, and (5) Personal Transformation.

Chapter 4: Results

Considerations

The purpose of this research was to explore the experiences of first-time ultramarathon athletes. In the following sections, I will present the data and summarize the findings with examples from the participants' own descriptions as well as my own interpretation of the data. However, it is first important to note how the methodology that guided this research played a role in the creation of these results. While early phenomenologists such as Husserl believed in a principle of epoché (also referred to as bracketing) to suspend one's own beliefs and judgement to discover the essence of meaning without bias, in the theoretical lens of interpretive phenomenology, a researcher is not able to "bracket" themselves from bias – instead, their own lived experiences shape how they interact with and interpret the data throughout the research process (Smith, 2005). Similarly, Braun and Clarke (2021) note that a researcher's own interpretation of the data is an inherent part of the process of doing RTA. They suggest that interpretive depth is influenced by the researcher, who reads and makes meaning of the data through the lens of their own social, cultural, historical and ideological background (Braun & Clarke, 2021). As noted in the previous chapter, my own positionality as a researcher and ultramarathon athlete influenced my choices throughout this research process. My own lived experience as an ultramarathon athlete and knowledge of existing relevant literature is considered a strength in the research process. This shaped the questions and prompts that I asked during the interviews, my interpretation of the data, and how I chose to describe the final themes. I encourage the reader to take this information into consideration when reading the themes presented in the following pages.

Summary of Major Themes

This section presents the results of the data analysis, in which individuals' experiences with participating in their first ultramarathon are characterized by the following major themes: (1) Preparation for the Race, (2) Physical Challenges, (3) Mental Challenges, (4) Relationships and Support, and (5) Personal Transformation. These results are summarized in the following table.

Table 1

Summary of Results

Theme	Subthemes
Preparation for the Race	Mental preparation Physical preparation
Physical Challenges	Pain and discomfort Expectations Was it really that hard?
Mental Challenges	Late onset Managing the mental game
Relationships and Support	Other race participants Family and friends Self-support
Personal Transformation	Personal achievement New possibilities Beyond the ultramarathon

Theme One: Preparation for the Race

This theme captures participants' descriptions of the preparation they completed leading up to the start of their first ultramarathon race. Many of the participants felt well-prepared for their first ultra, and they described the significant investment of time they put into their training and preparation. This was exemplified by the following individual in his interview, "I had never placed so much focus on preparation for a single event before in my life." (Participant 2).

Participants discussed elements of both mental and physical preparation that were an essential part of their experience, which I describe in the following subthemes.

Mental Preparation

The participants discussed several aspects of their mental preparation for the race, which involved familiarization with course-specific information (via the race website and communications) as well as learning about how to prepare mentally for ultrarunning more generally (via materials such as podcasts, books, and videos). This information supported their ability to use the mental strategies goal-setting and imagery as part of their mental preparation, discussed below in more detail.

Goal Setting. Heading into the race, all the participants expressed a similar overall goal: to finish their first ultramarathon. One participant summarized this concisely in her journal “my goal was simple: just finish” and also explained her reasoning behind it, “I didn’t want to put pressure on myself since the challenge was pressure enough” (Participant 5). In addition to this, many of the participants also hoped to finish within a certain time, although as noted by the following participant this was often secondary to the ultimate goal of “just to finish! I would like 9 hours but crossing that line is all I want” (Participant 8). The participants used the races’ official cut-off times, their own previous road race results compared to trail running times, and previous years’ results from the race to set a range of time-based goals. Some participants noted that it was a challenge to set time goals for themselves since they did not have a previous race result at a similar distance to compare it to. Others described how the terrain and weather, and the ways their body and mind might experience of the distance could impact their finish time. This reflected a belief that there was a certain amount of “unknown” involved in completing their first ultra that could impact their performance during the race.

Participants also used goal setting as a strategy to break the race up into shorter milestones as well as stay motivated during the race. All participants discussed thinking about their goals ahead of the race, and many of them shared the sentiment that just finishing the race was a goal hoped to achieve. For example, the following individual shared in his interview that “I took the position that a finish was a success over everything else. And not to look at the race as one huge task, but rather a bunch of smaller tasks” (Participant 4). This athlete used a strategy that was also employed by others, creating smaller goals that helped them to get to their main goal of finishing the race. Some participants noted how the course was already divided into sections broken up by aid stations, and they used the distances in between these checkpoints to break up the race mentally into smaller sections. For example, one participant shared how she used this strategy “Basically, from start to aid station, and then aid station to aid station, and finally from the final aid station to the finish. If I bit off one chunk at a time, it felt more manageable” (Participant 3). This mental tool seemed to help the participants to maintain motivation during the race. It gave them smaller goals to focus on during the big event, breaking the ultramarathon down into shorter distances that were easier for participants to focus on throughout the race.

Imagery. Another element of mental preparation for many of the participants involved imagery. Some participants expressed their use of this tool as an intentional practice, while other times the researcher interpreted its use from the ways that participants discussed preparing for and imagining potential scenarios for their race. Participants described taking time to learn about the course in advance, which was an important part of being able to imagine what to expect. For example, one participant described this aspect of his preparation: “I spent a lot of time pre-visualizing the race. I would spend time scouring the internet for images of particular parts of the

trail” (Participant 1). Another participant noted that not having enough information about the race contributed to added stress for them, saying “the information was really sparse. So I think it creates a lot of uncertainty. And I don't know if that's the best thing for first time runners. It's a little intimidating if you don't really know what to expect.” (Participant 4).

In addition to focusing on race specific details, the participants also used a variety of sources to gather more general information about running ultramarathons. They listened to podcasts, read race reports, and spoke to people who had previously competed in ultras to learn about what they might experience in terms of physical and mental challenges. The combination specific race knowledge and information about what to expect helped individuals prepare for many possible scenarios on race day, whether that was through specific visualization practice or a more unstructured application of this mental tool.

Physical Preparation

Training. Participants discussed the physical preparation they did leading up to the race, noting the significant amount of time and effort they put into training their body for the challenge ahead. For many, the distance of the race was much longer than anything they had previously completed in one training run or race. For example, one participant shared “I'd never even completed a marathon before. The longest previous one-day running distance was just over 30K” (Participant 4). Many of the athletes had participated in other sport events (for example, shorter running races or cycling events) and noted that their preparation for the ultramarathon took considerably more time in terms of lead-up and weekly mileage. Finding the time to train around other life commitments required dedication and planning, as described by the following participant “fitting it in was just a lot of running all week, either in the morning, early before work or school, or after work or school and on weekends” (Participant 8). Another participant

highlighted how the timing of his race (at the end of summer) meant he could fit longer training days in that would be trickier outside of the summer months: “you know, once work gets back going and everything like kids’ hockey schedules and all that starts ramping up...running is just an afterthought right now” (Participant 2). It seemed that the participants planned their race schedule to allow for adequate training in the build-up to the event, knowing that they needed to fit it in around other personal commitments.

Information about how difficult an ultramarathon would be seemed to encourage the athletes to take their training seriously. One individual shared that the race director communicated with registered competitors in advance of the race to let them know how challenging the course would be, and that the rate of participants who DNF (did not finish) was likely to be high. That participant shared in the interview, “I started to get a little bit nervous about it. So I got a real training plan and still didn't follow it super close. But it just became a lot more regimented for me and a lot more scheduled than I ever had been” (Participant 2). As highlighted by this participant, finding a training plan or working with a coach was a common experience that helped individuals train appropriately for the race.

The participants had mixed feelings about the training process. On the one hand, some of the participants noted how the significant investment of time required to train for the ultramarathon was difficult to fit in around their family and work life. For some of the athletes, the amount of training required was not always easy or something the participants felt motivated to do. In his pre-race questionnaire, one participant described “at this point (within the last 10 days until the race) I have found myself feeling mentally tired of the training routine. Normally I enjoy it but it has felt more like work” (Participant 1). On the other hand, many of the participants also described enjoying aspects of the training process and the benefits they gained

from it. For instance, they appreciated how the goal of a race motivated them to get out the door, they noted moments of peace and solitude during training runs, and enjoyed the chance to be outside in nature. They discussed physical benefits, such as feeling healthier and more fit from the training, and also benefits to their own mental and emotional state. For example, the following participant described how he often felt better after his long training runs:

“I’d just kind of think and consider things that are going on in my life, or plan things out, or, I don’t know, just kind of straighten myself out a little bit. I would bring myself back after a stressful week of work to a little bit of a calmer, more normal state” (Participant 5).

Gear and nutrition. Another element of the physical preparation that participants highlighted was the importance of identifying and gathering the gear and nutrition they needed for training and racing in an ultramarathon event. Noting that ultramarathons require athletes to use different equipment (e.g., poles, shoes, running vests) and consume food on-the-go more than shorter-distance events, the participants discussed the learning curve it took to prepare for this aspect of their experience. Researching online and speaking with more experienced runners helped many of the participants to address this knowledge gap. Purchasing new equipment for the race was a common experience, as noted by one participant who said “I have a friend who does a lot of running in the mountains. And literally, like two days before, he’s like, ‘you have poles, right?’” (Participant 5). Two of the participants discussed learning about what they would need for the race from experience supporting a family member during a previous race. One of these individuals compared her experience of preparing for the race to another runner (friend) who took part in the same race, “My friend, she’s never aided anybody before. So she’s like,

what's a drop bag? Like she had no idea. So at least I had knowledge of what people would pack, like extra sneakers and poles and stuff like that.” (Participant 3).

Theme Two: Physical Challenges

This second theme summarizes participants’ descriptions of the physical challenges they experienced during the race in the first subtheme. The second subtheme describes how participants’ expectations played a role in their experience of these physical challenges, and the third subtheme explores how their recollection of the hardships they endured changed over time.

Pain and Discomfort

Physical pain and discomfort were common experiences for all individuals participating in their first ultramarathon. The physical challenges that participants endured fell into three main categories: musculoskeletal pain, hydration and gastrointestinal distress, and blisters/chafing. In the category of musculoskeletal pain, participants described issues with joints (knees, hips, ankles) and tendons (Achilles) that challenged their running form and ability. For example, the following participant noted “after the first 15km I started to get some bad pain in my Achilles. I was tired and didn’t have much ability to run even a step. I knew I could manage to make it, but every step was a challenge” (Participant 8). Hydration and gastrointestinal issues were described by several participants, usually in relation to their fueling strategy. The following participant shared how they felt they could not drink enough fluid to meet their body’s needs during the race, saying “the cramping started to set in and, and I kept trying to replenish my body with electrolytes and salt and fluids, but I think I was maybe getting like a little out of balance” (Participant 4). Finally, painful blisters and chafing were a common issue for the participants, as noted by the following individual who shared “I had one solid pair of shoes heading into that

race and I knew better but anyway, I kept them on the whole time, and which led to the massive blisters” (Participant 2).

Expectations

The experience of physical pain as an inevitable part of completing an ultramarathon was a belief shared by many of the participants. This expectation was described by several individuals, for example one participant who stated that “no one commits to running an ultramarathon without expecting some degree of toughness” (Participant 7). Prior to the race, participants noted feelings of anxiety and nervousness about how they would deal with physical challenges. In their journals and interviews, they discussed feelings of surprise when the race felt easy at the start, indicating that they were expecting it to feel challenging. As issues like joint pain or blisters set in, they described these matter-of-factly and were able to accept them as part of the race experience. This was perhaps best highlighted by the following participant, who shared “I could see others around me were really starting to suffer. I thought to myself, ‘This is where it starts, this is what I came here for’” (Participant 6). Another participant highlighted how expecting challenges helped him to accept it when things did go wrong: “for me, it helps to go in and kind of just assume that things are gonna go wrong, because it's such a long distance” (Participant 2).

Participants also described their expectations in terms of their ability to finish the race despite any challenges they might encounter. Before the race, they shared feelings of nervousness about how they would feel completing a distance they had never run before, noting worries about pre-existing injuries and how their feet/legs/body would hold up. When recounting the race during interviews participants shared how, despite these fears, they never doubted their ability to persevere to the finish line:

“I just felt so confident in my ability. Maybe not so much in the actual running, but my ability to keep putting one foot in front of the other and just like that like analogy, just of life and of getting through those like difficult things and then just being able to apply that to the ultra” (Participant 6)

Was it Really That Hard?

The participants were asked to complete a journal entry within one week of the race while their memory of the experience was still fresh. The follow-up interviews took place 4-6 weeks after this. During the interviews, several of the participants noted how their recollection of the race, particularly of the physical challenges they experienced, had changed in that time:

“Things have changed with how I remember the race. My first words over the finish line were ‘I’m never doing anything like this ever again.’ But it’s like childbirth, where women go back and have more children and even though it’s the hardest thing ever to go through labor.” (Participant 5)

The descriptions of pain and other physical challenges that participants encountered were captured in detail in the journal entries. However, several weeks later participants discussed how their memory of the difficulties they had encountered had faded. As one participant noted:

“I reread my race report and I wrote that the night of [the race] so it was of the moment. But today I don’t really remember that. It wasn’t that hard. It wasn’t that bad. It was a challenge and I was feeling tired, but I don’t remember it being that much of a struggle” (Participant 1).

Another athlete noted that the demands of the race made it difficult for them to celebrate their achievement right away, saying “I was not 100% in the right headspace for the finish. It was less like an accomplishment and more like a ‘Thank God this is over’ type of feeling. So it

took me a while to realize what I'd actually done or that I'd actually accomplished something” (Participant 4). This participant’s experience reflected how the athletes’ recollections changed from relief at being done and fatigue immediately following the race to focusing more broadly on the achievement.

Theme Three: Mental Challenges

This third theme encompasses participants’ descriptions of the mental challenges that they experienced during their first ultramarathon. The first subtheme discusses when participants found they experienced mental challenges, while the second subtheme highlights how they managed the difficulties they experienced during the race. Many of the participants described the importance of managing both the physical and mental aspects of their race experience, discussing the importance of both elements but emphasizing the importance of their mental game. As one participant shared, “one of the things I've come to really like about this sport is how it's not simply about the physical. That's important, but it's much more of a mental game” (Participant 1).

Late Onset

The beginning of the race was a time filled with nervous but excited energy, and participants described feeling generally positive at the beginning of the race compared to later in the ultramarathon. This was perhaps best characterized by the following participant’s description:

“The first two thirds of the race I was having type one fun, it was fun while I was doing it. The last third of the race became more type two fun, where it was more of a grind, it was a bit more of a challenge that the mental game became harder.” (Participant 1)

Many of the athletes discussed how the experience became mentally challenging later in the race, usually after the onset of physical challenges such as fatigue, blisters, or pain. One participant highlighted how these two challenges were connected for her, stating that “once the cramping set-in, I started to question whether I’d even be able to finish. My emotional state was probably at its lowest” (Participant 4). Another athlete described how the physical challenges she experienced affected her thoughts, noting that it contributed to negative self-talk: “once the pain had set into my feet (blisters on my toes and balls of my foot) I had nothing to distract my mind from my own negative self-talk” (Participant 3).

Managing the Mental Game

Participants also discussed several mental strategies that they used to manage the challenges they experienced during the race. Controlling attention and focus was a commonly used tool, usually involving some form of disassociation from the difficulties they were experiencing. Participants described distracting themselves by talking with other participants, listening to music, and playing ‘mind games’ – for example, “I usually try and just pick a pin, like a point. Then I know I gotta get to this point. Let’s walk to that tree over there. I think that really helped me” (Participant 3). Another participant shared how she developed this strategy during training by listening to music or podcasts on particularly long or challenging runs, but that since the race organizers did not allow competitors to have earbuds in she found herself missing the distraction: “it was a lot easier [during training] to distract my brain with like, my book or my podcast or just something to distract mentally. Because the [negative] self-talk crept in pretty hard” (Participant 5).

Many of the participants described the use of self-talk as a tool to overcome challenging or negative thoughts. They discussed speaking to themselves out loud and internally during

training and racing to persevere through the challenges. The mix of statements that participants described included motivational and instructional phrases, but they were often used to replace or counter negative thoughts. For example, one participant shared how she encountered moments of intense physical pain that led to her questioning whether she could actually finish the race, saying that she drowned out those doubts by replacing the negative thoughts with “a lot of out loud talking to myself, to be honest” (Participant 7). She went on to explain this further, describing an example of what that self-talk looked like for her in the moment:

“I was saying to myself, like, out loud, [name] you're okay. You're okay. Just keep going. You're okay. But God, I am okay, right? Yep. No, [participant's name], you're okay. Even if there were people on the sidelines, I would have been speaking to myself out loud that much. Because for me, I know that I am going to believe what I tell myself. And I'm going to believe the thoughts that come into my head, and so it is like, how can I make those thoughts louder?” (Participant 7).

Similarly, another athlete described how he motivated himself to keep moving despite feeling uncertain whether he could finish the race in a difficult moment: “all I could think of is ‘I just got to keep moving. I'll get there if I keep moving.’ ... I've even talked aloud before. Really! Yeah, like, ‘come on, come on!’” (Participant 8). The same participant noted that this was a strategy he also used during hard training runs, a common experience for many of the first-time ultramarathon athletes.

Theme Four: Relationships and Support

This fourth theme highlights the various relationships that supported the participants during their first ultramarathon experience. These relationships were categorized into two

externally-focused subthemes, (1) other race participants and (2) family and friends, and a third internally-focused subtheme, (3) self-support.

Other Race Participants

The athletes highlighted several ways that they engaged with other race participants during their first ultramarathon event and discussed the community aspect of the experience. Several of the participants noted that sharing the trails with other individuals was an aspect of their race experience that differed from training, where many of their runs were completed solo. For example, one participant compared the race to his training runs, saying “I talked a lot during [the race], which I don't usually. It's usually just me and my dog. Like I don't run with anyone really” (Participant 8).

Engaging with other race participants was a positive experience for many, for example as one athlete noted that “having [another runner] to hang out with on the trails was awesome, especially during the 3-4 hours of darkness. Nighttime can be tough alone, and I was very thankful for the company” (Participant 2). Another participant shared how engaging with other competitors offered a positive distraction from the challenge at hand. This athlete entered the race with a friend, and they ran most of the event together:

“When I was there, I didn't want to talk about running. I was asking my friends like, so what are your kids doing? How old are they? You know, any kind of question I could think of to just take my mind off like the wind and the cold” (Participant 5).

Teaming up with friends and connecting with strangers who were taking part in the race was a common experience among the participants. Many of the participants described a sense of community that came from meeting and chatting with other race participants during their race. One participant, who ran most of her race with three other athletes, described how they

supported one another through the race and became friends by the end – “I didn't know these people beforehand. Well, one of them I did, but like I know everything about the other two, because I learned it in 12 full hours” (Participant 3).

Family and Friends

Many of the participants were supported during their race by family and friends who came out to cheer them on at various places on the course or met them at the finish line. In some cases, family and friends provided support at aid stations throughout the race, sharing words of encouragement and helping with on-course logistics like gear and nutrition. The impact of this support was described by one participant, who said:

“When I arrived at the aid station, my wife, two kids, and two dogs were all waiting to greet me and help me refuel and change some gear. Their presence provided a calming effect and helped centre me. They reminded me I was basically halfway done, and that I looked fresh and could get this race finished! They really energized me to continue the race.” (Participant 4)

Participants also discussed the role that family and friends played in keeping them motivated during the race. Knowing that they would see a familiar face at an upcoming checkpoint helped some of the athletes keep going during difficult moments. For some participants, finishing the race was a meaningful experience they wanted to share with their loved ones. This was expressed by the following participant, who said “I felt like there was value in [my daughter] seeing me cross the finish line. I want her to know that she can do really hard things. And they're achievable” (Participant 3).

Self-Support

While all participants discussed the significant role that external relationships (e.g. with other race participants, family, and friends) played in their race experience, many participants also reflected on the ultramarathon as an opportunity to run their own race and support themselves through training and racing. One participant described this part of her experience:

“I've gotten very used to doing things on my own. I just learned that it's okay to do my own thing, because I did have moments where, like, I'm running in a group with a bunch of people I know. And I'm like, do I stay or do I go on and I just looked at them and I said, I'm gonna just run my own race. It was that moment of just being really clear that this is what I want to do” (Participant 7)

Similarly, another participant discussed how relying on a friend who joined as a pacer for her race helped her to realize she already had the inner strength to complete the distance on her own. She wrote in her journal, “I shifted from relying on my faith and relying on me to relying on somebody else. And I didn't need to” (Participant 6). This participant also highlighted the role that spirituality played in her connection to her own inner strength, discussing her relationship with God as part of her internal support system to finish the race. The spiritual aspect of persevering through a personal challenge and finding a deeper connection to oneself was shared by several participants in this study.

Theme Five: Personal Transformation

This fifth and final theme captures the participants' descriptions of the transformative elements of their first ultramarathon experience: accomplishing a personal challenge, expanding their beliefs of what could be possible, and applying lessons learned to other aspects of their life beyond the ultramarathon running context. One participant summed up this theme well, describing the transformative experience by stating the following: “that event changed me, it

disrupted my life in a way I never could have anticipated and it brought me closer to who I am and how I want to be living my life” (Participant 6).

Personal Achievement

Setting out to train for and compete in an ultramarathon event was a significant personal challenge for many of the participants, and just finishing the race was something many of the participants described as a meaningful personal achievement. The accomplishment of crossing the finish line of the race was an emotional experience for many of the participants, as one athlete recounted: “at that point I couldn’t hold in my joy of being done. I went inside and I sat down. I put my head in my hand and I just started crying” (Participant 8). Tears and emotions including pride, relief, and joy were a common experience at the finish line for many of the participants. Several participants also described feeling grateful for the ability to accomplish such a big physical feat. As one athlete in her forties shared, “the insight I have gained is just a whole new appreciation for my body and what I am able to do at my age” (Participant 5).

New Possibilities

The idea of completing an ultramarathon felt like an impossible task for many of the participants before they decided to sign up for the challenge. However, by training for the race and persevering to the finish line they were able to prove to themselves that it was possible to achieve. This change in mindset was described by the following participant – “three years ago, I didn't know if I could do a 50km. Now I know I can. And so I know I can do an 80km. But I want to prove it to myself” (Participant 1). By completing his first ultramarathon, this athlete went from being uncertain if he could finish a 50km race to believing he could do an even bigger distance in the future.

Another participant described how this event helped stretch her horizons, who compared signing up for an ultramarathon to choosing to return to graduate school:

“Every time that you do something just that little bit further out of what you thought was in the realm of possibility, the next time something big comes up you're less likely to think that's impossible. Like going back for a Master's, which is something I've been kind of wrestling with over the last little while” (Participant 2)

The experience of training for an ultramarathon also had an impact on the athletes' day-to-day lives. In the earlier subtheme on training, I highlighted the positive benefits participants felt they gained from training on their mental and physical health. Some of the participants shared how running helped them to feel good and contributed positively to their lives, allowing them to do more of what they enjoyed. As one participant put it, “I like the feeling after running. Maybe that helps me throughout the day to do more things” (Participant 8). In this sense, both the process of training for the ultramarathon and completing the event itself offered new possibilities to the participants.

Beyond the Ultramarathon

One of the questions this research study explored was how individuals might apply the mental skills they used in the ultramarathon context to other parts of their lives. During the interviews, which took place two to three months after the race, participants reflected on this question. Several individuals shared that they noticed how their ability to problem-solve or persevere through other challenges was influenced by their race experience, as highlighted by the following participant:

“I think my patience is a lot better lately, because I can calm myself down and be like, ‘Okay, listen, let's figure this out’. There were points in the race that I thought we were lost and I'd think, ‘maybe I should just think about this’” (Participant 3)

Other participants discussed how the long process of training for their first ultramarathon helped them to understand how they might work towards other big goals in their lives. For example, one participant shared the following reflection:

“I started new job not too long ago. The fact that I built up to being able to run 50k, like I can kind of see the same thing with the training curve...just be patient and just trust the training and trust that you're learning and trust that you're developing towards an end goal.” (Participant 4)

The ability to keep going when things get tough was another takeaway that participants had from their race. As one participant described – “I don't want to use a cliché and say not give up because that just sounds so stupid to me. But you've just got to do what you can to get to where you want to be” (Participant 8). By choosing to continue to the finish line despite the challenges they encountered during the race, and problem solve along the way, they were able to prove to themselves that they could persevere through hard things.

Finally, participants also discussed applications for relationships in other domains of their life. They highlighted the importance of support and communication with other participants and their family and friends during the race. One participant reflected on how she might use this lesson within other relationships beyond the ultramarathon context:

“Another takeaway was the power in asking people what support they need...even just taking that lesson and applying that to friendships, to clients, to families, to my sister.

Like, how can we best support one another to ultimately get to where we want to go, at the pace that we *can* get there and *want* to get there?” (Participant 6)

This particular athlete had a friend join her as a pacer (an individual who joins a race participant on the trail to run alongside them and support their race for portions, usually in the later stages of a race). She drew comparisons from her experience during the ultramarathon to having support with other challenges in life. For this athlete, realizing the kind of support she needed to get through the race helped her understand what kind of questions she might ask of someone accompanying her alongside other challenging moments: “Are they pulling you? If they're behind you, are they pushing you? Are they meeting you where you are at and going at the pace that you want to go?” (Participant 6).

Chapter Summary

This chapter presents the results in five major themes representative of participants’ lived experiences taking part in their first ultramarathon event. It explores the experience and impact of participating in one’s first ultramarathon race, highlights the use of mental skills and social supports during training and challenging aspects of the race, and also reveals insights on the transformative experience of taking part in an ultramarathon event. In the following chapter, these themes will be further contextualized within the existing literature and novel insights will be expanded upon with suggestions for future research directions and applications.

Chapter 5: Discussion

The purpose of this research study was to describe the experiences of first-time ultramarathon athletes and explore their use of mental skills during training and competition. The previous chapter presented the results through five major themes and their respective subthemes. This chapter will consider how the findings address the primary research questions, contextualize the results within the existing literature, and review novel insights from this research. Following this, strengths and limitations of the research will be presented, along with potential future directions and practical implications of the research.

The First-time Ultrarunners' Experience

The results of this research describe the lived experiences of training for and competing in one's first ultramarathon race. The findings reveal similarities to previous ultramarathon research while contributing novel insights to the literature related to the first-time ultramarathoner's experience. The participants in this study described the importance of both physical and mental aspects of their preparation to persevere through challenges they experienced during the race. They highlighted the physical challenges they endured and how they encountered and managed mental challenges. Relationships and support – from other race participants, supporters, and themselves – played an important role in their race. Completing their first ultramarathon was characterized by a sense of personal transformation including a sense of personal achievement, consideration of new possibilities, and impacts beyond the ultramarathon experience.

The theme that participating in an ultramarathon can be an opportunity for personal transformation has been previously documented (e.g., Holt et al, 2014) but not explored in great depth in the existing literature. Considering the physical and mental challenges that an

ultramarathon athlete endures during their race, there may be connections with this finding to existing literature from other disciplines on the topic of post-traumatic growth. The concept of post-traumatic growth is defined as resilience and positive psychological change in the face of adversity, trauma, or challenging life circumstances (Jayawickreme et al., 2021). This area may be an opportunity for future exploration with ultramarathon athletes at all levels of the sport.

In other areas of extreme sport, researchers have challenged the notion that athletes are motivated by sensation-seeking and are instead drawn to high-risk sports for emotional regulation and agency (defined as having influence over one's own life circumstances) (Barlow et al., 2013). Some of the reflections shared by participants on their training process allude to emotional regulation as a potential benefit of their experiences. The idea of agency that Barlow and colleagues (2013) discuss has parallels to the outcomes of personal achievement experienced by the participants in this study. Setting out to achieve something as big and daunting as an ultramarathon and then choosing to work through the challenges (during training and racing) may give participants that sense of agency. The participants' experiences of new possibilities opening up may also indicate a sense of freedom to take on challenges that previously were not within their ability or circumstances.

The participants' descriptions of remembering the race to be less difficult than they previously thought it was is a novel insight in the ultramarathon research. The athletes in this study, with no prior experience in running ultras, expected their first ultramarathon race would be very challenging and prepared accordingly. Considering that they now remember the first ultra to not be quite as difficult as they first thought it was, this finding may influence how an athlete's expectations and preparation might then change for their next ultramarathon. In other words, might runners who have previously finished races (and remember them to be less

challenging than they actually were) expect future races to be less difficult? One possible implication of the memory changes presented in the results are that the participants now have a memory of how difficult their race was, which could influence how they prepare for their next race.

All of the participants involved in this research finished their first ultramarathon, despite DNFs being common in ultramarathon events. One previous study has investigated the experiences of finishers versus DNFs in ultramarathons, concluding that remaining in a state of suffering may contribute to a runner's decision to withdraw from a race (Rochat et al., 2017). One possible implication of the results described in the previous paragraph may be that since the individuals in this study expected their first ultramarathon to be incredibly difficult, they were prepared when they encountered suffering because they expected it, and therefore were able to work through the challenges they encountered. Rochat and colleagues (2017) describe this as 'seeking preservation' and 'enacting a new world' to exit the state of suffering, rather than dwelling on their difficulties. This aligns with the findings of how participants worked through difficult moments, for example using positive and motivational self-talk to overcome negative thoughts and keep moving forward.

These results that just finishing the race is considered a successful performance for the first-time ultramarathon athlete align with findings from previous research. The existing literature on ultramarathon athletes has noted that the opportunity to achieve personal goals is the most important motivation for engaging in the sport, with less emphasis placed on health-related reasons and on competition (Krouse et al., 2011; Roebuck et al., 2018). It is also worth considering how finish rates might be impacted by one's race goals, something that has not yet been explored in the existing literature. One possible implication of the results of this study is

that the focus on “just finishing” the race may have helped motivate the first-time ultramarathon athletes in this study to get to the finish line. It is possible that more experienced athletes with other race goals (i.e., competitive standings, time goals, additional races on the calendar) may be more likely to drop out considering that they could have a different definition of success for a race, or have the ability to set more time-based goals since they have previous results to compare themselves to. There is also potential that the participants’ finish rates were influenced in some way by their participation in this research, adding an additional externally motivated reason to finish. However, participants were invited to continue with the study whether or not they finished the race.

In their exploration of an ultramarathon-specific definition of mental toughness, Jaeschke and colleagues (2016) describe how mental toughness involves combatting negative thinking to maintain a positive mindset and persevere through the most challenging parts of training and racing. This finding also could play a part in the absence of the more ‘negative’ aspects of ultramarathon participation in this dataset, meaning that there may be more negative or difficult aspects of the first-ultra experience that were not reflected in participants’ own descriptions of their experiences, which took place in the days and months after their race rather than in the immediate moments during and after the race. Previous research with ultramarathon athletes has indicated that mood changes (including changes in fatigue, vigour, and tension) occur during and after participation in an ultramarathon, and that these alterations in mood typically resolve between one week and one month after the race (Roebuck et al., 2018). Since participants completed the journals within the edge of this timeframe (one week after finishing the race) and the interviews four to six weeks later, another interpretation of this finding is that any mood

changes they might have experienced after the race had already resolved. This could have played a role in the change in their reflections at the two different timepoints after their race.

Mental Skills-use

The second and third research questions in this study sought to understand how individuals competing in their first ultramarathon develop and apply mental skills during training and racing, and what factors facilitated the development of these mental skills. These results highlighted that first-time ultramarathon athletes use a variety of mental skills including goal-setting, imagery, self-talk, and attentional control. This aligns with existing research on mental skills used by experienced ultramarathon athletes (e.g. Acevedo et al., 1992; Holt et al., 2014). While we do not know specifically how these mental skills impact performance in ultrarunning, all of the athletes in this study were able to finish their race, which supports the idea that many of these skills may be beneficial for ultramarathon athletes of all levels to incorporate into their training and racing. This information may be useful to inform psychological skills training (PST) interventions designed specifically for the ultramarathon context to support the development of these mental skills. Previous research has noted that learning mental skills can be implicit or explicit (Pierce et al., 2018), and just by participating in the research process and being asked to reflect on their use of mental skills may have supported some explicit development of mental skills.

Athletes discussed the use of goal-setting strategies, which they reflected on before and after their race. Having previous race results themselves and/or viewing past finish times for their chosen race helped the participants to set estimates of time-based goals for their ultramarathon, although the athletes emphasized the importance of “just finishing the race” as a major personal achievement. This emphasis on personal and process goals, rather than time-

based or place goals, aligns with previous research in the ultramarathon literature (e.g., Acevedo et al., 1992; Krouse et al., 2011). These results provided additional insight on how participants used goal-setting strategies during their race, including setting several layers of goals heading into a race (i.e., finishing the race before the cut-off time, breaking the race into smaller chunks, and having several time-based goals that they could adjust to depending on the race conditions). Other participants discussed breaking the race down into smaller tasks or chunks to help them stay motivated and focused. Having information about the course in advance helped them to set these smaller goals, as many races include built-in checkpoints (referred to often as ‘aid stations’) to help segment the race into smaller portions.

Imagery was discussed by several of the participants as a useful tool both as part of their race preparation and during the event itself. Acevedo and colleagues (1992) previously documented the use of imagery strategies used by a group of 100-mile athletes, although their results were captured in the open-ended response portion of a survey and not explored in great depth. The results of this study expand on the existing literature, providing clear examples of how the first-time ultramarathon athletes used this strategy both in their training and racing.

Self-talk was another strategy that participants in this study used during their training and racing. McCormick and colleagues (2018) previously investigated the effects of a motivational self-talk intervention on a group of ultramarathon participants, finding that while the use of this strategy did not impact performance the athletes did find the strategy useful to cope with adverse conditions during training and racing. Considering that finishing the race for many of the first-time ultramarathon athletes was considered a successful performance, rather than achieving a competitive result or time-based goal, the use of self-talk as a coping strategy merits further

exploration for athletes of all levels. The results from this study support the use of self-talk to overcome negative thoughts and maintain motivation during the difficult parts of a race.

Attentional control was another strategy highlighted in the results of this study, mainly in the form of distracting from a challenging aspect of the race such as internal sensations and thoughts. This differs from the results of Acevedo and colleagues' (1992) findings, which documented that approximately 50% of the 100-mile athletes in their study reported mainly 'dissociative' or externally-focused thoughts, while the other half tended to focus on internal sensations experienced during running. Association and dissociation, or internally- and externally-focused attention as it is otherwise known, is a concept that has been explored in exercise and running literature outside of the ultramarathon context, and some results suggest that association is related to faster performance while dissociation may be connected to lower perceived exertion and translate to greater endurance (Masters & Ogles, 1998). Further research is needed to determine how these strategies may impact performance in ultra-endurance sports, however based on the existing literature it is possible that a combination of attentional control strategies may be beneficial for ultramarathon athletes where a combination of speed and endurance are important.

Barriers and Facilitators to Developing Mental Skills

The experience of participating in one's first ultramarathon race can be characterized by a steep learning curve. For many participants in this race, seeking out knowledge from experienced runners and course-specific information was a challenge. For example, access to race-specific information helped individuals to set goals and practice detailed imagery as part of the race preparation. Not knowing that the use of earbuds was banned during some ultramarathon events, one participant described how she wished she had practiced without music/podcasts as a

distraction. For race organizers who want to support first-time participants' ability to use all mental tools available to them, these findings highlight the importance of having clear communication with race participants and sharing detailed information about the course in advance of race day (e.g., maps, aid station information, elevation profiles, etc.).

Several participants in this study expressed their appreciation for the opportunity to reflect on their experience. The existing literature on skills-transfer supports self-reflection as a tool for explicit development of beneficial mental skills, which may be aided by a coach or mentor or through personal reflection (Pierce et al., 2017).

Without prior experience running an ultramarathon to practice these mental skills in the race context, participants discussed two main strategies that supported them in using the aforementioned mental skills. First, the dedicated training that they put in often included long training runs which created opportunities to practice these skills outside of the race context. Additionally, some participants discussed how they drew on mental skills they used to persevere through previous challenging life experiences (e.g., childbirth or other sport contexts). This suggests that for the first-time ultramarathon athlete, reflecting on previous challenges may also provide a source of self-efficacy and support their use of mental skills that can be applied in the ultramarathon context.

Skills Transfer

The final research question this study sought to answer was understanding how individuals might apply mental skills they use during an ultramarathon to other domains of their (non-running) life. In other words, we were interested in understanding the concept of skills transferability that has been examined in other sport contexts (e.g., Pierce et al., 2017). While the focus of this question was on understanding how individuals cultivate skills during

ultramarathons and apply them to other contexts, the results also revealed that participants drew on mental skills developed in other life contexts to apply them in running ultramarathons, revealing that the skills transferability is multi-directional.

In terms of skills they brought into the ultramarathon contexts that had previously been developed in other aspects of their lives, participants discussed a variety of previous challenging life experiences (e.g., childbirth, previous traumatic events, adventure racing) that supported them to develop skills they used during the race. This finding suggests that first-time participants without previous ultramarathon experience may benefit from reflecting on past experiences where they persevered through non-running challenges as a source to develop mental skills they can use during the race.

Conversely, participants also discussed how finishing the ultramarathon race was a significant moment of transformation and provided an opportunity for growth. In order to achieve these goals, they successfully used a variety of mental skills to overcome the challenges of running their first ultra. Participants highlighted how this experience may have applications in other contexts, including work (persevering through long projects), parenting (patience), and belief in their own abilities to accomplish other challenging tasks.

Strengths and Limitations

Strengths

Phenomenological research allows for rich exploration of the subjective lived experiences of a shared phenomenon (Smith, 2005). The use of phenomenology as a theoretical orientation in this research facilitated an in depth look at individuals' first ultramarathon experiences, a novel phenomenon that had not yet been examined in the literature. The exploration of the participants' experience of running their first ultramarathon was aided by using three data collection tools at

different timepoints and the researcher's immersion in the data throughout data collection and analysis. The methods allowed for the identification of themes that described the participants' lived experiences and revealed novel findings (such as their changes in how they remembered the challenge of the race) while situating their stories in the context of relevant literature.

The balance of male- and female-identifying participants recruited for this study was another strength of this research. Female experiences have not been included to the same extent in the existing literature on ultramarathon athletes despite growing participation from women in the sport (Hoffman, 2020). Several of the female-identifying participants in this study referenced experiences related to childbirth, parenting, and relationships that have not previously been documented in the ultramarathon literature.

Research quality was enriched through several methods discussed in the previous chapter, including the researchers' own reflexivity and immersion in the data. As suggested by Braun and Clarke (2021), a researcher's role as part of the research process can shape their interpretations of the data and can be seen as a strength in the research process rather than a limitation.

Throughout the research process, I reflected on my own biases and experiences to understand how they might influence the research process. I also sought guidance from members of my thesis supervisory committee for advice and feedback, checking my findings and methods with individuals who were not deeply immersed in the research topic for possible blind spots or insights I may have missed.

Limitations

While this study sought to recruit a diverse sample of participants, there are some demographic factors shared by all participants that should be considered to contextualize the results. The participants in this sample were all in their 30s and 40s, which is close to the average

age of many ultramarathon participants but meant that the experience of younger and older demographics were not captured in this study. The geographic location may have also influenced the individuals' experiences: all participants live in Eastern Canada and competed in events within the region. For context, compared to other parts of the country the population of Eastern Canada is smaller and there are fewer ultramarathon races in the region, therefore participants may have less exposure to the ultramarathon community before their event compared to an athlete who lives near large events that attract many athletes. Additionally, the races that participants took part in had fewer participants compared to more well-established races in bigger cities. The experience of grassroots, smaller races compared to larger, more well-known events may influence how much information participants had leading up to the race and the organization of the event itself.

Implications

Future Research

As an exploratory study, this research provides the foundation for many future directions of potential interest. First, by placing a spotlight on the experiences of first-time ultramarathon participants it indicates that there is merit in including participants at all levels of performance in future research. In conducting a literature review for this study, it also highlighted that existing research does not always collect or document the performance data and race experience of participants, a practice that should be considered by future researchers in the area.

This research focused on individuals who had already signed up for their first ultramarathon, but did not explore what factors may have acted as barriers or facilitators to making this decision. An in-depth exploration of barriers and facilitators that influence individuals who want to take part in their first ultra, but have not yet, may be an interesting

avenue of exploration. In a similar vein, future research might build off this study to compare and contrast the experiences of individuals who choose to participate in their first 100-mile race or 200-mile race as next possible distance milestones in the ultrarunners' journey.

Research studies in sport science have typically included a disproportionate number of male-only or majority male participants, creating a sex and gender data gap for female and gender-diverse participants. As participation in ultramarathon events increases and evolves to include more individuals from underrepresented populations, future research should focus on addressing this gap in the literature. Since several of the research findings relate to the experiences of women included in this sample (e.g., comparing running an ultramarathon to childbirth, motivation to finish influenced by a mother's desire to set an example for her daughter), this also merits further exploration of the unique experience of female athletes in the sport. In addition, researchers should focus on understanding the experiences of individuals whose experiences are not currently reflected in the literature: younger, non-binary, LGBTQ+, and BIPOC individuals as well as those from different geographic and economic contexts.

Considering the changes in memory discussed by participants at different timepoints following completion of their first ultramarathon, future studies should consider how the time that they collect data impacts their results. In particular, capturing participants' experiences during and immediately following the event may build on the kind of data captured in this study. Longitudinal research that captures the experience of runners over longer periods of time in their ultrarunning journey may also provide additional insight on the impacts of participating in ultramarathons.

Finally, the results provide useful insights for the development and evaluation of potential interventions for ultramarathon athletes. Two possible areas of focus could be (1)

mental skill-building for ultramarathon athletes to improve their running performance, and (2) using the ultramarathon as a tool for developing beneficial mental skills that participants may use outside of the sport context. Further research is needed to explore the potential outcomes of such interventions, including potential experimental research with ultramarathon athletes. In terms of evaluating the ‘success’ in such programs, the findings related to how first-time ultramarathon athletes define a finish as success may help to inform how to evaluate performance (i.e., not just comparing to performance in competitive standings, instead comparing finish times to a range of personal performance goals).

Practical Applications

The results of this research have practical applications for athletes, coaches, sport psychologists, and race organizers. The findings related to how individuals develop and apply mental skills may be used to develop psychological skills training specifically designed for ultramarathon runners. Considering how important participants felt the mental aspects of their race were, this training would likely be well-received by athletes at all levels of the sport and could be delivered by coaches and sport psychologists who work with ultramarathon athletes.

For race organizers, there are several findings from this research that highlight the importance of clear communication with course-specific details to support the first-time ultramarathon athlete. Sharing detailed information about the event and race logistics, providing maps and visual details about the course, and connecting future participants with individuals who have knowledge from previous years may support athletes of all levels to be successful in their race.

Finally, by documenting the experiences of first-time ultramarathon athletes I hope this research can act as a resource for others who are considering making the leap to their first ultra.

It highlights the challenges and opportunities offered by participating in the sport, and in doing so also places value on participants who compete at all levels – recreational and beginner runners to elite performers alike.

Summary

This chapter provided additional insights on the research findings and situated them within the existing literature. The results were discussed by contextualizing them in terms of the experiences of first-time ultramarathon athletes, their use of mental skills during training and competition, skills transferability, and personal transformation. The strengths and limitations of the methods employed in this research study were also discussed. Finally, implications of this research were highlighted by suggesting potential future directions and practical applications.

The purpose of this research study was to explore the experiences of first-time ultramarathon athletes and describe their development and application of mental skills during training and racing. This was achieved by employing a phenomenological approach and analyzing rich qualitative data using methods for RTA. The resulting themes characterize the experiences of the first-time ultramarathon athlete: preparation for the race, physical challenges, mental challenges, support from others, and personal transformation. Throughout these themes, the first-time ultramarathon athletes' use and application of mental skills (e.g., goal-setting, imagery, self-talk, and attentional control) was also discussed.

The findings of this study expand upon previous ultramarathon literature by describing the experiences of athletes as they enter the sport and highlighting the impacts of running one's first ultramarathon. The results also provide novel insights into the transferability of mental skills used in the ultramarathon context and expand upon previous literature related to psychological

growth in extreme sport by highlighting the transformative experience of completing an ultramarathon event.

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Appendix A: Ultramarathon Races Taking Place August-October 2022

In addition to outreach via social media, the following races were targeted for potential recruitment of first-time ultramarathon athletes in Atlantic Canada. Race directors were contacted via email and invited to share the study information with their registered participants.

Date	Event Name	Ultra Distance(s)	Location	Participants
Aug12-14	Capes 100	47km, 88km, 162km	Mabou, NS	200-500
Sept 9	STEEP Ultra	50km, 100km	Corner Brook, NL	150
Sept 24	RockCut Ultra	66km	Twilingate, NL	100
Oct 1	Chiggy Ultra	48km, 96km, 144km	Cape Chignecto, NS	200-500

Appendix B: Recruitment Materials

Recruitment Graphic

Research Study: Exploring Experiences of First-Time Ultramarathon Athletes

Are you running your first ultra this year?

If you're planning on participating in your first ultramarathon between August and October 2022, I'd love to hear from you! I'm recruiting a small number of individuals for a master's research project to learn more about your experiences and any mental strategies that you use during training and racing. Selected participants will be compensated \$25.00 gift card for their time.

- Kelsey Hogan, MSc Kinesiology Candidate

Eligibility:

- 18+ years old
- Able to communicate in English
- Access to technology for a Zoom interview (i.e., laptop, phone)
- Running an ultramarathon (50+km) between August-October 2022

If you are interested in participating or learning more, please contact:

kelsey.hogan@dal.ca

 **DALHOUSIE UNIVERSITY** Approved by REB #2022-6186

Social Media Write-Up

Are you planning on running your first ultramarathon this year? Keep reading for an opportunity to take part in a research study exploring the experiences of first-time ultramarathon runners.

Kelsey Hogan, ultrarunner and MSc Kinesiology candidate at Dalhousie University, is recruiting a small number of individuals for a master's research project to learn more about your race experience and any mental strategies that you use during training and racing. Your participation will involve completing a brief online pre-race questionnaire (about 10 minutes), a post-race journal entry, and a one-on-one virtual interview (approximately 1 hour) about a month after your race. Participants will be compensated a \$25.00 gift card for their time.

Eligibility requirements:

- 18+ years old
- Ability to communicate in English
- Access to technology for a Zoom interview (i.e., laptop, phone)
- Running your first ultramarathon race (50+ km) between August-October 2022

If you're interested in participating or learning more, please reach out to [Kelsey.hogan@dal.ca](mailto:kelsey.hogan@dal.ca)

Study approved by Dalhousie's Research Ethics Board: #2022-6186

Appendix C: Pre-Race Questionnaire

Demographic Information & Running Background

Tell us about you and your previous running experiences.

1. Full name
2. Age (in years)
3. Gender
4. How many years have you been running?
5. Have you competed in any running races previously (5km, half-marathon, marathon, etc.)? If yes, please indicate the longest race distance.
6. Have you competed in any trail races previously? If yes, please indicate the longest race distance.
7. What is the longest distance you have run continuously (training or racing)?
8. Have you previously participated in any other endurance events (ironman, cycling, etc.)?
9. Do you work with a running coach or club? If yes, please describe.

Race Information

Please tell us the following details about your upcoming ultramarathon race.

1. Race name:
2. Race start date and time:
3. The distance you will be running:
4. Link to race site (if applicable):

Open-Ended Questions

We would like to know more about you, please tell us about the following:

1. Why did you choose to sign up for this race?
2. Tell me about the goals (if any) you have for your upcoming race.
3. How do you feel about running your first ultramarathon? What experiences are you most excited about and most nervous about?
4. Is there anything else you would like to tell us about your ultrarunning experience?

Appendix D: Post-Race Journal Prompts

Reflect on your race experience using the following prompts as a guide. Please aim to write about 2-4 pages in total (but write as much as you need to answer the questions).

Journal entries should be written within 24 hours of completing your race so that you can capture your experience while it is still fresh in your memory.

- Reflect on your race goals. Was this race what you expected, harder than expected, or better than expected? Describe your race experience and why you think this was the case.
- Describe your emotions throughout the race – at the start, mid-race, and at the finish.
- Was there anything surprising about your race experience? If so, please describe an example.
- Provide an example of one of the more challenging parts of your race. Describe how you experienced this challenge and what you did to overcome it.
- What was your mindset like during the race? Describe how your thoughts helped or harmed your performance overall. Provide a specific example if helpful
- Based on this experience, describe how you might prepare differently next time. Provide an example from this experience if it is helpful.
- Reflect on any insights you have gained about yourself during or after this race. What did you see, feel, or experience that helped you to gain this knowledge?

Submit your completed journal entry to kelsey.hogan@dal.ca. Entries can be completed in a word document, email, or handwritten format (please include a clear picture of each page if you choose to handwrite your race reflection).

Appendix E: Semi-Structured Interview Guide

Introductions

- Review study information and check if any clarification is needed
- Interviewer introduction (academic and athletic background)
- Participant introduction (name and athletic background)

Race reflections

- Tell me about your experience at (name of race).
- What were the highlights of your race experience?
- What were the most challenges aspects of your experience?
- Tell me about what you were thinking at the start of the race, mid-race, and finish?
- *Interviewer will pull out key reflections from post-race journal as additional prompts.*
 - o Ex. In your post-race reflection, you noted that you needed to overcome challenging negative thoughts and find new ways to stay motivated. Please tell me more about this.

Mental Skills

Mental skills refer to the ability to use psychological strategies (for example, imagery, goal-setting, thought control, focus, self-talk, etc.) to allow for regulation or enhancement of more innate psychological components (ex. self-confidence or motivation) to accomplish specific results. They might be trained explicitly or learned implicitly (without intention).

- Tell me about a time in your race or training that required you to draw on any of these mental skills.
- Provide an example from your training or racing where you felt like you were drawing on a new mental skill set that you hadn't used before participating in ultrarunning.
- What did you learn from this experience in terms of mental strategies you could apply while running your next ultra?
- Describe a time during your training or racing that you felt you could have better prepared mentally for the experience you were faced with. How would you do this differently next time?

Skills Transfer

- Provide an example of how you learned one of these skills explicitly.
- Provide an example of how you learned one of these skills implicitly.
- How have you applied the lessons learned from your race in other parts of your life? Please describe an example of this.
- Tell me about a part of your non-running life where you can imagine using the mental skills you have learned from ultrarunning.
- Tell me about a part of your training or racing that may have inhibited your ability to draw on these mental skills.

- Tell me about a part of your training or racing that may have supported your ability to draw on these mental skills.

Wrap-up

- Is there anything else you would like to add to this reflection?
- Do you have any questions or need further clarification about the research process?
- Thank you for taking part in this research study.

Appendix F: Research Ethics Board Approval



Health Sciences Research Ethics Board Letter of Approval

July 19, 2022

Kelsey Hogan
Health\School of Health and Human Performance

Dear Kelsey,

REB #: 2022-6186
Project Title: Exploring the Experiences of First-Time Ultramarathon Participants

Effective Date: July 19, 2022
Expiry Date: July 19, 2023

The Health Sciences Research Ethics Board has reviewed your application for research involving humans and found the proposed research to be in accordance with the Tri-Council Policy Statement on *Ethical Conduct for Research Involving Humans*. This approval will be in effect for 12 months as indicated above. This approval is subject to the conditions listed below which constitute your on-going responsibilities with respect to the ethical conduct of this research.

Sincerely,

Dr. Jennifer Isenor, Chair

Appendix G: Consent Form and Study Information

Project Title:

Exploring the Experiences of First-Time Ultramarathon Runners

Lead Researcher:

Kelsey Hogan, MSc Kinesiology student, Dalhousie University, kelsey.hogan@dal.ca

Other Researchers:

Dr. Lori Dithurbide (Supervisor), Dalhousie University, lori.dithurbide@dal.ca

Introduction

You are invited to take part in a master's research project at Dalhousie University (led by Kelsey Hogan, MSc Kinesiology) to learn more about the experiences of first-time ultramarathon runners. Your participation will involve completing a brief online pre-race questionnaire (about 10 minutes), a post-race journal entry, and a one-on-one virtual interview (approximately 1 hour) about a month after your race.

You will be compensated a \$25.00 gift card for your time. Choosing whether to take part in this research study is entirely your choice. The information below tells you about what is involved in the research, what you will be asked to do and about any potential benefit, risk, inconvenience or discomfort you might experience.

You should discuss any questions you have about this study with Kelsey (kelsey.hogan@dal.ca). Please ask as many questions as you like throughout the research process.

Purpose and Outline of the Research Study

The purpose of this research study is to explore the experiences of first-time ultramarathon runners and to understand how running an ultramarathon contributes to the development of beneficial mental skills. This study aims to address the following research questions:

1. How do individuals describe the experience of training for and competing in their first ultramarathon race?
2. How do first-time ultramarathon runners develop and apply mental skills during training and while competing in first ultramarathon race?
3. How do individuals apply the mental skills they used to overcome challenges during a race to other domains of their (non-running) life?
4. What factors facilitate and inhibit the development of beneficial mental skills during training and competition?

Through a series of one-on-one semi-structured interviews with individuals who are participating in their first ultramarathon event, this study will help to generate new knowledge about the unique experiences of individuals who are entering the sport. The results of this research will help develop a better understanding of the experiences of first-time ultramarathon runners as

well as shed light on the mental skills that they use during training and racing. This information will have practical applications for athletes, coaches, and mental performance consultants in the ultramarathon community. Furthermore, understanding the mental skills that individuals use to persevere through a challenging event (in this case, an ultramarathon) may help contribute relevant insight to a wider audience beyond the running community.

Who Can Take Part in the Research Study

You may be eligible to participate in this study if you meet the following criteria: (1) 18+ years old, (2) able to communicate in English, (3) have access to technology that can be used for a Zoom interview (i.e., laptop, phone), and (4) running your first ultramarathon between August-October 2022. For the purposes of this study, an ultramarathon will be defined as any foot race over 50km (this can include distances greater than 50km, for example 100km or 100mile races, as long as it is your first ultra).

What You Will Be Asked To Do

If you decide to participate in this research study, you will be asked to complete a brief pre-race questionnaire to share information about your upcoming race plans, previous running experience, and some demographic details (i.e. name, gender identity, age). This will be completed online 2-4 weeks before your race and should take approximately 10 minutes.

You will also be asked to complete a post-race journal (1-2 pages) within one week of completing your ultra to reflect on your experience, responding to prompts about your race experience, thoughts, and mental strategies during the run. We will send you the journal prompts one week before your race, and follow up with a reminder one day before your race and the day after your race to complete it.

Finally, you will participate in a one-on-one virtual interview 4-6 weeks after finishing your race. During the interview, you will be asked to respond to questions about your race experiences and the mental strategies you used during your race and since completing it. The interview should take approximately 45-60 minutes to complete.

Interviews will take place virtually using the Zoom online meeting platform, and the pre-race questionnaire will be administered through the secure online survey platform Opinio. Consequently, a device such as a smart phone or computer with a stable internet connection is required to participate.

A summary of the relevant security and privacy features for Zoom and Opinio are provided below, in the section “How Your Information Will Be Protected”.

Possible Benefits, Risks, and Discomforts

Your participation in this study will help us to better understand the unique experiences of individuals participating in their first ultramarathon race. The outcomes of this research will help to contribute new knowledge about the experiences and mental strategies used by endurance runners at early stages of their participation in the sport. This information will contribute new literature to the existing research on ultramarathon runners, and it may help to inform strategies used by other athletes, coaches, and mental performance consultants to support future runners to

complete their first ultra.

The risks associated with your participation in this study are minimal. However, there is potential that some of the questions/prompts in this survey and the interview may lead you to discuss or recall topics that are uncomfortable for you. The information you share and the responses you provide are voluntary and optional, and you can choose not to answer a question or to withdraw from the study at any point without consequences.

Compensation / Reimbursement

To thank you for your time, following the interview we will email you a \$25 electronic gift card. You will receive the gift card if you attend your interview. If you decide to exit the interview, choose not to respond to specific questions, or have technical difficulties at any point once the interview has begun, you will still receive the gift card.

How Your Information Will Be Protected

Your participation in this research will be confidential and known only to Kelsey Hogan. In any published summaries of the results, identifying characteristics (i.e., name and race finish time) will be removed and replaced with pseudonyms. We may use direct quotes from your interview, but will redact any identifying information and ensure it cannot be linked directly to you. The pre-race questionnaire is administered through the secure online survey platform Opinio.

The survey data from Opinio are stored on Dalhousie servers and therefore helps researchers adhere to various pieces of privacy legislation, and the Dalhousie Policy for the Protection of Personal Information from Access Outside Canada. Once the survey has closed, the data will be downloaded to a password protected computer and the Opinio account will be closed.

Interviews will take place virtually using the Zoom online meeting platform. Each interview will be conducted using a password protected, registration required Zoom meeting. We will be using the built-in function provided by Zoom to record audio, which will be downloaded to a password protected computer once the interview is complete. Once the interview recording has been transcribed (i.e., transferred to a word document verbatim) and de-identified, the audio recording will be deleted.

In order to protect your privacy, Zoom meetings are encrypted but, like all forms of encryption, this encryption is not foolproof. Furthermore, Zoom retains only basic information about participants' technical information, including the user's IP address, OS details, and device details for the purposes of troubleshooting and admin reporting. Zoom does not share customer data with third parties and does not engage in monitoring, viewing, or tracking of the video or audio content of video meetings. The above practices will not completely eliminate the risk of data surveillance by parties other than the researchers, but they will help to significantly mitigate this risk. Please note that Zoom calls are routed through Canadian servers, unless you are outside of Canada or the Canadian data centre goes offline. In the event of the latter, meetings may be routed through servers in the United States and, because of this, there is a small chance that meeting-related information may be accessed by U.S. government agencies (e.g. National Security Agency, Department of Homeland Security). To learn more about Zoom's security and privacy features, visit: <https://zoom.us/docs/en-us/privacy-and-security.html>.

During the study, all electronic records will be kept secure in an encrypted file on the researcher's password-protected computer and then transferred to a secure, password-protected online storage using Dalhousie University's OneDrive platform.

The researcher may share the results of this study in presentations, reports, public media and journal articles. We may share direct quotes from individual interviews, but will remove any identifying information. You will not be identified in any way in our reports. Once the study is over, the de-identified data will be stored for five years on a password protected computer. After this time period, it will be destroyed by deleting files from electronic devices. Any contact information (i.e., emails) will be deleted once you have received a summary of results.

If You Decide to Stop Participating

Your participation in this research is voluntary, and you are free to withdraw from the study at any time. If you decide to stop participating while completing the pre-race questionnaire, you can exit the online software at any time. You can also let the interviewer know at any time if you would like to end the interview, and simply close out of the meeting window on your device. If you choose to withdraw at any time before completing the questionnaire or the interview, the data collected up to that point will be deleted. You may also choose to withdraw your data from the study by contacting the research team. Withdrawing your data can be done at any point up until the results are compiled for dissemination – after this point, it will be impossible to withdraw data as it will already be analyzed and prepared for publication.

Important: If you start your ultramarathon but “DNF” (do not finish), we are still interested in learning about your experience! We ask that you let us know, and continue in the research process to complete the post-race journal and interview. If you must withdraw from your race prior to the start for any reason, we ask that you please let us know – you may still be able to participate in the research study if you have another ultramarathon scheduled within the research timeframe.

How to Obtain Results

Once the study is finished, we will provide you with a summary of the research via email. We will send you the information using the same email address you used in contacting us expressing your interest in participating in the study.

Questions

Please feel free to reach out at any time if you have any questions or concerns about your participation in this research study. Please contact Kelsey Hogan (kelsey.hogan@dal.ca) with questions, comments, or concerns about the research study. If you prefer to speak over the phone or schedule a meeting, we are also happy to coordinate that over email.

If you have any ethical concerns about your participation in this research, you may also contact Research Ethics, Dalhousie University at (902) 494-3423, or email: ethics@dal.ca REB file #2022-6186.

Signature Page

Project Title: Exploring the Experiences of First-Time Ultramarathon Runners

Lead Researcher:

Kelsey Hogan, MSc Kinesiology

School of Health and Human Performance, Dalhousie University

Kelsey.hogan@dal.ca

I have read the information about this study. I have been given the opportunity to ask questions, and my questions (if any) have been answered to my satisfaction. I understand that I have been asked to complete a pre-race online questionnaire, post-race written journal entry, and take part in a one-on-one virtual interview, and that the interview will be audio recorded and transcribed. I understand that direct quotes of things I say may be used without identifying me, and that a summary of the de-identified data will be shared in a research database.

I agree to take part in this study. I understand that my participation is voluntary and I understand that I am free to withdraw from the study at any time, up until the results are published, after my interview is completed.

Name

Signature

Date