WELLNESS AT WORK:
WHAT INDIVIDUAL AND ORGANIZATIONAL FACTORS INFLUENCE PARTICIPATION IN AND ADHERENCE TO A WORKPLACE WEIGHT LOSS (WEIGHT WATCHERS) PROGRAM?

by

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Abstract

Obesity is a health concern for Canadians. Workplace weight loss programs are demonstrating promising outcomes with managing obesity. However, participation and adherence is problematic, especially for those employees most at risk (e.g., shift workers). Using a mixed methods, case study design this research examined participation in and adherence to a workplace weight loss program over a three month period. Framed by behavior change theory the study examined both individual and organizational factors within a large health care organization. The intervention used was the Weight Watchers program. This research highlighted gender, importance rating, stage of change and motivation as individual factors and culture, shift/schedules, time slot and environment as organizational factors. A few overlapping factors were identified including: Convenience, co-worker support and perceived 'busyness and no-time'. This research confirms that individual behavior change is multi-factorial. More research is needed to determine if manipulation of these factors would improve participation in and adherence to workplace weight loss programs.

List of Abbreviations Used

ANOVA: Analysis of Variance

BMI: Body Mass Index

CHEW: Checklist of Health Promotion Environments in the Workplace

HSREB: Health Sciences Ethics Board

OC: Organizational Contact

PHAC: Public Health Agency of Canada

POWER: Preventing Obesity Without Eating like a Rabbit

SEF: Social Ecological Framework

SCT: Social Cognitive Theory

SPSS: Statistical Package for the Social Sciences

TTM: Transtheoretical Model of behavior change

WWCL: Weight Watchers© Canada Limited

WW: Weight Watchers©

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Chapter 1:
Introduction

Obesity rates are increasing globally and negatively impacting health (Jebb et al., 2011). Obesity is defined as a Body Mass Index (BMI) of over 30 and overweight is classified as a BMI over 25 (Health Canada, 2003). In 2013 over half (54.6%) of Canadians were classified as overweight or obese (Statistics Canada, 2013). Obesity is a leading cause of type 2 diabetes, high blood pressure, heart disease, stroke, arthritis and cancer (Canadian Obesity Network, 2014). Obesity impacts those who are obese, their families, employers, neighbors, health practitioners and government (Canadian Obesity Network, 2014). Obesity is prevalent in many workplaces and can be linked to higher rates of chronic disease, growing health care costs and workplace absenteeism (Howard & Potter, 2012).

What can be done to help manage obesity? Rather than focusing on individual behaviour change alone, it is important to recognize that an individual's health is affected by the environments in which he or she lives and works (Bernard et al., 2007). Canadian employers have access to almost half of the Canadian population (Morrison & MacKinnion, 2008) and the average adult spends 60% of their waking hours at work (Batt, 2009; Morgan et al., 2011; Morrison & MacKinnion, 2008). As a result, the workplace environment offers access to a large population on a reoccurring daily basis (Benedict & Arterburn, 2008). The workplace also offers established communication channels and the possibility of ongoing social and peer influence to support healthy behavior changes (Benedict & Arterburn, 2008; Task Force on Community Preventive Services, 2010). Thus, the workplace is a logical environment to help manage obesity (Benedict & Arterburn, 2008).

Workplaces are financially invested in their employees (Howard & Potter, 2012). In relation to costs to an employer, obese workers have been shown to have 21% higher health care costs than those of recommended weight (Ostbye et al., 2013). Therefore, workplaces have entered the fight to help reduce obesity with most of workplaces with 50 of more employees reporting having some type of workplace wellness program (MacDonald, Csiernik, Durand, Rylett, & Wild, 2006; Thompson, Smith, & Bybee, 2005).

Workplace Wellness Programs

Workplace wellness is a huge area of study. Workplace wellness includes occupational health and safety (e.g., programs and/or policies aimed at creating a safe work environment), lifestyle programs (e.g., fitness, healthy eating programs) and/or occupational stress management (e.g., mental health, work-life balance programs and supports) (Morrison & MacKinnion, 2008). In broad terms, workplace wellness can be described as programs, supports and/or policies initiated by employers with a common goal of promoting good health behaviors and encouraging positive behavior change of employees (Goetzel et al., 2011). For the purposes of this study, workplace wellness programs will be defined as programs that include promotion of individual behavior change in the areas of weight loss, diet and exercise (Trop, Ekluna, & Thorpenberg, 2011). In Canada, fitness related programming is the most common workplace wellness program, representing 29.4% of the programs offered at workplaces. Programs focusing specifically on weight loss account for 15.4% of wellness programs in Canadian workplaces (MacDonald et al., 2006).

Workplace weight loss programs are demonstrating promising outcomes. Studies show that a workplace weight loss program may be effective in creating statistically significant and clinically important weight loss (Anderson et al., 2009; Benedict & Arterburn, 2008; Morgan et al., 2011). This could result in positive outcomes for both employees and employers. Employees may achieve improved health and quality of life and employers could gain favourable economic outcomes from a decrease in absenteeism and increase work productivity (Lahiri & Faghri, 2012).

Participation and Adherence

Participation is challenging to define; in the past it has been described as 'intent' to attend a program or session (Thompson et al., 2005). However, this becomes problematic as 'behavioral intention' does not always lead to actual behavior (Thompson et al., 2005). This research has defined participation as registration in a workplace weight loss program (Khan-Marshall & Gallant, 2012). However, once registered, ongoing monitoring of participation is recommended as attrition is very common in health behavior change programming, especially in the workplace (Thompson et al., 2005). Although it is known that attrition is common, there

is limited research available on perceived barriers to participation (Harden, Peersman, Oliver, Mauthner, & Oakley, 1999; Lovato & Green, 1990; Middlestadt, Sheats, Geshnizjani, Sullivan, & Arvin, 2011; Thompson et al., 2005); this research was intended to address this gap.

Participation is only one part of the equation when it comes to behavior change. A vital element to workplace wellness program success is adherence to program recommendations (e.g., healthy eating and/or physical activity) (Ockene, Hayman, Pasternak, Schron, & Dunbar-Jacob, 2002). There are many definitions of adherence. The World Health Organization (WHO) (2003) defines adherence as the extent to which a person's behavior (taking medicine, following a diet and/or making a lifestyle change) corresponds with recommendations from health providers. Ockene and colleagues (2002) refer to adherence as an equivalent to compliance. However, this research used the same definition as Marcus and colleagues (2009), defining adherence as the degree to which a participant's behaviour coincides with the recommendations of a particular program. This definition was selected due to the fact that participants are adhering to a program and not a health care provider.

Unfortunately, despite individuals' best intentions, participation and adherence rates for workplace wellness programs including weight loss programs are variable and are usually low, especially for those working blue collar jobs (e.g., manufacturing, and service based industries) and shift workers (e.g., those working rotating shifts outside the usual 8 a.m. to 6 p.m.; Glasgow, McCaul & Fisher, 1993; Harden et al., 1999; Saunders, 2010; Thompson et al., 2005). There is limited research on the factors that may influence participation in and adherence to workplace weight loss programs, specifically from the participants' perspective (Middlestadt et al., 2011) This research sought to fill this gap in the literature.

Purpose

The potential benefits of workplace wellness programs are well established in the literature (Thompson et al., 2005). However, there is limited evidence on how to better support employees to participate in and adhere to programs, especially for those most at risk (e.g., shift workers) (Thompson et al., 2005). There is a need to identify individual and organization factors that may influence the participation in and adherence to a workplace based weight loss (Weight Watchers) program.

Study Design

The study design was a mixed methods case study (Gerring, 2007) which was used to examine the participation in and adherence to a workplace weight loss program within a large health care organization over a three month period. Framed by behaviour change theory (Bandura, 1994; Bronfenbrenner, 1999; Prochaska & Velicer, 1997), the study examined both individual (e.g., stage of change, self-efficacy) and organizational (e.g., shift times, policies, environments) factors influencing participation and adherence. The program that was used to explore the research questions was the *Weight Watchers (WW) Canada Ltd. Health Solutions* program. WW is a researched-based commercial group program which has been proven to be effective for safe weight loss (averaging 0.5 pounds to 2 pounds per week) (Rippe et al., 1998). The WW program is available nationally in Canada. For the purpose of this study the WW program was provided free to all participants as an intervention for the three month duration to limit the possible participation barrier of cost and to provide compensation for participating in the research.

A health care facility was selected for this research and will be referred to as the Host Organization to protect confidentiality of the organization and the participants in the study. The Host Organization employees provide a wide range of services including nursing, food service, facility and environmental management and administration. The Host Organization was selected as it provided access to a workforce of blue and white collar workers with a diverse range of social demographics, varying degrees of education, social economic status, age, gender and shifts (e.g., 24 hour care and service).

Chapter 2:
Literature Review

Introduction

Obesity is an important health concern in Canada (Public Health Agency of Canada [PHAC] & Canadian Institute for Health Information [CIHI], 2011). The obesity rate is higher than the National average in Nova Scotia, with 61% of the population reported as overweight and obese (Statistics Canada, 2013). Determinants of obesity are complex and include biological, behavioral and societal factors (PHAC & CIHI, 2011). However, the key behavioral factors that affect obesity are physical activity and healthy eating (PHAC & CIHI, 2011). Unfortunately, changing individual behavior is complex (World Health Organization, 2003). The following is a review of the current literature to see what is known about obesity management and learn what gaps in evidence still exist related to improving participation in and adherence to workplace weight loss programs.

Obesity Management

Obesity and its associated health risks (e.g., cardiovascular disease, type 2 diabetes, gallbladder disease, several types of cancer and early motality) demand early intervention (Jebb et al., 2011). Current obesity rates have put pressure on traditonal health-care resources (Jebb et al., 2011). Traditional efforts to reduce obesity (e.g., physician or health professional supervised diet intervention) do not often reach large groups of individuals (Ostbye et al., 2013). It has been shown that persons who try to manage their obesity through traditional efforts may struggle with maintaining weight loss over the long term (Jebb et al., 2011; Ostbye et al., 2013). There is a need to better understand the causes of these struggles and learn what can be done to support weight loss efforts.

There is no single solution to managing obesity. The PHAC and CIHI (2011) recommend that the approach to managing obesity should be multi-sectoral and include: 1) Health services (e.g., behavior modification training/therapy, dietary interventions for a low calorie diet), 2) Community level interventions that directly influence behavior (such as workplace weight loss programs, health promotion education sessions), and 3) Public policy that targets broad social and environmental determinants. Therefore, partnerships between primary care, community

and commercial organizations may have the potential to assist in the management and prevention of obesity on a large scale by offering regular weigh-ins, information about diet, exercise, and ongoing group support in the community setting (Jebb et al., 2011). More research is needed on the effectiveness, transferability and generalizabilty of weight loss interventions in the community (PHAC & CIHI, 2011). This research sought to fulfill this need focusing specifically on the workplace environment.

It does not appear to be individuals' lack of knowledge of how to lose weight (e.g., diet and exercise) that creates the challenge of managing obesity (Thomas, Hyde, Karunaratne, Kausman & Komesaroff, 2008). Adults have been advised to eat healthy and exercise regularly to maintain a healthy body weight; however, obesity rates still climb with a majority of adults overweight or obese (Sarkin, Johnson, Prochaska, & Prochaska, 2001; Statistics Canada, 2013). What is the gap between advice and action? Many studies have looked at weight outcomes (Anderson et al., 2009; Jebb et al., 2011; Lahiri & Faghri, 2012; Morgan et al., 2011). However, there are few published studies that have addressed program effectiveness from the participants' perspective (Mattfeldt-Beman et al., 1999). It could be hypothesized that perhaps those responsible for designing obesity management interventions should engage and consult with those living with obesity to find out how to overcome barriers from their perspecitive (Thomas et al., 2008). Identification of factors (e.g., lack of time, schedule conflicts or lack of support) that serve as barriers to participation from the individual's point of view could help promote and maintain weight loss (Mattfeldt-Beman et al., 1999; Ostbye et al., 2013). This research attempts to fill this gap by asking participants what factors influenced their decision to participate in and adhere to a workplace weight loss program.

Participation

Workplace wellness programs cannot help those who do not participate. A systematic review of workplace weight loss programs suggest that recruitment and retention of participants can be problematic (Benedict & Arterburn, 2008). While initial participation is promising (e.g., orientation and/or introductory sessions or health risk assessment having participation by 65-85% of employees) long term success rates for behavior-based interventions both in clinical and experimental studies in the workplace tend to be dissapointing (Lovato &

Green, 1990). Overall, employees have a positive intention to attend the programs; however intention does not always translate to action (Middlestadt et al., 2011). Dropout rates for workplace wellness programming may be 50% or more after six months (Lovato & Green, 1990).

Overall, little is known about determinants of participation in workplace weight loss programs specifically. Few studies list the characteristics of participants compared to non-participants (Glasgow et al., 1993). Similar to general workplace wellness programs, social-demographic predictors of participation in weight loss programs may include: higher education, non-labour (e.g., management or supervisory) responsibility (usually defined as 'white collar' workers) and better current health overall (Thompson et al., 2005). Non participants are usually classified as workers with lower education and less responsibility (usually defined as 'blue collar') and generally have lower participation rates, especially shift workers in mining, manufacturing, and service- based industries (Bagwell & Bush, 2000; Morgan et al., 2011; Thompson et al., 2005). Blue collar workers are defined as 'most at risk' for obesity due to poorer health practices, shift work and lower socioeconomic status (SES) (Antunes, Levandovski, Dantas, Caumo, & Hidalgo, 2010; Bagwell & Bush, 2000; Morgan et al., 2011; PHAC & CIHI, 2011).

Participation is also affected by other factors such as attitudes toward health (e.g., perceived seriousness of health concern and/or susceptibility to health concerns, for example awareness of risks associated with obesity and beliefs that these risks will affect them), perceived social and cultural norms (e.g., distrust of persons of authority, insensitivity to culture), environment (e.g., no easy access to stairs for physical activity or healthy food is not available onsite) and policies (Kahan-Marshall & Gallant, 2012; Middlestadt et al., 2011; Thompson et al., 2005). Time constraints and inconvenience seem to be the most common barriers, especially for those in blue- collar jobs (Middlestadt et al., 2011; Morgan et al., 2011).

One of the most important rationales for conducting weight loss programs in the workplace is the potential to reach a high percentage of employees, including many who would otherwise not seek support for health behaviors (Glasgow et al., 1993; Morgan et al., 2011). There is still lack of research on how to best reach those most at risk (e.g., blue collar and shift

workers) (Glasgow et al., 1993; Middlestadt et al., 2011; Morgan et al., 2011; Thompson et al., 2005). This research sought to fill the gap in the literature by exploring and identifying possible factors affecting participation of 'blue collar' and 'white collar' workers.

Adherence

The relationship between adherence and obesity is a complex one, due to the many determinants of obesity (individual behavior, genetics, social support, environment and societal policies and norms) (PHAC & CIHI, 2011). Adherence to lifestyle modifications has been documented for decades, primarily in behavior change associated with smoking cessation, eating habits, physical activity and medication therapy (Ockene et al., 2002). What is known is that individual adherence to healthy behavior changes such as healthy eating and physical activity can be predictive of weight loss outcomes (PHAC & CIHI, 2011). Adherence in the form of attendance at education sessions on behavior change and completion of diet and exercise journals has been seen to be predictive of weight loss (Anderson et al., 2009; Webber, Tate, Ward, & Bowling, 2010). Correlations have also been made to internet logins and weight loss with online self-monitoring journals and weight loss success (Webber et al., 2010). Structured programs with group support (e.g., those with scheduled session times) appear to be more effective than unstructured programs in promoting adherence (Anderson et al., 2009).

Numerous studies have found factors that may be associated with poor adherence (e.g., long duration, complexity, no health symptoms or lack of perceived benefits) (Ockene et al., 2002). However, with only a few exceptions (e.g. the conscientiousness scale from Neuroticism, Extraversion, Openness –Five factor inventory; Wiebe & Christensen, 1997) there have not been any personality traits or socio-demographic factors (age, ethnicity, SES or education) that have consistently predicted adherence (Ockene et al., 2002). This may be due to the fact that behavior change and medication therapy can be complicated and burdensome (Ockene et al., 2002). What makes it complex is that adherence is affected by individuals' knowledge, skills, attitudes and the environments of which they spend time (Ockene et al., 2002). Based on the evidence, novel ways to promote motivation and adherence to program recommendations are needed to improve weight loss outcomes (Webber et al., 2010).

In summary, adherence is usually seen as an 'individual' or 'patient' problem; however, in reality, adherence must be addressed on a several levels including: the individual, health care system (e.g., importance of behavior change to health must be relayed), the environment in which the individual spends time (e.g., workplace, community and neighborhood), and societal (Ockene et al., 2002). This study chose to look at adherence on individual and organizational levels to help to fill this gap in the literature.

Weight Loss Programming Challenges

While this study is looking at workplace weight loss programs specifically, it is still relevant to explore the challenges to weight loss programs in general. Nearly all weight loss programs can produce moderately successful weight loss outcomes if recommedations (calorie reduction and moderate physical activity) are followed (Williams, Grow, Freedman, Ryan, & Deci, 1996). If weight loss programs are successful, then why are the participation rates so low? It comes down to one fact: Expected weight loss is difficult to achieve and maintain (Elfhag & Rossner, 2005). There is substantial research available on the challenges to weight loss programming in general. Common challenges in the literature include: Weight cycling (weight loss followed by regaining of weight), lack of routine in eating patterns (e.g., disruption from stress or schedule), lack of control over foods and/or environment, unrealistic weight loss expections (e.g., lack of weight loss early in the program) and lack of social support (Elfhag & Rossner, 2005; Teixeira et al., 2002; Williams et al., 1996) . However, the most common predictor of weight loss success and source of challenge seems to be individual motivation (Elfhag & Rossner, 2005; Teixeira et al., 2002; Williams et al., 1996).

It is difficult to define motivation (Kleinginna & Kleinginna, 1981). Individual motivation may be intrinsic (self-directed) or extrinsic (dependent on others) (Weiner, 2000). Individual motivation has also been linked to past experiences (e.g., previous failures in weight loss), self-efficacy and the feeling of being able to achieve the weight loss outcomes expected (Bandura, 1994; Williams et al., 1996). Interestingly, the value the participant places on the outcome (e.g., weight loss) also has been seen to be predictive of motivation and success (Williams et al., 1996).

In summary, there are numerous factors that challenge weight loss programming. Even with all these factors identified, accurate predictors of weight loss program success still elude researchers (Teixeira et al., 2002). This research used the known barriers to shape the research design to allow more insight on how individual and organizational factors that may have influenced participation and adherence in a weight loss program in the workplace setting.

Workplace Weight Loss Programs

A strong argument can be made for workplace weight loss programs and most workplaces have seen the value of having some kind of wellness program onsite (MacDonald et al., 2006; PHAC & CIHI, 2011). In a study of the prevalence of workplace wellness programs in Canada, MacDonald et al. (2006) found over half (67.8%) of workplaces reported having an Employee Assistance Program (e.g., short term counselling) or some type of workplace wellness program. However, many workplace wellness programs fail to help those who are most at risk (e.g., shift workers and/or blue collar workers) (Morgan et al., 2011; Thompson et al., 2005). Further, there is evidence that workplace wellness programs (e.g., weight loss programs) are only marginally successful with promoting and supporting healthy behaviors especially over the long term (Bagwell & Bush, 2000; Harden et al., 1999; Morgan et al., 2011; Thompson et al., 2005). Thus, there is a need for research that examines factors influencing the efficacy of these programs.

In a review of twelve Canadian workplace weight loss programs, nine programs showed a net weight loss of 2.8 pounds per participant and six programs demonstrated an overall reduction in body mass index (BMI)(PHAC & CIHI, 2011). In a study of the efficacy of a workplace-based weight loss program (POWER: Preventing Obesity Without Eating Like a Rabbit) for overweight male shift workers a two armed randomized control study (men were randomly grouped into two groups one control group and one POWER group) was used to measure weight loss and adherence (Morgan et al., 2011). The POWER program consisted of a three month intervention program based on Social Cognitive Theory (SCT) including information sessions, a handbook, study website, website tutorial, individualized dietary feedback sheets and a group based incentive pedometer challenge (Morgan et al., 2011). The POWER program was effective in generating participation with the target sample size being met (n= 65 allocated

to sample and n= 45 allocated to control group). The initial drop off was 10% with seven of the 65 not attending the initial information session. At the fourteen week follow up 17% (eleven) had dropped out of the POWER program and 20% (nine) had dropped out of the control group. These results are encouraging as participation and adherence of shift workers in similar studies is challenging and has been highlighted in the literature (Atkinson, Fullick, Grindey & Maclaren, 2008). Morgan et al.'s (2011) study results suggest that a workplace weight loss program based on behavioral change theory may be effective in creating statistically significant and clinically important weight loss for an at risk target group (blue collar, overweight male shift workers).

Only a small number of studies have included long term follow-up regarding outcomes and few have strong methodological designs (Morganet al., 2011; Ostbye et al., 2013). For example, a single case study in a workplace which focused on healthy eating messaging (e.g., educational posters) and increased access to healthy foods (e.g., access in cafeteria) demostrated an improvement in healthy habits with 42% of respondents reporting eating more whole grains, 29% reported eating more vegetables and 17% eating more fruit (Kahan-Marshall & Gallant, 2012). A decrease in BMI was demonstrated for men and a decrease in blood pressure was achieved for women in another study that focused on reducing obesity with an increase in physical activity opportunities (e.g., 10-30 minute exercise breaks into the work day and prompts to take the stairs) (Kahan-Marshall & Gallant, 2012). A systematic review of the effectiveness of worksite nutrition and physical activity interventions for controlling employee overweight and obesity showed a modest improvement in employee weight status over a six to twelve month follow-up period (Anderson et al., 2009).

In summary, it can be stated that workplace weight loss programs demonstrate some evidence of success; however participation and adherence can still be problematic (Morgan et al., 2011; Ostbye et al., 2013). Therefore, this study sought to learn more about the factors that may have facilitated or hindered participation and adherence in a workplace weight loss program.

Weight Watchers Canada: Health Solutions At Work

Weight Watchers (WW) offers a comprehensive approach to research-based weight loss (Lowe, Miller- Kovach, Frye, & Phelan, 1999; Rippe et al., 1998). The WW program includes

behavior modification, a healthy eating and physical activity plan in a group support environment (Rippe et al., 1998). In a twelve week study of the WW structured weight loss program compared to a self-help control group, the WW program demonstrated statistically significant weight loss, fat loss and increased physical activity levels (Rippe et al., 1998). In a larger study, including a multi- center, randomized control design, after six months participants in the WW program decreased more in body weight, BMI and waist circumference than the self- help control group (Heshka et al., 1999). The average reported weight loss for WW participants is 28.8 pounds (Christakis & Miller-Kovash, 1996). In a study on the maintenance of weight goals among life-time members, 67% reported weight maintenance within five pounds of their goal (Christakis & Miller-Kovash, 1996).The maintenance results were 97% within the first year and 37% for those who had lost the weight within five to twelve years (Christakis & Miller-Kovash, 1996). Currently the WW program is backed by over 30 clinical trials on weight loss and maintenance (Weight Watchers Canada Ltd., 2013).

The WW Canada Ltd. (WWCL) *Health Solutions At Work* program offers workplaces access to WW scientifically-based program. A trained WW Leader visits the workplace to conduct weekly weigh-ins and to facilitate weekly meetings on weight management routines with the advantage of group support from co-workers (WWCL, 2013). However, WWCL programs in the workplace also stuggle with low participation rates and ongoing adherence to WW program components (WWCL, 2013). To date there has been no research on the WW program in the workplace setting. It should be noted that even though the WW program has proven successful it may not be immune to the challenges that face typical weight loss programming (Dansinger, Gleason, Griffth, Selker, & Schaefer, 2005). Specifically, individual motivation, high expectations for weight loss and/or previous experiences weight cycling with WW or other weight loss programs which may impact participation and/or adherence (Williams et al., 1996; Elfhag & Rossner, 2005).

In summary, the WW program was selected for this research as it offers a way to provide statistically significant weight loss to participants (Lowe, et al., 1999; Rippe et al., 1998). However, low participation and attendace rates impede the potential of the WW at work programs to help reduce obesity in the workplace. Therefore, this research was needed to help

determine factors impacting participation in WW At Work programming and also learn ways that may help participants to adhere to the program so that they can achieve weight loss results.

Workplace Culture

Culture is a very powerful force in any community and the same is true for the workplace. Culture is defined as: "what is learned, shared, transmitted intergenerationally, and reflected in group values, beliefs, norms, behaviors, communication and social roles" (Rosal & Bodenlos, 2009, p. 39). Workplace culture is summed up nicely by Holmes et al. (2007) as "the way we do things around here" (p. 435). Workplace culture is created and negotiated through interactions of workers with their environment and superiors (Holmes et al., 2007). Managers are the most powerful influencers in a workplace community with their activities, behaviours and interactions constantly reinforcing or re-shaping workplace culture (Holmes et al., 2007). In a study completed by Watson & Gauthier (2003) interviews were conducted after an "unsuccessful" workplace wellness program was discontinued. Over 50% of the managers said they were "unsure" if they would give people time off to participate in the wellness program due to heavy workloads and over 80% said they did not participate themselves due to time constraints. It is for this very same reason that Goetzel and Ozminkowski (2008) argued that healthy change must start at the top (e.g., include high level management) and be engrained in organizational culture.

A culture of committed and engaged workers can benefit employers in terms of productivity and improved job satisfaction (Meyer & Elyse, 2010). Meyer & Elyse (2010) argue that there is extensive research into workers' commitment to the organization; however less research is available regarding workers' commitment to their own wellness. Commitment is defined as the force that binds an individual to a target (social or non-social) and to a course of action (Meyer & Elyse, 2010). Meyer & Elyse (2010) found that workers who were committed to their own wellness were less likely to feel stressed and strained in the workplace and thus work more efficiently. Therefore, workplaces that establish commitment, both to the job and to wellness profit; in fact, workers also benefit with better health, therefore it is a win-win situation (Meyer & Elyse, 2010).

Workplace culture may be the 'elephant in the room' that may be affecting participation in and adherence to workplace weight loss programming. Programs that are currently focused on individual behaviour change programs have often failed to look at the social and physical environments which shape behaviour within the workplace (Goetzel et al., 2010; Harden et al., 1999; Trop et al., 2011). In order for healthy workplace culture to be established, wellness needs to be included as part of workplace values, missions, policies and strategic vision as well as healthy behaviour change starting from the top-down (Harden et al., 1999; Trop et al., 2011; Watson et al., 2003).

Health Care as a Workplace Context

Why target health care workers? In many aspects of health care, there is often the need for workers to work 24 hours a day (Geliebter, Gluck, Tanowitz, Aronoff, & Zammit, 2000). In fact, 45% of health care workers work shift work (Saunders, 2010). Shift workers in particular are less likely to attend wellness programming if the schedule is not convenient to them (Morgan et al., 2011). The most common type of shift work schedule in Canada is the rotating shift which accommodates businesses that are open 24/7 (Saunders, 2010). There is evidence that rotating shift workers have higher levels of triacylglycerol and coronary heart diseases, which are both associated with increased in body weight (Geliebter et al., 2000). In a study of nurses, nurses aids, and security workers who worked rotating shifts, the shift workers who worked the night and evening shifts reported more weight gain than the day time workers (Geliebter et al., 2000). In addition to these health conditions mental health is also an increased concern with anxiety and depression also being linked to shift work (Shields, 2003). Shift work is an independent predictor of increased BMI (Antunes et al., 2010; Atkinson, Fullick, Grindey, & MacIaren, 2008). Obesity is associated with a higher risk of worker illness and chronic disease (Howard & Potter, 2012). A program targeting an at- risk group of workers, such as shift workers, would prove beneficial to their overall health (Morgan et al., 2011).

Health is a particular concern for health care workers such as nurses. This is due to the fact that health care workers exsist to serve and improve society's health and do so usually working around the 24 hour clock (Hensel, 2011). In a study of nurses health practices it was found that a majority of nurses did not maintain their weight or exercise consistently (Petch-

Levine, Young, Cureton, Canham, & Murray, 2003). A significant component of a nurses' role is to promote health; however if they are unable to live a healthy lifestyle themselves their own self-concept may impact their ability to promote healthy lifesyles to their patients (Hensel, 2011).

Thus, research into participation in and adherence to a workplace weight loss program should consider a target population that is most at risk for obesity and obesity related chronic disease. Health care workers are at higher risk for obesity and less likely to participate due to inconveinence of schedules and shift work. This research selected a health care facility to assist with filling this gap.

Theoretical Models

Various aspects of human behavior can be predicted by many conceptual theories (Ockene et al., 2002). Participation is reliant on individuals being ready to make a change and seek out information and adherence is the 'situation specific confidence' that individuals have in their ability to complete and/or maintain a behavior which is described as self-efficacy (Prochaska, Johnson, & Lee, 2009). Three of the main theories in behavior change science informed this current study: the Transtheoretical Model of Behavior Change (TTM) (Prochaska & Velicer, 1997), the Social Ecological Framework (SEF) (Bronfenbrenner, Environments in Developmental Perspective: Theoretical and Operational Models, 1999), and Social Cognitive Theory (SCT) (Bandura, Self-efficacy, 1994). Each of the selected theories and how they are used together to explain participation in and adherence to a workplace weight loss program are described below.

Transtheoretical Model (TTM) of Behavior Change. Sarkin et al. (2001) define the TTM as a "comprehensive model of intentional behavior change that incorporates process- orientated variables to explain and predict how and when individuals change health behaviors" (p. 462). As individuals make changes they progress through the stages of change (Sarkin et al., 2001). The TTM explains behavioral change based on stages: pre-contemplation (individual is not thinking about making a change to the targeted behavior), contemplation (individual is considering making a change but is not yet ready to engage in behavior), preparation (individual is ready to take action within one month), action (individual actually begins the change process) and

maintenance (the individual develops and implements strategies to prevent relapse) (Ockene et al., 2002). The TTM provides a much needed theoretical framework to assist with guiding the design, implementation and evaluation of behavior change interventions (Sarkin et al., 2001).

Participation in weight loss programs usually requires individuals to be ready to engage in self-management (e.g., lower calorie diet and increased physical activity) (Prochaska et al., 2009). Self-management relies heavily on individuals being ready to change their habits and lifestyle (Vallis, 2009). The TTM argues that different interventions are only appropriate for individuals depending on what stages of change they are in (Prochaska et al., 2009; Schwarzer, 2008). Based on the TTM, if individual are in pre-contemplation or contemplation stage they are not ready to take action; therefore they are very unlikely to attend a weight loss session that gives education on diet and exercise. This may explain why participation in weight loss programs is one of the most common challenges to managing obesity in the workplace.

Typically the most fit and already healthy employees attend because, based on the TTM, they are in the action stage and looking for more information on how to be more active or learn tips and tricks to change up their eating habits. Considering this, workplace weight loss programs may not be appealing to those who would benefit most from the program (Prochaska et al., 2009). Education is important only when individuals are committed to act or in the later stages of change such as preparation, action and maintenance (Prochaska & Di Clemente, 1982). There is a need for research to demonstrate if individual 'stage of change' is a barrier to participation in or adherence to a workplace weight loss program. In summary this research sought to close this gap by measuring the stage of change of participants in the workplace environment.

Social Ecological Framework (SEF). The SEF is a theoretical model that includes all influencing factors to behavior change (e.g. medical, psychological, organizational, cultural and regulatory) (Schneider & Stokols, 2009). Individual susceptibility to disease can be influenced by both the social (e.g., co-worker influence) and physical environment (e.g., access to healthy food, showers, walking trails) (Schneider & Stokols, 2009). This reciprocal relationship has been demonstrated in the workplace by unique organizational characteristics affecting the health of employees differently (Marklund, Bolin, & Essen, 2008). Examples of organizational

characteristics include: Division of labour (e.g., job rotation, job enrichment, internal education), patient and/or customer care (e.g., communications with patients, customer), authority (e.g., individual or group responsibility with planning and follow up), control strategies (e.g., performance control, physical meetings with employees/employer), and resources (e.g., material, administrative, personnel) (Marklund et al., 2008). In a study which looked at the differences in the relative effects of workplace variations on individual outcomes (e.g., sickness absence, general health) a significant variation between organizational characteristics and general health, musculoskeletal disorders, sickness absence and work ability was found (Marklund et al., 2008). The most influential of organizational characteristics on health were contact with customers (or--in the case of health care providers-- this could be contact with patients/residents) (Marklund et al., 2008). Given that individuals are affected by their personalities and a degree of subjectivity organizational characteristics may affect individuals differently (Marklund et al., 2008). Beyond this individual level interaction with the environment, it can be assumed that there may be 'healthy' and 'unhealthy' working conditions (Marklund et al., 2008). The Checklist of Health Promoting Environments at Worksites (CHEW) Oldenburg and colleagues (2002) identified 112 worksite physical characteristics that are known to influence behavior either positively (e.g., access to healthy foods) or negatively (e.g., access to high fat and sugar foods). More research on organizational policies and procedures, culture, physical environmental characteristics and social norms and how they affect participation in and adherence to weight loss program in the workplace setting is needed.

Social Cognitive Theory (SCT). SCT is the most dominant theoretical model used for many workplace weight loss programs (Anderson et al., 2009; Ostbye et al., 2013). This may be due to the fact that the SCT can be implemented with both individual and population based behavior change interventions (Ockene et al., 2002). The SCT emphasizes interpersonal, cognitive and environmental influences on individual behavior change (Ockene et al., 2002). SCT emphasizes that individuals' behavior is in a relationship with their personal beliefs (e.g., self-efficacy) and/or the environment (Anderson et al., 2009; Ostbye et al., 2013). Bandura (1977) stated behavior is either driven by: 1) expectations about outcomes, or 2) expectations about one's ability to engage in or participate in the behavior (self- efficacy). Outcome and

efficacy expectations have been seen to be predictive of behavior (Clark & Houle, 2009). It should be noted that outcome and efficacy expectations are very different. One can believe that a certain outcome will come from a behavior (e.g., eating a low calorie diet will lead to weight loss); however, if one does not have confidence in his or her abilities (defined as self-efficacy) to perform the behavior (e.g., prepare the low calorie food such as vegetables) the information (e.g., on how to eat a low calorie diet) will not influence his or her behavior (Bandura, 1977). A strong sense of self-efficacy comes from previous accomplishment and success (Bandura, 1994). An individual who has a strong sense of self-efficacy is better able to set challenging goals (e.g., weight loss) and stick to them; strong self-efficacy also allows individuals to recover more quickly from failure (Bandura, 1994). Thus, strong self-efficacy may be essential for weight loss programming where many behavior changes are necessary for weight reduction.

There are four ways to increase self-efficacy (Bandura, 1994). First, the most effective way to build self-efficacy is through the 'mastery of experiences'. Bandura suggested that success builds a robust belief in one's personal efficacy. Second, Bandura emphasized "vicarious experience" such as using social models or success stories to build confidence in one's self. In this case, individuals were more motivated by success achieved by people similar to them. If the social models are too unlike oneself than self-efficacy could decrease (Bandura, 1994). Third, Bandura described "social persuasion" or the act of persuading individuals' that they have the ability to do the required task to achieve results. Persuasion from peers or leaders holds potential to increase individual self-efficacy. Lastly, Bandura described the "reduction of the stress reaction" (e.g., using a not stressful situation to demonstrate an ability to do a required outcome).

The WW program uses all of the above ways to increase self-efficacy of participants (WWCL, 2013). First, the program uses "mastery of experiences" by setting small goals each week to work towards a larger goal of weight loss (e.g., start out with 5% weight loss, set behavior changes such as tracking food to achieve that goal). The program utilizes peer Leaders (e.g., the leader has lost weight with the WW program and kept it off) and success stories to provide "vicarious experience" to participants (WWCL, 2013). "Social persuasion" is used in the

meetings by facilitated meeting topics and practical tips to work the behavior change into their lives (WWCL, 2013). Lastly, the WW program allows participants to visualize 'spaces' that are challenging or stressful (e.g., eating in a restaurant) and helps them plan for what they would do and thus "reduces a stressful reaction" (WWCL, 2013). Yet, the WW program still struggles to engage participation and adherence in the workplace (WWCL, 2013).

What is the missing link? Why is participation in and adherence to the WW program in the workplace setting problematic? It may be important to note workplace weight loss programs are education-based (e.g., informing people that a low calorie diet and physical activity are important for weight loss) (Benedict & Arterburn, 2008). This education may not address the perceived barriers to the behaviors (e.g., individuals being unable to purchase low calorie food or do physical activity in the workplace). Thus, individual self-efficacy may be low and perhaps this is why individuals are unable to perform the behavior (e.g., eating a low calorie diet) even if they believe the outcome (e.g., weight loss).

How could the workplace environment support individual's self-efficacy? The workplace environment is relatively stable with its own unique policies, culture, and social norms (Trop et al., 2011). Individual behavior is affected by several levels of influence including: Intra-personal factors (self-efficacy, motivation, skills, knowledge), inter-personal (social support/networks, social norms), institutional or organizational factors (workplace policies), community factors (social capital, neighbourhood effects) and public policy (regulations and laws) (Ockene et al., 2002). Interventions that are intended to address adherence should attempt to examine the above factors (Ockene et al., 2002). Optimally, interventions and approaches to adherence must integrate individual level behavior change with population based approaches (Ockene et al., 2002). Thus, when steps are made to increase individuals' perceived self-efficacy (e.g., changes to environment to make exercise be perceived as 'easier' such as showers in the workplace) individuals are more likely to make a change (Kahn-Marshall et al., 2012). Additional SCT strategies to increase self-efficacy may include: Signed agreements, behavioral skill training, self-monitoring, and self-efficacy enhancement, social / environmental support (Ockene et al., 2002). Examples of supportive environmental changes in the workplace could

include: foods served onsite, access to fitness facilities, healthy eating information, scheduling and online support programs, etc. (Gudzune, Hutfless, Wilson, & Segal, 2013).

Summary

This literature review demonstrates there is a need to manage obesity and workplace weight loss programs could hold an opportunity to initiate and support healthy behavior change of large groups of individuals. However, in order to be effective these programs must improve participation and adherence rates. More research based on behavior change theory was needed to determine what individual (e.g., readiness to change, motivation, self-efficacy) and organizational (e.g., culture, policy, shift work and environment) factors may have influcenced participation in and adherence to a workplace weight loss (WW) program. To fill these gaps this research targeted health care workers in their organizational environment and utilized theory to help explain individual behavior. This research served as a preliminary exploration into learning what factors may have influenced participation in and adherence to a workplace weight loss (WW) program.

Chapter 3:

Methods

The purpose of this study was to learn what factors influence participation[1] in and adherence[2] to a workplace weight loss (Weight Watchers) program in a health care facility (Host Organization).

Research Design

This research followed a case study design (Gerring, 2007). A case study facilitates examination of human behavior within a contextual environment (Gillham, 2000). This research took place within the contextual environment of workers employed in a health care facility. Mixed methods (e.g., both qualitative and quantitative) were used for better interpretation of factors that influenced participants' behavior in a workplace weight loss program (Johnson & Onwuegbuzie, 2004). The rationale for selecting a case study design is best described by Howard Becker (1970); he suggested that in order to understand individuals' behavior it is important to first seek to know how they perceive the situation, the obstacles and the alternatives they see.

The case study examined participation in and adherence to a workplace weight loss (Weight Watchers) program over a three month period. The WW program itself was not under investigation or part of the research. The study examined both individual (stages of change, self-efficacy) and organizational factors (e.g., workplace environment, culture, policies and procedures) influencing participation and adherence.

Description of the 'Case'

The name and identifying information about the organization that served as the case for this research has been changed or removed to protect the confidentiality of the Host Organization and of participating employees. The Host Organization is a health care facility. It employs almost 800 employees. The Host Organization provides a wide range of services

[1]Participation was measured by registration in the WW program intervention.

[2] Adherence was measured by components of the 2013-2014 Weight Watchers program including meetings attendance (out of 12 possible), eating habit awareness, physical activity levels and development of routines/habits.

including nursing, food service, facility/environmental maintenance, management and administration.

Population. The Host Organization employs health care and support workers meeting the criteria of a 'blue and white collar' workforce. Host Organization was selected as it reflected a diverse range of social demographics with varying degrees of education, social economic status (SES), age, gender and shifts, which would be typical of many large organizations in the health care industry. The largest proportion of the workforce is the Nursing department which makes up approximately 51.6% of the workforce. The majority of the workforce were female (86%; Host Organization, 2013). Approximately 80% of employees within the Host Organization work shift work (Host Organization, 2013). Employees from all departments had the opportunity to participate in the study intervention.

The Intervention

The program used to explore the research question is the *Weight Watchers Canada Ltd. (WWCL) Health Solutions* program. This consisted of the WW program materials, online tools (eTools) and 12 meetings onsite at the workplace. For the purpose of this research the WWCL program was provided for free to all participants as an intervention for the three month duration to limit the possible participation barrier of cost and to provide compensation for participating. WWCL provided a letter of support which is included in Appendix A. The WW program was initiated on the week following the Study Overview Session. The program materials and details were not given out until that time.

The intervention consisted of 12 meetings over a three month period (with one break for the Good Friday Holiday) on Fridays from 2 p.m. – 3 p.m. time slot. This time slot was selected using the staff shift times provided by the Host Organization as a reference and feedback from the Organizational Contact and her team. For the duration of the program, research participants participated in the weight loss (WW) program to the degree they chose.

The WW team consisted of one Leader and one or two Receptionists depending on the number of participants who attended; they were provided by WWCL. Two Receptionists were present from weeks 1-7. Due to the larger than expected numbers the Researcher assisted with handing out files. This allowed the Researcher to speak with participants and develop a

rapport. The Leader and Receptionists are Lifetime members of WW, meaning they have lost weight with the WW program and have maintained their weight loss by weighing in at least once per month. The WW team had completed the WWCL training curriculum and implemented the program exactly like it would be implemented in the community following WWCL policies and procedures.

The WW meetings ran once per week for 12 weeks onsite at the Host Organization in a boardroom supplied by the facility. The original boardroom had a maximum occupancy of 25 people. It was selected based on previous participation rates of similar programming offered at the Host Organization. Due to the larger than expected participation numbers the boardroom originally booked was not large enough to accommodate all the participants. Therefore, the WW meetings were held in a 'floating' boardroom, varying each week depending on boardroom availability. The Organizational Contact and her team posted signs and sent emails to notify participants of the boardroom changes. It should be noted that a 'floating' boardroom could have been a barrier to attendance due to confusion; booking a larger boardroom at the beginning of this research may have prevented this.

The WW program was not modified in any way for this study. During the meeting time the WW Leader discussed the meeting topic (pre-determined by WWCL) which consists of a monthly Routine (e.g., eat a fruit and vegetable with every meal) and practical ideas to fit the routine into their lives (e.g., meal and snack ideas) in an Active Meeting format (e.g., group discussion facilitated by WW Leader). As per the WW program At Work polices, participants were able to attend meetings in the community setting (e.g., at a WW Centre/Store) during the three month intervention period. The WW program is used as an intervention and the components (e.g., meeting attendance, eating habit awareness, physical activity levels and development of habits/routines) were used to measure adherence.

The Researcher

The Researcher is a Professional Dietitian registered with the Nova Scotia Dietetic Association with a Bachelor of Science in Applied Human Nutrition from Mount Saint Vincent University. As a Dietitian and Masters in Health Promotion Candidate the Researcher is trained in Behavior Change Theory. The Researcher has been involved in the practice of initiating and

supporting behavior change for groups and individuals in various roles including: Personal Trainer, Private Practice Dietitian, Fitness Instructor, Health Promotion Coordinator, Fitness Manager, Community Dietitian and Running Coach.

It was primarily the Researchers role as Health Promotion Coordinator that inspired this research. The role was focused on facilitating workplace wellness programming (e.g., weight loss programs, heart health, food safety and diabetes management) for a diverse range of employees working regular hours and shift work. Employees also varied in age, gender, education and SES. This research is built on the learnings from this work.

At the time of the study the Researcher was working with WWCL as their Regional Trainer (RT) for Atlantic Canada. In this role the Researcher is responsible for training WWCL program, policies and procedures to all WWCL Service Providers as part of the Learning and Development team. The Researcher's role as RT allowed for quality control of the WW program implemented during the study by ensuring the program was facilitated according to WWCL policies and procedures.

It should be noted that the Researcher's personal values based on prior experience working in the health promotion field may have influenced the analysis of data. Working in the health promotion field the Researcher has been exposed to various situations/conditions (e.g., business statistics and individual counselling) this knowledge may have led to interpretation of factors that are not evident in this specific contextual environment. To help manage this subjectivity the Researcher utilized behavior change theory including: Transtheoretical Model (TTM) of behavior change (Prochaska & Velicer, 1997), Social Cognitive Theory (SCT) (Bandura, 1977) and Social Ecological Framework (Bronfenbrenner, 1999) as a guide for the qualitative data analysis and implemented validated measures e.g., stage of change and self- efficacy questionnaire (Johnson et al., 2008; Pro-Change Behavior Systems, Inc., 2015; Sarkin et al., 2001) and Checklist for Health Promotion Environments at Worksites (Oldenburg et al., 2002).

Study Participants

All employees at the selected site of the Host Organization were eligible to participate in the research. Participants must have been employees of the Host Organization's selected site to participate in the research.

As noted previously, the research and WW program were completely separate. The WW program has its own inclusion/exclusion criteria that were not part of this research. Employees could participate in the research and not the WW program; however all employees who chose to participate in the research also chose to participate in the WW program. Therefore, no non WW participants were recruited. Due to this fact, the original plan to study 'non WW participants' had to be omitted from the research design.

Organizational Contact. The Organizational Contact (OC) managed employee health and safety services at the Host Organization with a team of three additional staff. An informal meeting was held with the team to discuss the proposed research and any specific concerns prior to implementing this research. They expressed a strong interest in the research as they have experienced challenges facilitating participation in and adherence to similar workplace wellness initiatives (e.g., a Biggest Loser type weight loss program and fitness classes). They were particularly concerned about the participation and adherence of their staff who work shift work. The Health and Safety team were willing to assist with the research by being the point of contact for the Researcher, sending out communications to all staff and completing an interview regarding organizational policies, culture and other possible enablers or barriers to participation in and adherence to a workplace weight loss program. A letter of support was provided from the Host Organization's Research Advisory Council for this project; it is not enclosed in this paper to maintain confidentiality.

Recruitment. As noted previously, all Host Organization employees working within the selected site were eligible to be included in the study.

Upon approval of the Dalhousie University Health Sciences Research Ethics Board (HSREB) recruitment of participants commenced. Recruitment began two weeks before the Study Overview Session and consisted of an internal email (sent out by the internal OC; Appendix B) and a Recruitment Poster (Appendix C) within the workplace environment. The WWCL marketing team was not involved in the development of the recruitment material in an effort to keep the WW intervention separate from the research study as per the HSREB recommendations. Participation was voluntary and thus this research used a convenience sample. Interested participants contacted the OC and her team by email, phone or in person to

sign up for the Study Overview Session. All questions were directed to the Researcher. The Researcher responded with an email when more information about requirements for participation or the research was requested by potential participants.

The initial proposal intended to send out an additional email four weeks after the study commenced to see if any employees who did not (or could not) participate in the Overview Session would be interested in being interviewed about their reasons for deciding not to participate in the WW program. Therefore they could participate in the research and not the WW Intervention. However, due to time constraints and larger than expected recruitment numbers this part of the research design was removed. It should be noted that the recruitment was not closed after the Study Overview Session. Participants could join the study at any time. Participants could still choose whether to participate in the WW Intervention or not. Participants who wanted to join after the Study Overview Session could meet with the Researcher separately to review the Informed Consent and fill out the Initial Questionnaire. Despite this, no non- intervention participants were recruited. Although, reasons for participation are important, reasons for non-participation continue to be a gap in the literature.

I*nformed Consent.* As noted above, participants filled out the Informed Consent form (Appendix D) at the Study Overview Session or with the Researcher individually. Informed consent was verbally received during the Interviews with the OC and the WW Leader/Receptionist (Appendix G & H). The Final Survey re-stated Informed Consent for program participants at the beginning of the survey (Appendix F).

Table 1 provides the research questions based on the gaps in the literature with the ways this research was designed to fill them. The methods are fully described in the data collection section.

Table 1:
Methods Summary

Factor	Research Questions	Assessments Used
Individual/Organizational	What were the characteristics of participants (non-participants)?	Initial Questionnaire (demographic questions e.g., gender, shift work, department)
Individual	What motivated individual participation? How important is the reason for participating to the participant? Did importance rating influence participation and adherence?	Initial Questionnaire (reason for joining, importance rating pre and post)
Individual	Did individual 'readiness to change' influence participation? What stage of change were most participants in?	Validated 'Stage of Change' on weight loss (calorie intake and low fat) and exercise measure pre-intervention
Individual	Did participants feel confident in their ability to do the health behaviors needed to achieve weight loss? Did confidence in one's ability to complete the behavior change influence adherence?	Validated 'Self-efficacy measure on weight loss (calorie intake and low fat) and exercise measure pre-intervention
Individual	*Voice of the Participant:* What factors made participation easy? What factors made participation a challenge? What helped with adherence to the healthy routines/habits developed? How could more colleagues be encouraged to participate?	Final Survey (Open ended questions)
Individual/ Organizational	What were some of the barriers and supports perceived by the Leader and OC to influence participation and adherence?	Leader/OC Interviews
Organizational	What policies and procedures supported employee wellness?	OC Interview
Organizational	What characteristics of the organizational physical environment influenced healthy behavior?	CHEW

Data Collection

Overall there were seven different components to the data collection for this research:

1) *Study Overview Session*. This is where the Researcher explained the research background, purpose, methods for the research and obtained Informed Consent from potential participants. This session was held onsite at the Host Organization.

2) *Initial Questionnaire (Appendix E)*. After informed consent was obtained, participants were asked to complete an Initial Questionnaire that included demographic descriptors (e.g., age, occupation, shift worked), reason for participating in an open ended question format, and two validated measures ('Stages of Change' and 'Self-efficacy'). The Stage of Change and Self-efficacy measures were used with permission from Pro-Change Behavior Systems Inc. Pro-Change Behavior Systems, Inc continuously validates their measures using ongoing data collected from research studies (Johnson et al., 2008; Pro-Change Behavior Systems, Inc., 2015; Sarkin et al., 2001). The Pro-Change Behavior Systems, Inc measure was removed from the Initial Questionnaire after data was collected as per Pro-change Behavior Systems, Inc. conditions of use agreement. The Initial Questionnaire was completed by participants at the Study Overview Session (or at subsequent sessions if they joined later). See Appendix E for the Initial Questionnaire. It took participants approximately 15 minutes to complete the questionnaire.

3) *The Intervention*. No data was collected for the duration of the WW program (3 months) except to record attendance. Attendance was tracked for each participant by having the WW Leader/Receptionist keep a progress card which the Researcher collected at the end of the three month intervention. Attendance was used to measure adherence for this research as it was one of the behavioral components of the WW 2013-2014 program.

4) *Final Survey* (Appendix F). The study methods originally proposed that a follow-up interview would take place with 5 participants. Due to a higher than expected recruitment numbers, the Researcher amended the methods to give ALL participants an opportunity to complete a Final Survey (Appendix F) to collect more data to better assist learning what factors may have influenced participation in and adherence to the WW program. The Final Survey included an Informed Consent that was amended to reflect the above changes.

The Final Survey measured adherence using the degree to which the participant believed they adhered to the WW program recommendations (specifically meetings attendance, eating habit awareness, habit/routine development and physical activity). The Final Survey included multiple choice questions combined with space for participants to provide open answers. The open answers allowed participants to explain their responses and/or add 'other' influences to their participation and/or adherence. The open answer responses generated the 'Voice of the Participant' section of the Results.

The content of the Final Survey was modified slightly based on Researcher observation and changes in the WW 2014 program material. The WW 2014 program includes less focus than the 2013 program on 'tracking of food and physical activity' and more focus on 'eating habit awareness' and 'adding physical activity'; changes were made to the Final Survey to reflect this. The modifications also included adding a question about cost as a possible influencer of participation, including possible attendance in community meetings as opposed to the onsite meeting, and a question to determine the use of eTools and online support. The Final Survey also included the question 'why did you stop attending meetings' in the adherence section to learn why participants stopped attending mid-way through the WW program. The use of the word 'feel' was changed to 'believe' throughout. Finally, the format of the Final Survey was modified from its original 'Interview Guide' state (e.g., added in check boxes and protected cells) and sections were added to make it clear for participants to fill out (Section 1: Participation, Section 2: Adherence and Section 3: Final Comments). The modifications also allowed the Researcher to better input data into SPSS for data analysis. See Appendix F.

The Final Survey was completed at the last WW meeting (week 12), picked up from the Organizational Contact and/or emailed to the Researcher if the participant did not attend last session. If the participant was not at the last WW Program meeting the Researcher emailed an electronic copy of the Final Survey to the participant to email back. If the participant wanted a hard copy of the Final Survey the Researcher provided the OC with hard copies onsite at the organization with envelopes, the participants filled out the survey and sealed the envelope for the Researcher to pick up from the OC.

5) *Organizational Contact (OC) Interview*. This interview explored potential participation and adherence influences from the Organizational perspective. This took place at the end of the Intervention. The OC was interviewed to determine what factors he/she felt may have influenced participation in and adherence to the WW program. The reason for interviewing the OC was due to the fact that he/she may have more knowledge and a different perspective than participants regarding policies and environmental influences and how these factors may affect workplace culture and social norms. See the interview guide in Appendix G.

6) WW Leader/Receptionist Interviews. The WW Leader and Receptionist were interviewed to see if they noticed any factors that may have influenced participation in and adherence to the program while facilitating the meetings and weigh-ins. See Appendix H for interview guide.

7) *Checklist of Health Promotion Environments at Worksites (CHEW).* The CHEW is a checklist of workplace environmental features found influence health behaviors in workplaces (Oldenburg et al., 2002). The CHEW was reviewed by the researcher and edited for relevance to the study (e.g., questions related to smoking and alcohol was removed). The researcher toured the Host Organization with the OC to complete the CHEW. See Appendix I.

Two additional forms of data collection were proposed but not implemented:

1) Non- WW Participant Interviews. To best learn why employees chose not to participate in the WW program intervention an interview was to be conducted with non-WW participants. There were no Non-WW Participants recruited in this study so this form of data collection did not take place.

2) Document Review. It was proposed that a document review of company vision, mission and values, relevant policies, procedures at the Host Organization would be completed to gather information on how organizational factors may influence participation in or adherence to the WW program. Internal documents were to be requested from Organizational Contact. Document contents would have been coded based on relevance to research question (e.g., shift times, flexible work schedules). Due to a time constraints, more participants than anticipated and, most importantly, to better maintain Host Organization confidentiality this portion of the methods was removed. Please note, during the proposal period of this research

the Host Organization was named. Creating anonymity for the Host Organization did create changes to the proposed methodology. Therefore, company vision, mission and values, relevant policies, procedures at the Host Organization were covered in broad terms in the OC interview. The OC Interview (Appendix G) was designed to capture both formal written policies and informal organizational culture. After implementation it was realized that an objective review of the documents would still be valuable to help interpret the impact of policy and procedures more accurately but was beyond the scope of this current study.

Measures

The Stages of Change and Self-efficacy measures were administered prior to the intervention (Initial Questionnaire, Appendix E); they were used to assist with predicting individual factors that may influence participation in and adherence to the WW program.

Stages of Change. Accurately assessing the stage of change is integral to the delivery of behavior change interventions (Sarkin et al., 2001). The 'Stages of Change' measure used in this study was validated based on a series of randomized clinic trials completed by a team of researchers with Pro-Change Behavior Systems, Inc. (Pro-Change Behavior Systems, Inc., 2015). Pro-Change Behavior Systems, Inc. provides measures based on the Transtheoretical Change Model constructs (e.g., stage of change, situational confidence). The measure used for this study was initially validated to assess stages of change for regular moderate exercise in an overweight population (N=670) (Sarkin et al., 2001). The measure includes four different health related behaviors: moderate regular exercise, calorie reduction, dietary fat reduction and emotional distress management (Sarkin et al., 2001). Sarkin and colleagues (2001) found concurrent validity using all measures and construct validity using the stage of change measure. The measure used for this study was provided by Prochange Behavior Systems, Inc. and included the stage of change for healthy eating for weight management (calorie reduction and dietary fat reduction) and physical activity used by Sarkin et al. (2001) tailored by Johnson and colleagues (2008). The measure included a two point scale (yes or no) to determine current behavior and a five point scale to determine stage of change (1-No I do not intend to [make change] in the next six months to 5- [How long have you been doing these two things?] For more than 6 months). The right to use the measure was provided from Pro-Change Behavior

Systems, Inc. which provides evidence based tools to help promote and learn about behavior change in individuals and populations. The measures were included in the Initial questionnaire Sections 2, 3 and 4. As per the agreement for use, the measure was removed from the Initial Questionnaire in Appendix E prior to publishing and data collected from this measure was provided to Pro-Change Behavior Systems, Inc. in an aggregate form.

Self-efficacy. The 'Self-efficacy' measure is part of the same measure described above provided by Prochange Behavior Systems, Inc. (Johnson et al., 2008; Pro-Change Behavior Systems, Inc., 2015; Sarkin et al., 2001). This measure includes self-efficacy for healthy eating and physical activity for weight management. The self-efficacy scale used five points (1- Not at all confident to 5- Extremely confident) with a series of eight situations (e.g., When I eat in a restaurant) for healthy eating and six situations for regular exercise (e.g., When I am tired). The measure is again removed from the Initial Questionnaire as per the terms of use. The data collected from this measure was provided to Prochange Behavior Systems, Inc in aggregate form.

Checklist of Health Promotion Environments at Worksites (CHEW). Environmental influences are known to affect health-related behaviors in specific settings (Oldenburg et al., 2002). The use of the CHEW 112 item checklist allowed the Researcher to determine what environmental features of the Host Organization may have influenced participation in and adherence to the WW program. The CHEW (Oldenburg et al., 2002) was selected as it is an observational measure that allows for an objective assessment of the workplace environment. See Appendix I.

Data Management and Analysis

Data Management. Data specific to each participant (e.g., attendance score, questionnaire answers) was recorded under the participants' WW Registration Number. Therefore, data collected had all identifying information removed. When a hard copy of data was collected (Informed Consent Forms, Initial Questionnaires, researcher's observations and progress cards collected at end of intervention) it was stored in a locked cabinet by the Researcher. Data was inputted into a password protected computer. SPSS and Excel software

were used to manage and analyze the data collected. Transportation of data when required was completed using a password protected laptop.

Data Analysis. Quantitative data (from the Initial Questionnaire and Final Survey) were analysed using t-tests, ANOVA and correlations and/or descriptive statistics. Statistical analysis was completed using the software SPSS version 21. Descriptive Statistics (e.g., means, percentages) were used to allow for an objective description of the population (e.g., break down of occupation, age) and allowed for identification of factors that may have been influencing participation and/or adherence (e.g., shift work, stage of change). The Stages of Change and Self-efficacy measures allowed for individual responses to be summed providing subscale scores for each section (e.g., stage of change and self-efficacy). For example a series of questions were asked to categorize an individual to a stage of change (e.g., do you currently eat [a low calorie diet], are you planning on doing so in the next 30 days). Self-efficacy was scored by a series of questions using a Likert scale (e.g., how confident are you that you can eat [a low calorie diet] when [description of situation]). It should be noted that the ability to compare the Initial Questionnaire and Final Survey measures to adherence indicators (e.g., attendance score, eating habit awareness, physical activity, routine development) was limited by lack of registration numbers provided by participants on Final Surveys (n=26). Without registration numbers the Final Surveys could not be linked to the Initial Questionnaire and the Pro-Change Behavior Systems, Inc. measures.

Data analysis began with examination of variables with scatter plots and/or histograms to see if there were trends or associations between variables pre-identified in the literature (e.g., occupation, shift work, stage of change etc.). T-tests were completed to determine if there were significant differences in means between two samples (e.g., attendance scores of shift workers and non-shift workers) and if there were differences in paired samples (e.g., pre and post importance scores of participants). Linear Regression and ANOVA tables were used to determine if there were significant relationships between dependent scalar variables and one or more explanatory variables (e.g., Attendance Scores and Stages of Change and Self-efficacy).

To determine an 'Attendance Score' for each participant the Researcher tabulated the attendance in an Excel Spreadsheet and calculated an Attendance Score out of 12. Each time a

member weighed in it was recorded as an 'attendance'. Attendance was used to help determine adherence to the program due to it being part of the WW 2013-2014 program components. Participants were also asked to provide 'Perceived Attendance' on the Final Questionnaire. This was done to allow for community WW meeting attendance to be recorded and summed into an overall Attendance Score. For future research, it would be recommended to keep community meeting attendance separate from onsite meeting attendance to allow for a better comparison community meeting and onsite meeting attendance.

Qualitative data (from open-ended questions on Initial Questionnaire and Final Survey) were coded using thematic content analysis (Braun & Clarke, 2006); analysis was guided inductively from peoples responses and deductively from key constructs from behaviour change theory (e.g., stages of change, self-efficacy and Social Ecological Framework) (Bandura,1994; Bronfenbrenner, 1999; Prochaska et al., 2009). The Researcher first reviewed all comments and identified preliminary categories within participants' responses. For example there were 26 participant responses to the question regarding 'Reasons for Missed Meetings.' Looking across these 26 responses 16 categories were identified (e.g., Schedule conflicts, vacation, day of the week, meetings, busy, day off, location, personal appointments, illness/injury, easier to go off site, parking issues , time slot, health condition, shift work, discouraged, motivation). The Researcher then grouped responses based on similarities between them (e.g., combined references to 'day of the week' and 'schedule conflicts'). As a final step the top 'themes', defined as important patterns in relation to the research question (Braun & Clarke, 2006), were identified. For example, 'reasons for missed meetings' were grouped into the themes 'Individual Factors' and 'Organizational Factors'. To determine what counts as a theme the Researcher used the number of references from participants as a guide. It also had to be considered that a lower number of references from participants did not necessarily mean that a theme is less meaningful (Braun & Clarke, 2006). Therefore, in some instances the Researcher used judgement to determine themes and importance. It should be noted that this judgement may have been influenced by the Researchers' values (Braun & Clarke, 2006). The qualitative data analysis plan was sent to the researcher's supervisor to be reviewed and validated by a second party to try to limit this. A 'Voice of the Participant' section

is provided within the results to allow for direct quotes from participants to be shared. The 'Voice of the Participant' are quotes that were selected to represent the 'themes' identified. Table 2 provides an example of the Qualitative data analysis process.

Table 2: Qualitative Analysis Reasons for Missed Meetings (OTHER) N= 26
Step 1: 16 trends identified (#of references in brackets)
Schedule conflicts (14), vacation(6), day of the week (4), meetings (3), busy (3), day off (3), location (2), personal appointments (2), illness/injury (2), easier to go off site (1), parking issues (1), time slot (1), health condition (1), shift work (1), discouraged (1), motivation (1) Combined 'schedule conflicts'(14) and 'shift work' (1) = 15 and combined 'day of the week' (4) and 'day off' (3) = 7
Step 2: Themes Identified
Individual Factors Vacation (6), personal appointments (2), illness/injury (2), easier to go off site (1), health condition (1), discouraged (1), motivation (1) **Total Responses = 14** **Organizational Factors** Schedule conflicts (14), day of the week (4), meetings (3), busy (3), day off (3), location (2), parking issues (1), time slot (1), shift work (1) **Total Responses = 32**

Ethical Considerations

Behavior change is challenging and participants who withdrew from the WW program may have experienced a feeling of failure with negative emotional impact. However, benefits of participation included a free WW program onsite at their workplace with online support. If participants in the study chose to participate in none, some or all of the WW meetings this was their choice. Participation in the WW program was not a requirement of participation in the study.

Confidentiality was also a risk. Due to the group setting it was impossible to maintain anonymity. This was declared on the Informed Consent form and discussed at the Overview Session. While participant anonymity was not guaranteed, collected data was protected and remained confidential.

It was determined that the risks to the participating organizations (WWCL and Host Organization) were minimal. For the Host Organization risks may have included: Awareness of policies/culture that do not support participation in and adherence to a workplace weight loss program and costs/time required for changes. To protect the Host Organization they remained unnamed in the write up of this research. However, it is impossible to protect the Host Organization from being identified to their employees. Benefits for Host Organization included: Providing access to the WW program to their employees' onsite and learning about what factors may influence participation in and adherence to a workplace weight loss (Weight Watchers) program at their worksite. Benefits for WWCL may have included: Increased knowledge in what factors increase participation in and adherence to their program thus an opportunity to improve the participation and adherence to their program which may lead to increased revenue and business retention.

Chapter 4:

Results

To best answer the research question and identify the factors that may have influenced participation in and adherence to a workplace weight loss program the results have been organized in two parts: First, factors that may have influenced participation in the WW program are reviewed and, second, factors that may have influenced adherence to the WW program are described. Table 2 in the Methods chapter outlines sub questions that were used to guide the organization of the mixed methods results. Quantitatively the characteristics of the participants were defined (e.g., gender, occupation, readiness to change). Qualitatively the 'Voice of the Participant' was used to learn from the participants' perspective what motivated participation, made participation easy and/or challenging, what could help with adherence of healthy routines/habits developed and how could more colleagues be encouraged to participate. The organizational environment was reviewed quantitatively using the CHEW. The OC and WW Leader also imparted their qualitative voice to help learn more about the organizational factors that may have influenced participation in and adherence to the WW program at the Host Organization.

Factors that may have Influenced Participation in the WW Program

Participant Characteristics. 84 participants in total were recruited for this Research. After the 'Study Overview Session' 48 participants consented to participate in the Research, filled out the Initial Questionnaire (Appendix A) and registered in the WW program. In total 36 additional participants continued to join the Research and register in the WW program up until week 7. In total 50% (42) of the participants filled out the Final Survey. No participants joined the Research (filled out the Informed Consent, Initial Questionnaire and Final Survey) without choosing to participate in the WW program. Therefore, 100% of study participants were WW program participants. The final penetration of participation in the WW program of the Organization workforce was 11% of employees.

Occupations of participants included employees from various departments: 52.4% (44) from Nursing, 11.9% (10) from Food Service, 11.9% (10) from Environmental Service, 9.5% (8) from Management, 6% (5) from Administration and 8.3% (7) from 'Other' departments. 60.7% (51) were non-shift workers, 36.9% (31) were shift workers and 2.4% (2) did not report shifts

worked. The majority of participants were female, 91.7% (77); 7.1% (6) were male participants. The mean age of participants was 46.8 years (minimum age 21 years and maximum age 68 years).

Motivations for Participation. The Initial Questionnaire (pre-intervention) allowed an open space for participants to write out why they joined the study. See Figure 1 'Voice of Participant' (below) for examples of responses. There were 79 written responses provided. Two themes were identified as reasons for joining the study: 55.7% of participants referenced desire to lose weight and 34.2% referenced health.

Figure 1: Voice of the Participant – Reasons for Joining Study

The Final Survey (post-intervention) also asked reasons for joining the study and used multi- response questions with eight options (weight loss, health, feel better, appearance, free/no cost, research, not sure and other). The options for the Final Survey were generated based on the coding themes from the Initial Questionnaire and observations of the OC, WW Leader/Receptionist and researcher. Participants could provide multiple responses (e.g., "health and/or "weight loss" and/or "feel better"). Participants who responded to the Final Survey (n = 42) confirmed the top reasons for joining identified in the Initial Questionnaire: weight loss and health. See Table 3.

Table 3:
Reasons for Participation (Final Survey)

		Responses	
		N	Percent
Reason for Participation	1. Feel better	21	50.0%
	2. Free/no cost	21	50.0%
	3. Research	9	21.4%
	4. Appearance	13	31.0%
	5. Weight loss	34	81.0%
	6. Health	33	78.6%
	7. Other	5	11.9%

Participants rated their reason for joining the study as 'high;' the mean score was 4.55 (out of a possible 5) with the majority (n = 93.5%) rating their reason for joining the study (e.g., weight loss, health etc.) a 4 or 5 on a 5 point Likert scale. See Table 4. Participants were asked to rate the 'Importance' of their reason for joining the study both pre (Initial Questionnaire) and post-intervention (Final Survey). Although the average post- importance score was 4.10 (out of a possible 5), see Table 5, a paired t-test showed there were no differences in pre and post importance ratings (p 0.76). Pre and post important scores were only able to be analysed for participants who included their registration numbers on their Final Questionnaires (n = 26).

Table 4:
PRE–Importance Frequencies

		Responses	
		N	Percent
	1 (Low)	0	0%
Likert Scale	2	2	2.4%
	3	2	2.4%
	4	26	31.0%
	5(High)	54	64.3%
	Total	84	100%

Table 5:
POST – Importance Rating Frequencies

		Frequency	Percent
Likert Scale	No answer	1	2.0%
	1 (Low)	0	0%
	2	0	0%
	3	10	23.8%
	4	13	31.0%
	5 (High)	18	42.9%
	Total	42	100.0%

Readiness for Change and Self-Efficacy. To learn if individual 'stage of change' or 'self-efficacy' were factors influencing participation validated Pro-Change Behavior Systems© survey tools were used (Pro-Change Behavior Systems, Inc, 2015). Questions allowed for categorization of participants into stages of change for healthy eating for weight reduction and physical activity. Tables 6 and 7 indicated that most participants were not currently eating for weight reduction or low fat.

Table 6:
Eating for Weight Reduction Frequencies

	Frequency	Percent
No	63	75.0
Yes	20	23.8
No answer	1	1.2
Total	84	100.0

Table 7:
Eating a Low Fat Diet Frequencies

	Frequency	Percent
No	51	60.7
Yes	33	39.3
Total	84	100.0

The majority of participants were in the 'Preparation Stage of Change' for both healthy eating and physical activity and willing to make change in the next 30 days. See Tables 8 and 9.

Table 8:
Healthy Eating Stage of Change Frequencies

		Frequency	Percent
	Contemplation	7	8.3
	Preparation	45	53.6
	Action	11	13.1
	Maintenance	9	10.7
	Total	72	85.7
Missing	No answer	12	14.3
Total		84	100.0

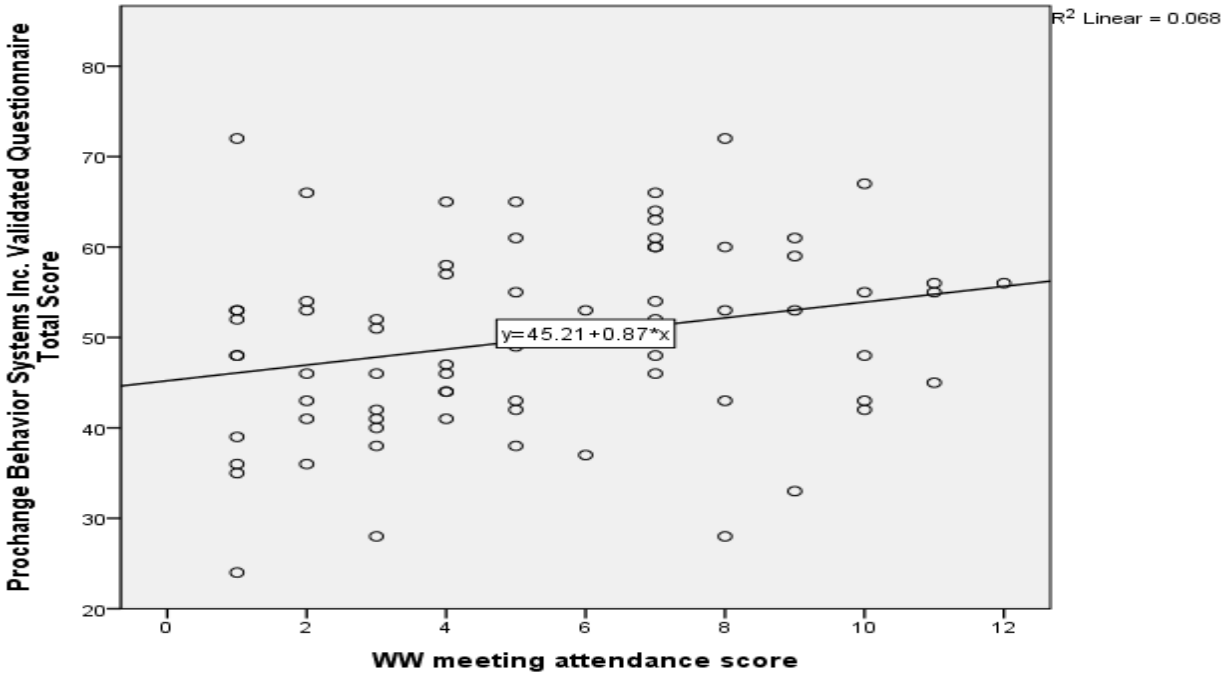
Table 9:
Exercise Stage of Change Frequencies

		Frequency	Percent
Valid	Pre-contemplation	1	1.2
	Contemplation	17	20.2
	Preparation	43	51.2
	Action	16	19.0
	Maintenance	7	8.3
	Total	84	100.0

Self-efficacy/confidence scores were calculated using a subsection of the Pro-Change Behavior systems measure. The mean confidence score for eating for weight reduction and low fat was 23.86 with a maximum score of 40 and minimum score of 10. The mean physical activity confidence score was 18 with a maximum score of 45 and a minimum score of 6. There were no significant relationships found between eating confidence (p 0.166) and exercise confidence (p 0.108) scores and attendance.

The Pro-Change Behavior Systems© survey allowed for a total score to be tallied using a series of questions related to an individual's 'stage of change' and 'self-efficacy'. The maximum total Pro-Change Behavior Systems© score was 72 with a minimum score of 24; the mean score of participants was 49.79. A significance of p 0.027 was calculated; however Figure 2 demonstrates large variances, therefore, caution is needed in judging the relationship as significant.

Figure 2: Pro-Change Behavior Systems, Inc. Score and Attendance Score Scatterplot



Voice of the Participant- Participation. As introduced in the Methods chapter, to learn from the participants' perspective what factors influenced participation and adherence, space was provided on the Initial Questionnaire and Final Survey for participants to provide open ended answers. This allowed for a 'Voice of the Participant' section. As a reminder, participation refers to registration in the WW program. When asked what made participation 'easy' most participants referred to 'convenience/location' and 'support from co-workers'. Participants could provide multiple responses. See Table 10 for full summary of responses.

Table 10:
Factors that made Participation Easy

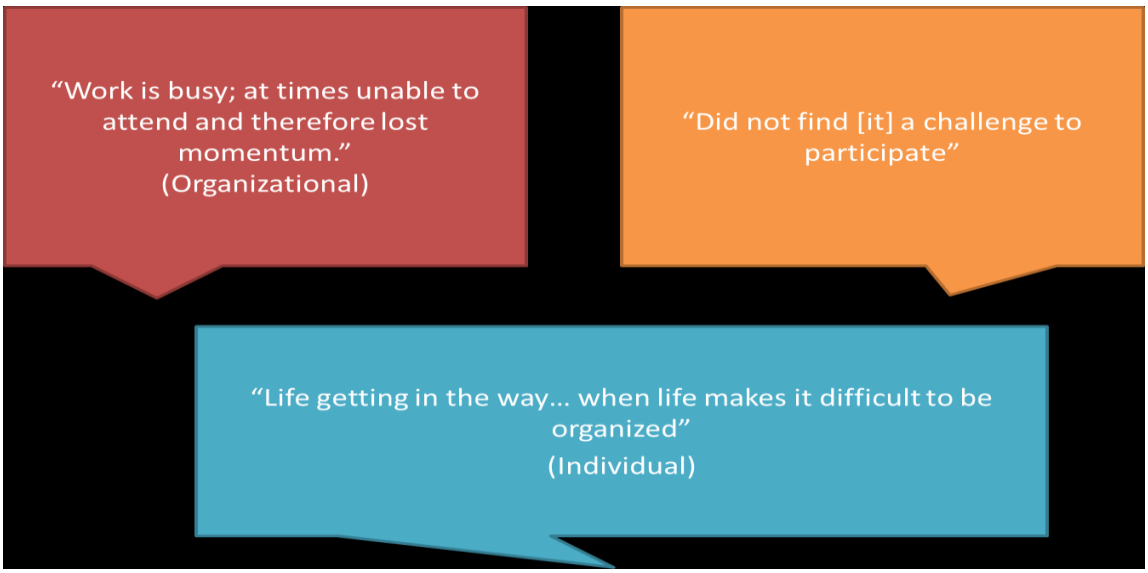
		Responses	
		N	Percent
Factor	1. Time slot	12	28.6%
	2. Convenience/ location	32	76.2%
	3. Manager/ supervisor support	7	16.7%
	4. Personal motivation	16	38.1%
	5. Support from co-workers	22	52.4%
	6. Support from family and/or friends	13	31.0%
	7. Support in the community	2	4.8%
	8. Unsure	1	2.4%
	9. Other	4	9.5%

When asked what made participation 'a challenge' the majority of participants selected 'other' and/or 'time slot'. See Table 11 (N=40, there were 2 with no responses). There were 24 responses under 'explain'. 10 participants indicated 'no challenges;' the remaining responses were divided based on individual and organizational factors. There were 10 references to Individual factors that made participation a challenge (e.g., Life events, stress, not liking the venue, loss of momentum, personal obligations, not meeting expectations, lack of individual motivation). There were also 10 references to Organizational factors making participation a challenge (e.g., Schedule, work busy, parking, lack of manager support). Figure 3 provides the 'Voice of the Participant'.

Table 11:
Factors that made Participation a Challenge

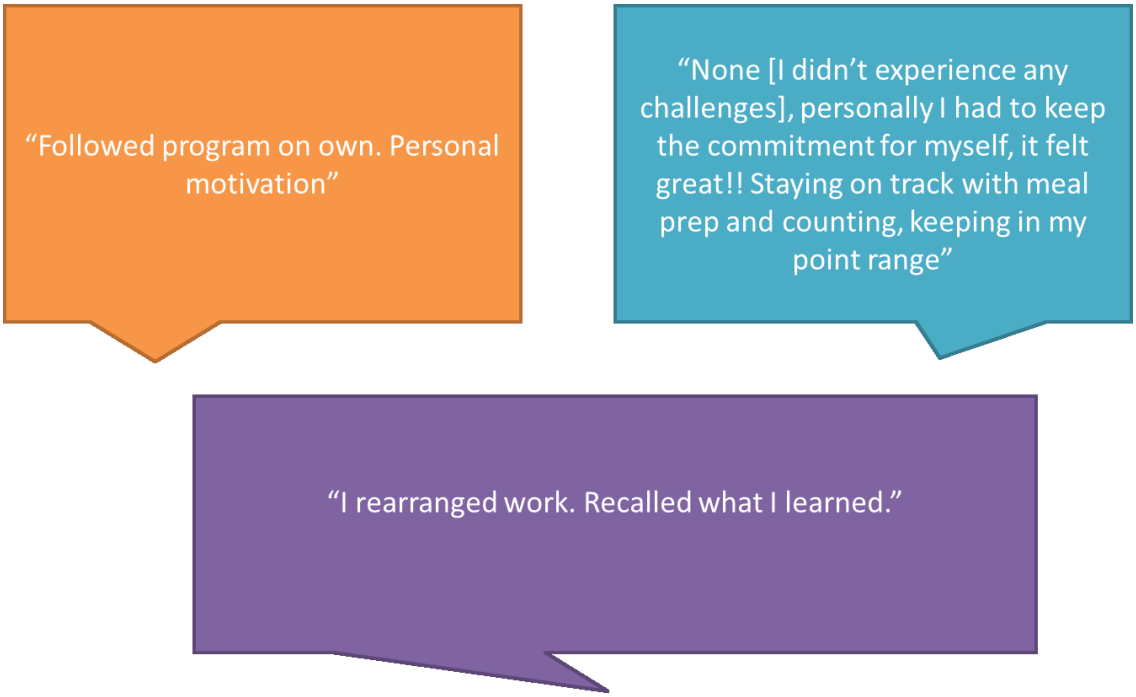
		Responses	
		N	Percent
Participation Challenges	1. Time slot	12	34.3%
	2. Lack of connection to the WW Leader	0	0%
	3. Location	4	11.4%
	4. Lack of manager/supervisor support	3	8.6%
	5. Lack of personal motivation	3	8.6%
	6. Lack of support from co-workers	0	
	7. Lack of support at home	1	2.9%
	8. Lack of support in the community	1	2.9%
	9. Unsure	4	11.4%
	10. Other	16	45.7%

Figure3: Voice of the Participant – Participation Challenges



When asked how they overcame their challenges to participation there were 25 responses. There was variety to the responses (e.g., schedule flexibility, attending community meetings). However, most participants either directly referenced 'motivation' or referenced part of the definition of motivation as based on Behavior Change Theory e.g., the feeling of being able to achieve the weight loss outcomes expected (Bandura, 1994; Williams et al., 1996). Therefore, one overall theme was identified, with 68% (n=17) of participants referencing 'individual motivation' as a way to overcome challenges. See *Figure 4*.

Figure 4: Voice of the Participant – Overcoming Challenges

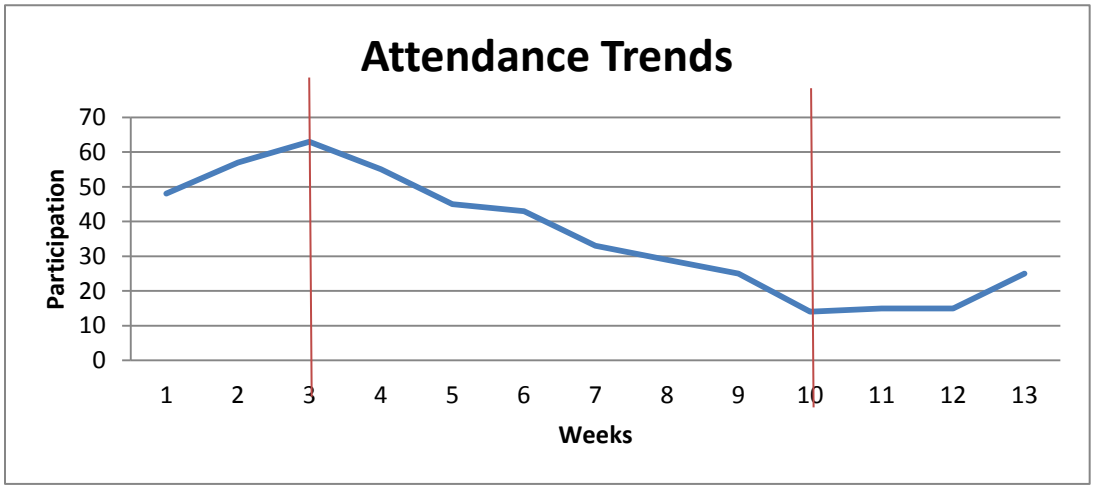


Factors that may have Influenced Adherence to the WW Program

As a reminder, adherence was measured by components of the 2013-2014 Weight Watchers program including meetings attendance (out of 12 possible), eating habit awareness, physical activity levels and development of routines/habits. The average 'attendance score' (defined as the number of meetings attended out of 12 possible) was 5 of 12 WW meetings (41.7%). The attendance peaked at week 3 and dropped off until week 10, ending with a slight peak on week 12 of the WW program (week 13 of the Study – week 1 was the Study Overview Session, the WW program began on Week 2). See *Figure 5*. The Final Survey asked for a self-reported 'perceived attendance'. This was designed to help capture community meeting

attendance. A total of 69.0% of participants only attended the WW program onsite at the Host Organization and 31% attended at least one WW meeting in the community setting. The average Perceived Attendance score was 6.95 out of the possible 12 meetings. Shift workers appeared to be more likely (6 shift workers attended community meetings compared to 1 non-shift worker) to attend meetings in the community than non-shift workers.

Figure 5: Attendance Trends

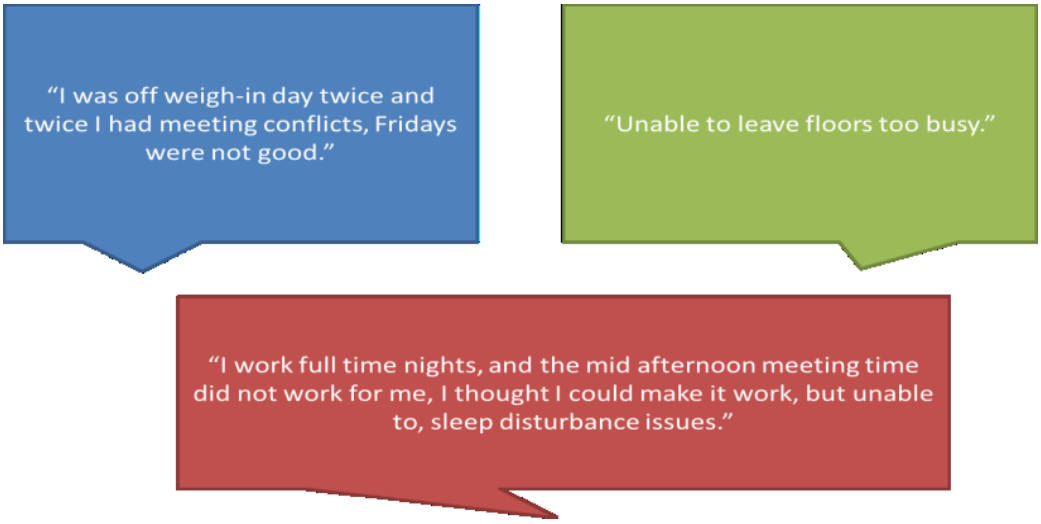


Voice of Participant- Adherence. As previously described, the 'Voice of the Participant' was derived from open ended responses on the Initial Questionnaire and Final Survey. Participants reported 'missed meetings' most often due to 'work related conflicts' and 'Other' reasons (N=40, two had no responses). See *Table 12*. There were 26 open ended 'other' responses. Responses were categorized into individual and organizational factors. Individual factors were referenced by 14 participants and included: Easier to go off site, vacation, health condition, personal appointments, illness/injury, feeling discouraged, lack of motivation. Organizational Factors were referenced by 22 participants and included: Schedule conflicts/shift work, parking issues, time slot, busy and not convenient location. There were six participants who referenced both individual and organizational factors. See Figure *6* for 'Voice of the Participant'.

Table 12:
Reasons for Missed Meetings

		Responses	
		N	Percent
Factor	1.Weight loss not as I expected	2	5.0%
	2. Work related conflict	24	60.0%
	3. No time	4	10.0%
	4. Did not connect with WW Leader	0	0%
	5. Family related conflict	1	2.5%
	6. Illness	3	7.5%
	7. Unsure	1	2.5%
	8. Other	20	50.0%

Figure 6: Voice of the Participant – Reasons for Missed Meetings



In total 57% of participations felt their attendance was 'sufficient' to have fully benefitted from the WW program. Participants who rated their meeting attendance as 'sufficient' attended significantly (p 0.000) more meetings than those who did not (7.87 meetings compared to 3.86 and, using 'perceived attendance,' 8.65 compared to 4.09 meetings). There were no significant differences found in the attendance scores between occupations (p 0.618) or gender (p 0.052). However, an independent samples t-test suggests there was a significant difference (p. 0.004) in the attendance scores of shift workers versus

non-shift workers. On average shift workers attended less WW meetings than non-shift workers (3.84 compared to 5.71 meetings).

50% of participants used the online support tools. There were no relationships found when comparing attendance scores, food awareness, physical activity rates and habit/routine development in those who used the online tools and those who did not.

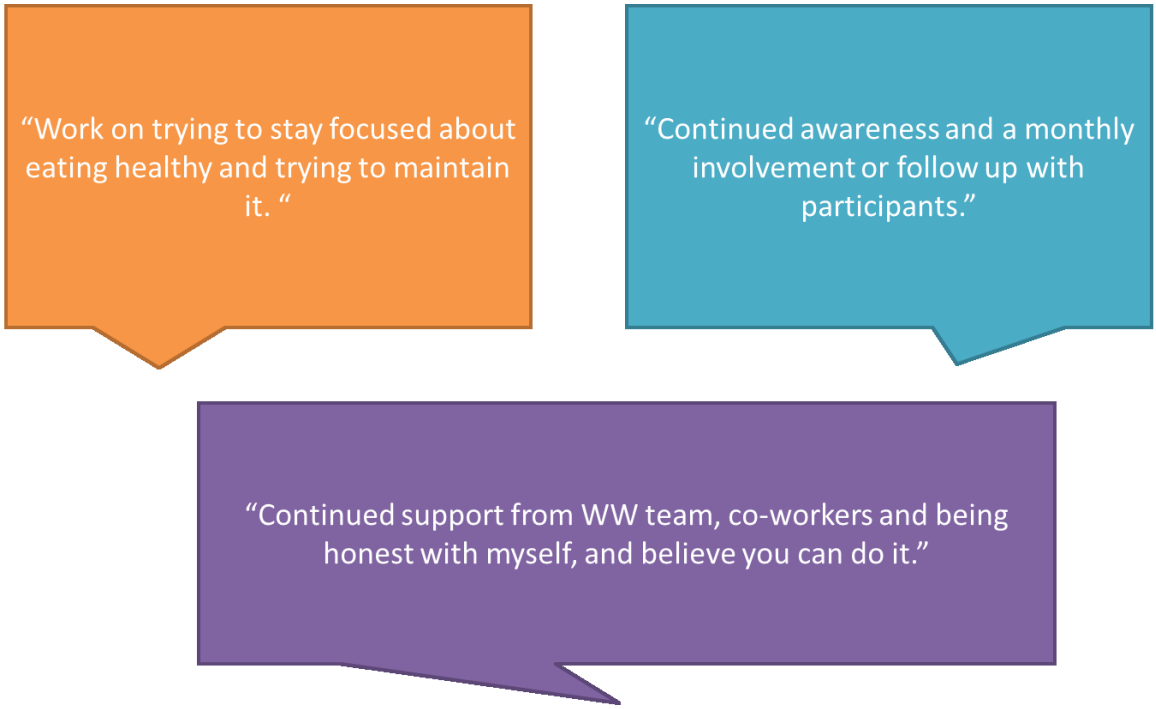
When asked about food awareness 81% of participants reported that they were 'sufficiently aware' of their eating habits to fully benefit from the WW program. When compared using an independent t-test eating habit awareness and attendance score were not shown to be related. Being 'too busy/lack of time' (45.3%) and 'personal motivation' (18.9%) were top factors influencing eating awareness. 20.8% of participants were 'unsure' of factors influencing eating awareness. Participants were evenly split with achieving 'sufficient' physical activity. 47.6% reported 'sufficient levels' and 45.2% reporting 'non-sufficient' levels of activity. 'Lack of time/too busy' (43.9%) and 'Lack of personal motivation' (29.8%) were main factors influencing physical activity rates.

The average amount of habits/routines developed was three. The top routines/habits developed were 'physical activity' (45.7%) and 'improved eating habits' (40.0%). Participants believed that 'individual motivation' (37.5%) and 'the WW program' (31.3%) were the main factors that influenced the development of their new habits/routines. See *Figure 7* for 'Voice of the Participant'. A linear regression/ANOVA table and correlation equation demonstrated a significant relationship (p 0.001) between perceived meeting attendance and number of routines developed.

Figure 7: Voice of the Participant – Factors Influencing Routine/Habit Development

When asked what could be done to support maintenance of the habits/routines participants developed over the three month WW program three themes were identified: 51.4%% of participants referenced 'Individual Motivation', 27.0% referenced the WW program and 24.3% referenced continued co-worker support. See *Figure 8* for 'Voice of the Participant'.

Figure 8: Voice of the Participant – Maintenance of Routines/Habits



When asked what could be done to help colleagues to participate in and adhere to similar wellness programs three trends were identified: Employer support (38.2%), additional time slots (20.6%) and group support (20.6%). See *Figure 9*.

Figure 9: Voice of the Participant–Participation and Adherence Supports for Colleagues

Organizational Contact and Leaders' Perspectives

The interviews with the Organizational Contacts (OC) and WW Leader revealed additional insights on what factors may have influenced participation and adherence. The WW Leaders shared what factors they heard shared in meetings and during weigh-ins. The OC was able to provide details on internal policies and procedures that may have influenced participation in and adherence to the WW program. The OC confirmed that the Wellness at Work research had a higher than average participation rate compared to other wellness initiatives at the organization. To maintain confidentiality the WW Leader and OC interviews are summarised together in broad points below.

Organizational factors. Wellness as part of the Host Organization's culture was identified as a key organizational factor. There were a number of factors perceived to make up the organization's culture. The Host Organization is a health care facility and the job responsibilities include promoting health and wellbeing to others. It was identified that health of employees is necessary to provide health care to others. There was discussion of limited resources so supporting current staff with being healthy was an extra priority.

Beyond this broad organizational culture, there were specific organizational practices that were perceived to influence participation and adherence. There was a department within the Host Organization whose mandate is to promote health and wellbeing. It was cited that 'this was the right time' for this program. Trust and communication had been built up by the department organizing the research. Communication channels used included traditional emails and posters but informal communication (e.g., word of mouth, peer influence) was cited as being a huge influencer of participation and adherence. Department teams were seen to work together to assist each other in participating, attending and adhering to the WW program (e.g., covering for each other 'on the floor' and creating an online support page through Facebook).Shift work was referenced as an obstacle to participation and adherence.

It was suggested that [no] cost was an influencer. It was referenced as a positive influencer for participation as it may have removed the barrier of money. However, it was referenced as a possible negative influencer of adherence as participants might not have 'valued' the program as much as they would if they paid for it.

When asked to expand on what challenges to participation and adherence the following was cited: Accessibility of healthy foods, the boardroom rotation due to the large number of participants the original room booked was not big enough and this could have prevented attendance due to confusion over location. Individual factors referenced included: Anxiousness and/or embarrassment over admitting to 'wanting' to lose weight in the workplace and weight loss results not being what was expected may have prevented participation all together and/or were challenges to adherence. Individual motivation was mentioned as both a positive and negative influencer. Individuals seemed motivated at the beginning of the program and less so towards the end.

When discussing what could be done to improve participation and adherence the following organizational factors were identified: Completion of needs assessments to learn what programming employees need and want, investigate a cost that is enough to establish value but not too high to serve as a barrier to participation, reserve the same room, more encouragement from managers/ supervisors.

Environmental Review

To examine the organizational environment and how it may have possibility influenced participation and adherence the Checklist of Health Promotion Environments in the Worksite (CHEW) (Oldenburg et al., 2002) was used. Each item on the checklist is hypothesized to be associated either positively or negatively with physical activity, healthy eating, alcohol consumption and smoking. The Researcher reviewed the 112 items on the checklist for relevance and determined that 105 items were relevant (e.g., alcohol and smoking items were removed as these were not relevant to answering the question researched in this study). The CHEW 'Building Assessment' indicates that the organization's connected buildings with multiple floors provided elevators visible from the major employee entrances. No signs are present at elevators that encourage stair use. Stairs are accessible with floor numbers indicated on the inside of the stairway. Signs encouraging stair use were occasionally posted by stairs. There are no signs encouraging parking farther away from workplace; however, parking is limited close to the buildings. There is a shared green space with care recipients and access to open grassy space; however there are no walking paths on or adjacent to workplace. Surrounding roads have heavy to medium traffic levels and all have accessible sidewalks. The 'Fitness Centre Environment' includes access to a full fitness centre onsite including cardio, resistance and stretching equipment, TVs and support available.

Assessment of the 'Nutrition Environment' revealed an onsite restaurant. The restaurant serves high fat and sugar menu items (e.g., hamburgers, French fries); however it does provide access to fresh fruit, vegetables, green salads, low fat milk/yogurt. There were three lower fat menu items available on day of assessment. There was no signage promoting or labeling healthier choices. Nutrition information was not easily visible. There were five vending machines onsite. Assessment of vending machines showed only 1 low fat and sugar item (bottled water). No fresh foods or health checks were visible. The organization does have multiple lunch room's onsite with access to a fridge, stove, toasters and microwaves. There was no signage in the lunch rooms encouraging healthy choices on day of assessment.

The 'Information Environment' included 30 or more bulletin boards. Of these there were two encouraging physical activity and three encouraging general health promotion.

Occasionally, there was more signage on health related topics such as 'Nutrition Month'. The full CHEW assessment is not provided to maintain confidentiality of the Host Organization.

Summary

The characteristics of the convenience sample who participated in this case study included predominately female nurses who joined for weight loss and health reasons. They rated their reason for joining as 'high' and were in the higher stages of change (preparation, action and maintenance). Most participants reported 'convenience/ location' and 'peer/group support' as factors making participation easy. 'Time slot' and a combination of individual and organizational factors at were reported as making participation a challenge. Participants may have been recruited using informal communication and supported to participate through the organizational culture developed at the Host Organization. Interesting findings included a larger than expected participation numbers.

The Voice of the Participant indicated that missed meetings may have been mainly due to 'work related conflicts' and 'organizational factors'. Those who worked shift work attended fewer meetings than those who did not. Shift workers attended more meetings in the community setting than non-shift workers. 'Lack of time' and 'busyness' was reported as the biggest challenges to adherence. Individual motivation was reported to assist participants to overcome their challenges.

The Host Organization provided many supports to promote positive health behaviors (e.g., access to stairways, fitness facilities onsite); however, there were factors (e.g., little promotion of healthy food choices, lack of access to healthy food) present that may have negatively influenced participation in and adherence to the workplace WW program.

Chapter 5:
Discussion

The PHAC and CIHI (2011) recommend that a comprehensive multi-sectorial approach be used for managing obesity in Canada. This study framed a partnership between Weight Watchers, a commercial weight loss provider, and the Host Organization in a community workplace setting. The purpose of this study was to explore possible factors influencing participation in and adherence to the WW program in the workplace. The Social Ecological Framework (SEF) suggests there are many factors that interact to shape individual behavior (Sallis, Owen, & Fisher, 2008). Building on this concept, the results of this study identified many factors that may have interacted to influence participation and adherence of study participants. It should be noted that, based on the theoretical models that were used by this study (TTM, SEF and SCT), there is an assumed interaction between all factors (Bandura, 1977; Bronfenbrenner, 1979; Prochaska & Velicer, 1997). However, in order to answer the research question the results have been organized into 'Individual', 'Unique and Overlapping' and 'Organizational' factors (see Figure 10). Although it was out of the scope of this research to measure how these factors interacted, the results do confirm that individual behavior change in the area of obesity management is complex and multi-factorial (Kahan-Marshall & Gallant, 2012; Middlestadt et al., 2011; PHAC &CIHI, 2011; Thompson et al., 2005; World Health Organization, 2003).

Figure 10: Factors that may have influenced participation in and adherence to a workplace weight loss (WW) program.

Although this research specifically sought to determine factors influencing participation and adherence as separate constructs, in reality, it was difficult to separate the factors that influenced participation in and adherence to the WW program. Given that adherence refers to the degree to which a participant's behaviour coincides with the recommendations of a particular program (Marcus et al., 2009), if an individual does not participate in the program he or she cannot adhere. Similarly, based on the theory of self-efficacy, if individuals believed they would not be able to make behavior changes necessary to adhere to the WW program they may not have participated (Bandura, 1994). Therefore, it was concluded that participation and adherence factors are best discussed together to avoid repetition.

This discussion will begin with factors that may be unique to this research: The fact the WW program was offered 'free' for the purpose of research.

Unique Factors

Free/No Cost and Research. For this research, the WW program, which is usually fee based, was offered for free. Money is seen as one of the leading barriers to those seeking weight loss treatments among overweight and obese adults (London, 2008). Therefore, it can be assumed that cost could have been a factor influencing participation. A question was added the Final Survey (Appendix F) to investigate if cost was an influencing factor to participation. Half of those who participated stated they did so because it was 'free/ no cost to them'. Therefore, more research is needed to determine if 'free/no cost' could be regarded as positive incentive for individual participation. The research in the area of financial incentives and participation is varied (Cawley & Price, 2013: Goetzel & Ozminkowski, 2008); therefore more investigation into the impact of cost and participation is required to determine its true impact.

Participation in the WW program was still high even if we took away the 50% of participants who joined because it was 'free/no cost to them.' There were still 42 participants compared to the expected 25 reported by the workplace (Host Organization, 2013). Perhaps it was due to the fact that participants were participating in 'research', not the WW program itself? This question was also added to the Final Survey and 21.4% stated that they joined the study due because it was 'research' (compared to the 78.6% who did not). Still, the main reasons for joining the WW program stayed the same both pre and post intervention: Desire for

weight loss and health. Therefore, the 'research' component may have influenced participation to a degree. It is unknown the impact this had on the participation.

The penetration into the Host Organization employee base was 11%. Despite this being higher than expected, the WW program still did not have participation from all employees who were in need of healthy behavior change support. The overweight and obesity rates in the selected Host Organization were estimated to be 59%, which is the overweight and obesity rate in Nova Scotia (Statistics Canada, 2012). This is a modest assumption due to the fact that the workplace population includes shift workers which is an independent risk factor for obesity (Antunes et al., 2010; Atkinson et al., 2008). The WW program recruited only 85 (18.6%) of the theoretical 450 possible participants. Therefore, even though this research could call its participation rates high, it is still only achieving participation by a small proportion of the population who could benefit from the program. Therefore, learning how to achieve higher participation rates, especially for those at risk such as shift workers, is still of importance for future research to help improve health promotion policy and practice.

As discussed in the literature review, in order to help individuals make healthy changes we first must get them to participate in behavior change interventions (Serxner, 1990). The following sections explore other individual and organizational factors that may have interacted to influence participation in and adherence to the WW program in the contextual environment of the workplace environment used for this case study.

Individual Factors

The individual factors that may have impacted participation reflect both characteristics of the participant identified within the pre- and post-intervention questionnaire (e.g., gender, stage of change) as well the participants' perceptions regarding the program and their reasons for participating in it. It is important to note the casual relationship of these factors to participation and adherence is still unknown and an area of future research. The individual factors identified are discussed as they are related to the literature below.

Gender. Substantially more females participated in the WW program than males. This is consistent with other studies which have found that the majority of participants in weight loss programming tend to be female (Sloan & Gruman, 1988). The majority of participants were

from the 'nursing department' and nursing is defined as a female dominated profession (McLaughlin, Muldoon, & Moutray, 2010). The large female nursing population in this research may be explained by the Host Organization having more females nurses employed than males. The proportion of males in the Host Organization was 14% compared to 86% females (Host Organization, 2015). Still, the participation of males who participated in the study was not proportionate to the amount of males in the workplace (7.1% compared to 14%). Therefore, although gender was not studied directly, it may be that gender may influence participation in workplace weight loss programs, specifically in a health care environment with a predominately nursing population of which the Host Organization provided. It should be noted that this research did not measure gender and its causal relationship to participation; this remains an area of further study. There is a continued need for Health Promoters to look carefully at how to engage more males in workplace weight loss programming using creative interventions for example Morgan and colleagues (2011) successfully utilized the POWER program which targeted male overweight shift workers.

Importance Rating of 'Reason for Joining'. The majority of individuals who participated in the WW program scored their 'reason for joining' (e.g., stated as weight loss and/or health) as 'high' importance. Therefore, it could be assumed that placing a high importance on weight loss and health may be an influencing factor on participation. Even though 95.3% rated their reason as high, and this is a persuasive percentage, it must be mentioned that this effect may be due to the nature of the sample. Those employees who rate weight loss and health as important may be more likely to register in the WW program. Another reason may be simply that participants feel their reason for joining 'should' be important. This study is based on self-reporting of participants by a questionnaire and while self-reporting questionnaires are a common method of data collection in health research, it is not objective (Griffin-Blake & DeJoy, 2006; Rattray & Jones, 2005). Participants may have been emotionally reporting on their beliefs (Robinson & Clore, 2002). In a similar study examining the prevalence of those attempting weight loss and strategies for controlling weight most individuals felt that weight loss was an important concern to health but were not actively following the recommended eating healthy and physical activity guidelines for weight loss (Serdula et al., 1999). The results

of this current study seem to corroborate these findings; participants may be emotional towards their reason for joining and know they are important, yet not be ready to make the required changes to achieve their goals. This may explain why high importance scores did not predict study participants' adherence to the WW program and why there was no difference in the reported 'importance rating' pre- or post-intervention.

This study cannot report on non-WW participants and how they would rate the importance of 'weight loss' and health'. Do they feel that weight loss and/or health is less important? This remains an area of further research. However, this current research finding suggests that those who rate their reasons for joining workplace weight loss programs as 'high' may be more likely to participate than those who do not. More research needs to be completed to learn the characteristics of non-intervention participants to judge if creating importance (e.g., with a media campaign) could facilitate more participation in workplace weight loss programs. This may be a way for Health Promoters to increase attendance in similar types of workplace programming.

Readiness to Change and Self-efficacy. The research findings suggest that stage of change (Johnson et al., 2008) may be an influencing factor for participation in workplace weight loss programs. It was not surprising that the majority of participants in the study were in the 'preparation' stage of change or higher (preparation, action and maintenance) and there was very little participation from individuals in the lower stages of change (pre-contemplation and contemplation). Research has established that those who participate in workplace wellness programs tend to cluster in the higher stages of change (Herrick, Stone, & Mettler, 1997); results of this study confirmed this finding. Yet, there is a still a need to deliver interventions to entire populations, not just to the small percentages who are ready to make a change (Sarkin et al., 2001). Research by Prochaska and Colleagues (2009) and the TTM theory offers a theoretical approach to assist individuals to move through the change process (Prochaska & Velicer, 1997). More research is needed to determine if it is possible to move individuals through the stages of change to improve participation in and adherence to workplace weight loss programs. This finding could be very important to health promotion policy and practice as

it may offer an opportunity to move large groups of individuals towards healthy behavior change.

The self-efficacy scores for eating for weight management and physical activity were not seen to be predictive of adherence indictors for this study. This was contradictory to behavior change theory which emphasized self-efficacy as an influencing factor for individual behavior (Bandura, Self-efficacy, 1994; Bronfenbrenner, 1999; Prochaska & Velicer, 1997). This does not necessarily mean that the relationship does not exsist. There was challenges to the statistical analysis of the measure (e.g., registration numbers missing and therefore being unable to link the Initial Questionnaire and Final Survey). This was also a general measure not a measure specific to the workplace environment. Therefore, this study cannot comment on the influence that self-effcacy played in this research. It is recommended that future research look specically at the workplace environment and how it may influece employees' self-efficacy with respect to participation in and adherence to workplace weight loss programming.

Meeting Attendance. For this research meeting attendance was part of the definition of 'adherence.' However, meeting attendance does not necessarily confirm behavior change adherence directly (Sheeran, Norman, & Conner, 2001). The results suggest that adherence in one area (meeting attendance) may predict adherence in other areas (e.g., development of routines and habits). This was demonstrated by the more meetings participants attended the more routines they developed. The findings of this research support other research that suggests meeting attendance within the WW program improves development of more healthy routines/habits such as improved eating habits (Lowe et al.,1999). Acharya and colleagues (2009) also found that adherence to meeting attendance was indicative of increased self-monitoring, reduce energy consumption and weight loss (Acharya, et al., 2009). These findings encourage Health Promoters to find ways to support individuals in their attendance at workplace weight loss sessions.

In the current study meeting attendance was higher for those who developed the most routines. However, it seems that meeting attendance did not have to be 100% for participants to believe they received the full benefit of the WW program. Interestingly, over half felt that 'sufficient attendance' was achieved; yet the average attendance score was less than half of the

WW meetings offered. Participants who reported 'sufficient' attendance attended double the amount of WW meetings than those who did not. However, there was no significant relationship between meeting attendance and food awareness. This confirms new research on the WW program by Johnson and colleagues (2013) who also found adherence does not need to be 'all or nothing', and that there is benefit to adherence even at lower levels. The results of this study reinforced that 100% attendance did not have to be achieved in order for individuals to 'sufficiently' benefit from the WW program (Johnson, Rost, Miller-Kovach, Moreno, & Foreyt, 2013). This may be due to the fact that the support required varies by individual; however this hypothesis requires further investigation. This may be an exciting opportunity for Health Promoters; if we can help find more realistic and individualized recommendations for individuals they may be more apt to participate and adhere.

Individual Motivation. Individual motivation is a broad term which depends upon numerous things, including an individual's health beliefs, perceptions, expectations, self-efficacy, stage of change, and cultural values (Bandura, 1994; Prochaska & Velicer, 1997; Williams et al., 2009). Therefore, 'motivation' really encompasses all the areas previously discussed above as Individual Factors. From the open-ended participant responses to questions about reasons for participation, this study confirms that individual motivation as a whole is a driver of adherence (Williams et al., 2009). Participants reported individual motivation was especially important to overcoming challenges. Open-ended quotes from participants seem to point to motivation dissipating over time (e.g., "…wasn't as motivated as I thought I was when it began"). This could explain why the attendance rates started to steadily drop at week four. The small increase on the last week may be explained by participants feeling they needed to fill out the Final Survey as part of their research commitment. Again, this study did not seek to measure the casual impact of individual motivation on participation or adherence. More research is needed to look at the influence of individual motivation on adherence, especially over time. By finding a way to help maintain motivation of large groups of individuals Health Promoters may be able to improve not only adherence but participation.

Overlapping Factor

Ecological models of behavior change emphasize that numerous social and psychological factors interact to influence individual behavior (Sallis et al., 2008). As mentioned previously, it is assumed that all factors identified interact and overlap on some level. However, one factor was referenced in the Voice of the Participant as both an individual and organizational factor: Percieved busyness/no time.

Perceived Busyness/ No Time. 'Busyness/ no time' was reported by many participants as a possible obstacle to adherence. However, what is not clear is whether the reason is individual or organizational? It was concluded that busyness/no time may be both an individual and organizational factor as majority of participant quotes suggest a struggle to balance work and life. Example comments include: "Life getting in the way… when life makes it difficult to be organized" and "Heavy work load right now and had a family illness so missed a couple of meetings".

Considering perceived busyness/no time as an individual factor does align with the literature. 'Taking care of others' has been seen to be more important than making time for self-care, in particular with health care workers, such as nurses (Petch-Levine et al., 2003). Lack of time has been reported along with self-motivation as factors that influence adherence (Teixeira et al., 2002). If perceived busyness/no time is considered an individual motivational factor does that explain why attendance rates dropped off at week four in this study? Is week four when motivation starts to dissipate? Implications for Health Promoters may be to bring awareness to the importance of making time for self-care, especially with workplace wellness programs in health care facilities. More research is needed to learn how to best assist health care workers in this area.

It would also be logical to assume that 'work' contributes to a feeling of busyness (e.g., when participants referred to being 'busy on the floor' or with 'meetings'). Using the Social Ecological Framework lens, there could be many factors related to the organizational environment working together to influence behavior (Sallis et al., 2001). For example, workplace culture in the form of social norms (e.g., accepted behaviors) may have been influencing participants perception of busyness/no time (Holmes, Schnurr, & Marca, 2007;

Meyer & Elyse, 2010). Perhaps, it was due to the culture within the organization that participants believed they couldn't leave their work to attend meetings, engage in physical activity and/or eat a healthy lunch. The meeting room could have been two far away for participants to get there in time. Unfortunately, the Voice of the Participant did not provide enough information on what caused the perception of busyness/no time by participants; therefore, determining if workplace culture influenced perceived busyness is an area of further research.

In summary, identifying 'busyness/no time' as a possible overlapping factor is an interesting implication for Health Promoters, as this may mean the answer to overcoming individuals' perceived 'busyness/no time' may require addressing two different factors. One, increasing individual motivation and, two, removal of organizational barriers (e.g., schedule flexibility, coverage on floor) (not one or the other). Removal of organizational barriers may also include evaluating organization culture (e.g., to see if it clearly values and promotes worker health). These organizational factors are further discussed in the following section.

Organizational Factors

As discussed in the literature review, Canadian organizations are interested and engaging in workplace wellness initiatives (Morrison & MacKinnion, 2008). Overall learnings from this research on an organizational level indicate that even if employees are very enthusiastic about a workplace wellness programs, it can be challenging for organizations to encourage participation and adherence. However, organizations need to try not to be discouraged. Keep trying time slots and locations and be creative with ways to support healthy behaviors. The following includes some possible organizational factors that may have influenced participation and adherence during this research.

Culture. Workplace culture is a huge area of research and a full detailed look at the organizational culture and its causal relationship to participation and adherence was outside the scope of this study. This research looked at organizational culture by examining the Voice of the Participant on the Final Survey (e.g., by qualitatively analysis on open ended questions) and through interviews with the WW Leader and OC. The researcher looked for references to workplace culture (e.g., manager/supervisor support, co-worker influence). The results did

indirectly describe possible reciprocal relationships between workers and 'organizational culture' on several levels. First, the greater than expected participation may have meant that participants believed that it was okay on some level to participate. Second, managers participated in the WW program, possibly creating informal leadership and, finally, there was positive reference to colleagues and co-workers. Thus the findings of this study confirm that although complex to objectively describe, organizational culture may be a powerful influence on individual behavior within a workplace (Holmes et al., 2007; Manley et al., 2011).

One interesting fact about the greater than expected participation rate in this research was that there was no 'official' time off given. Therefore, it may be assumed that that each participant negotiated his or her own participation on some level. Some participants reported that they 'covered for each other on the floor.' Others asked their supervisors for 'time to attend' and a few 'came in on their day off'. In the case of attending during work time, it would have taken many negotiations by participants to leave the floor during the meeting time. However, especially in the beginning when attendance levels were very high, participants must have put in effort to negotiating this time. For example, for a nurse to leave the 'floor' there would have had to be flexibility in schedules including support from managers, supervisors, co-workers and even patients. The nature of the work required in nursing and any occupation in a health care organization would make this a delicate balance.

As stated in the literature review, managers and supervisors are one of the biggest influencers of 'workplace culture' (Holmes et al., 2007) and managers made up 9.5% of the participants in this study. Although participants weren't asked directly about organizational factors influencing participation, this may have indicated support and role modeling which increased participation. When investigating organizational climate and its effect on participation Sloan and Gruman (1988) also found that perceived support from supervisors was seen to be an organizational factor predictive of participation in workplace health promotion programing. More research is needed to determine the impact of manager/supervisor support on participation and adherence to workplace weight loss programming.

Although this study was just 'scraping the surface' on the relationship of organizational culture and its influence on participation and adherence, the results of this study suggest that

organizational culture may have influenced participation and adherence on some level. The results suggest that in order to improve implementation of workplace weight loss programming Health Promoters must observe the informal organizational culture first to determine what informal norms could be used to promote or possibly hinder participation and adherence to workplace programming.

Internal Communication. Official recruitment was initiated by the researcher two weeks prior to the Study Overview Session. However, new participants continued to join until week seven of the WW program. Although communication methods were not measured in this study there was reference to a 'positive buzz' and 'word of mouth' in the interviews. Internal communication seemed to take on a life of its own as the weeks progressed. Participation trends seemed to demonstrate multidepartment recruitment, with relatively strong internal communication through various departments, as all departments including nursing, administration, food service, management, and environmental management participated in the study. Based on the above it may be assumed that internal communication could have been a strong driver of participation for this research, although this needs to be tested directly. There is a need to learn more about formal and informal forms of communication within organizations which may be used to drive participation and support adherence.

Work Schedules/Shifts. Even though approximately 80% of the Host Organization employees worked shift work, shift workers still made up a smaller proportion of the participants in the WW program, with only 36.9% of participants working shift work. Shift workers were also less likely to attend the WW meetings than non- shift workers. These findings confirm that shift workers are less likely to attend weight loss programing in the workplace (Thompson et al., 2005)

Participants repeatedly referenced shifts and work conflicts when asked what made participation a challenge. This finding confirms that lack of control over schedule is seen to be predictive of low participation (Sloan & Gruman, 1988). Due to participants verbalizing these challenges it could be inferred that shifts and work schedules may have prevented participation of other employees in the Host Organization altogether. This study sought to recruit non-WW

participants to fill this research gap; however, no non-WW participants were recruited and therefore this is an area that still requires further research.

Time slot. Although closely connected with work schedules/shift, time slot for the WW program has been singled out as a possible factor on its own because it was repeatedly referenced by participants as a constraint to participation. The importance of 'time slot' began in the methods section where the Researcher proposed a time slot 12 p.m.-1 p.m. and the Organizational Contact (OC) stated that the time slot would not work due to shift schedules. The Researcher worked with the OC to find a time slot that worked for a majority of the staff. Participants referenced work related conflicts such as 'meetings', 'trainings' and 'conferences' as conflicts regarding the time slot of the WW meetings. It appears that due to the amount of referencing to 'time slot' it was not only shift workers who were influenced. There is a need for further research which examines variations in the times workplace weight loss programs are offered in order to determine the impact on both participation and adherence. When delivering weight loss programs, more consideration needs to go into selecting time slots for interventions as it may not be the interventions themselves that cause low participation and adherence rates but the time in which the intervention is offered.

Convenience. Availability and convenience are the most common determinants of participation (Glasgow et al., 1993; Kruger, Yore, Baurer, & Kohl, 2007) and this study seems to also link 'convenience 'to participation and adherence. As noted previously, this study found that the majority of participants were in the 'preparation stage of change.' Therefore, could the location of the intervention have helped move individuals through the stage of change because of the ease of 'opportunity'? This remains an area of further research.

This research demonstrated that even something as small as changing the boardroom location that the program was held onsite may have created an obstacle for attendance for some participants. Based on this, it may be a mistake for Health Promoters to assume that just because the program is 'onsite' it is 'convenient' to all employees. More research on the true impact of convenience on participation and adherence is needed. There is also a need to gather feedback from employees to learn what they consider to be convenient locations for program participation.

Creating a convenient location may be an important consideration especially when considering those who work shift work. This study found that shift workers had lower participation numbers. Shift workers may be less likely to seek weight loss programming outside of the workplace (Morgan et al., 2011). Therefore, learning how to make the location more convenient to shift workers in particular may create an opportunity for Health Promoters to target 'at risk' employees to participate in weight loss programs.

Support from Colleagues/ Co-workers. As stated in the literature review, peer support is considered an important factor influencing individual behavior change (Glasgow et al., 1993; Pender, Walker, Sechrist, & Frank-Stromburg, 1990; Prochaska & Velicer, 1997); although not measured directly it seems this was confirmed by this current study. Participants referenced 'co-worker' support several times throughout the results. The majority of participants believed that support from co-workers made participation easy, none sited lack of co-worker support as a 'challenge,' and one quarter referenced group support as what helped them develop healthy habits/routines. This study cannot comment on 'how' co-worker support influenced participation. However, this study adds to the research confirming peer support may be essential to participation and adherence of workplace wellness programing in the workplace.

The results of this research reported no negative references to co-worker/peer support, which is contradictory to some bodies of research. For example peer influence has been seen to create stressful working situations that may not facilitate wellness programs (Hillier, Fewell, Cann, & Shepherd, 2005). Marklaund et al. (2008) confirmed that peer/co-worker support can be positive but also found that lack of peer/co-worker support may make adherence more challenging, for example if health practices are outside social norms. Glasgow et al. (1993) suggest that individuals differ in their preferences and some may turn to group support, while others may shy away from groups and prefer 'self-help' methods (Glasgow et al., 1993). Utilizing group support in more health promotion policy and practice in the workplace may help to improve participation and adherence rates. More research into how social networks drive (or possibly impede) participation and adherence in the workplace is needed.

The Workplace Environment. Health promotion frameworks, theories and research all encourage mobilizing the environmental influences to support health related behaviors

(Oldenburg et al., 2002). This study utilized the CHEW to help guide direct observation of the Host Organization. The Organization was found to offer several health promoting qualities (positives) paired with opportunities for improvement. For example, the assessment suggests that the physical environment does offer availability of healthy foods. However, the informational environment found that the healthy food was not labeled or signed or encouraged in anyway. The assessment of the workplace environment at the Host Organization confirms that although there are many health promoting areas in the physical environment there is still an opportunity to improve the informational environment to further prompt healthy behavior (Oldenburg et al., 2002).

These findings encourage Health Promoters to take time to assess the workplace environment objectively to determine opportunities to support healthy behavior change (e.g., access to healthy foods, opportunities to be active) and remove potential barriers (e.g., manager or co-worker support).

Study Limitations and Future Research

There were some study limitations that need to be noted. Due to this study being offered at no charge to participants the study was unable to determine how much this influenced participation and adherence. How much a program should cost to create 'value' but not create a 'barrier' to participation is an interesting area for future research. Participation in this study may also have been driven by 'research' participation and not actual intervention participation. This separation was challenging to maintain. There would be merit in investigating the impacts of these variables in future studies of workplace weight loss programs.

This research was a case study based on a convenience sample within a single organization. Therefore, generalizability beyond a workplace WW program at the Host Organization is limited. Future research should consider a randomly controlled research design with more than one workplace or multiple departments. Also, there would be merit in using a wait-list study design to more fully control for participation. This would allow the results to be more generalizable to similar organizations.

This study sought to learn factors that influenced participation and adherence of shift workers. However, the participation of shift workers was low compared to the proportion of shift workers at the Host Organization (36.9% shift workers compared to approximately 80% shift workers at the organization). Therefore, this study did not have a representative sample of shift workers; more research focusing on the recruitment of shift workers is still needed to fill this research gap.

It was out of the scope of this study (due to time and access to documentation) to fully examine the influence of organizational culture on the participation and adherence of participants to the WW program. It is recommended that future research systematically and directly measure the influence of organizational culture on participation and adherence.

Although the methods of this study included the recruitment of non- WW participants to learn the characteristics of WW participants compared to non WW participants, there were no non-WW participants recruited. This did not allow for comparison of the influences of participation and non-participation. As stated in the Methods section of this study, reinstating a recruitment method for non-intervention participants is an important area of future research. Recruitment measures for non-intervention participants could include going directly to employees in their departments, with permission/support from the organization, to remove the possible barriers of lack of time or convenience or the use of online surveys to provide anonymity.

There were additional limitations with data collection. Sections 1 and 2 of the Initial Questionnaire and the Final Survey were not piloted and validated for use in this study (e.g., questions regarding participants reasons for joining the study, what made participation easy or a challenge). Upon reflection the prompts used in the Final Survey may have led participants to make certain selections (e.g., seeing the option may have encouraged participants to select answer) and, as a result, skewed the results. Despite this, one of the strengths of this study was the large amount of feedback from participants, especially in the open answer sections of the Initial Questionnaire and Final Survey. This allowed for the Voice of the Participant section and a greater understanding of the possible factors influencing their participation and adherence. Although, this was considered strength, to more systematically gather participants'

perspectives it is recommended that a more in depth qualitative approach be used, such as interviews and/or focus groups. A limitation to this study was the inability to go deeper into the factors participants identified due to the questionnaire and survey design. Interviews and/or focus groups would allow for more in-depth questioning.

The self-efficacy measure was validated for general self-efficacy (Pro-Change Behavior Systems, Inc., 2015). However, to be more accurate in a workplace setting it is recommended that future research use a self-efficacy measure specific to the workplace environment (e.g., using questions situational to the workplace such as exploring confidence in participants' abilities to take stairs or eat healthy at work).

Adherence was measured by participants' self-reported adherence to the components of the WW program (attendance, eating habit awareness and habit/routine development). Self-reporting is a subjective measure. Attendance was also a complicated measure of adherence. As attendance in the intervention and intended behavior change may not necessarily mean behavior change was achieved (Sherran et al., 2001). Future research should look more to actual health behavior as a measure of adherence (e.g., logins on online support, food journaling).

Given the exploratory nature of this study, it only suggests short term factors that may have influenced participation and adherence. More long term studies are needed to learn what factors influence participation in weight loss programs in the workplace and how organizations can better support healthy behavior change (e.g., healthy workplace culture, healthy environment) created by weight loss programming over the long term.

Conclusion

This study revealed that factors that influence participation in and adherence to a workplace weight loss program go beyond the individual. Low participation numbers and lack of adherence do not necessarily mean employees do not want or need the program. It may mean that the barriers are too great to overcome with personal motivation. This study encourages Organizations and Health Promoters to look at both the individual and organizational factors at play, especially in the case of engaging males and shift workers in workplace weight loss programming.

Although, this study does not prove cause and effect, the results ask Health Promoters to consider a number of questions for policy and practice when designing and/or delivering workplace weight loss programs. For example, if employees need to believe their reason for joining (e.g., weight loss and health) is highly important to participate, then how can Health Promoters promote the importance of weight management in the workplace (e.g., information sessions, health assessments)? If participants need to be in the higher stages of change before participating, what can be done to help move employees through the stages of change and help them to be ready to take action (e.g., creating opportunities for helping relationships, media campaigns)? If attendance is positively correlated with adherence, how can employees be better supported with attending weight loss programming when held onsite (e.g., schedule flexibility, alternative time slots)? Since time slot and convenience show promise as making participation and adherence easy, how can Health Promoters learn the best time slot and location for employees to access the program (e.g., surveys)? How can Health Promoters bring peer groups together in the workplace to support healthy behavior change (e.g., peer group leads, mentors)? It is also important for Health Promoters to look critically at the organizational culture and how it is influencing employees' health behaviors. Additionally, the power of the workplace environment cannot be overlooked. This research highlighted that even when there are positive aspects present (e.g., accessible stairways), there may also are obstacles to overcome (e.g., no prompts to use stairs).

Identifying factors that influence participation and adherence is the first step to supporting individuals in their efforts to lose weight in the workplace setting. The next step for Health Promoters is to learn if manipulation of these factors would improve participation in and adherence to a workplace weight loss program.

Appendix A: Weight Watchers Canada Letter of Support

January 19th, 2014

Jennifer Brenton
School of Health & Human Performance
Dalhousie University
6230 University Avenue
Halifax, NS B3H 4R2

To whom it may concern:
Weight Watchers Canada Ltd. (a wholly owned subsidiary of Weight Watchers International) is pleased to provide a letter of support for Jennifer Brenton for her study *"Wellness at Work: What individual and organizational factors influence participation in and adherence to a workplace weight loss program".*
As part of our commitment, Weight Watchers will provide the program free of charge to participants and we will compensation one Leader for one meeting time slot at the participating [Host Organization], Halifax, NS.

Sincerely,

Director Human Resources
Weight Watchers Canada Ltd.

Director of Operations
Weight Watchers Canada Ltd.

Appendix B: Recruitment Email

To: All staff

From: Organizational Contact

Subject: Wellness at Work: You're invited to a free weight loss study

_____ Organization is committed to contributing to the health of our employees. We have partnered with Dalhousie University and Weight Watchers Canada Ltd. to offer a free Weight Watchers program as part of a study on participation in and adherence to a workplace weight loss program.

Project Title: Wellness at Work: What individual and organizational factors influence participation in and adherence to a workplace weight loss (Weight Watchers) program?

Where? TBD

When? 2 p.m. to 3 p.m. on _____

What? Study Overview Session* The Study Overview session will explain the study and will consist of an Initial questionnaire to be completed and the possibility of a phone interview within one month of the study completion (interviews will be selected based on participation).

If you choose to participate in the Weight Watchers program the 12 week program including program material, online weight loss support via Weight Watchers eTools, weekly meetings and weigh-ins will start on _____. Participation in the Study is required in order to participate in the Weight Watchers Program.

*Attending the Study Overview session does not mean you have to participate in the 12-week Weight Watchers program or the study itself. A free 2 week trial to Weight Watchers in the community will be provided to those who attend the Study Overview session and choose to participate in the study, but do not want to participate in the Weight Watchers program within the workplace. If you choose to participate in the study and not the Weight Watchers program there is a questionnaire to fill in and the possibility of a follow-up interview.

If you cannot attend the 'Study Overview Session' and you would like to participate please contact Jennifer directly. Contact information is below. If you are interested in more information please attend the Study Overview Session or contact Masters Student and researcher Jennifer Brenton: jennbrenton@weightwatchers.ca or call 902-455-7400.

*Please note Jennifer also works with Weight Watchers Canada as a Regional Trainer for Atlantic Canada.

Appendix C: Recruitment Poster

Wellness at Work! Research Study

What individual and organizational factors influence participation in and adherence to a workplace weight loss (Weight Watchers) program?

Who: Jennifer Brenton Health Promotion Masters Student with Dalhousie University and in partnership with Weight Watchers Canada Ltd.

Where? TBD

When? 2 p.m. to 3 p.m. Starting on _____

What? Study Overview Session* The Study Overview session will explain the study and will consist of an optional Initial questionnaire to be completed and the possibility of a phone interview within one month of the study completion (interviews will be selected based on participation).

If you choose to participate in the Weight Watchers program the 12 week program including program material, online weight loss support via Weight Watchers eTools, weekly meetings and weigh-ins will start on _____.

Please note: you must participate in the Study to participate in the Weight Watchers program.

*By attending the Study Overview Session you do not have to participate in the Weight Watchers at work 12 week program. If you choose to participate in the study but not the Weight Watchers program at work you will receive a 2 week Weight Watchers Trial program for a community setting.

If you cannot attend the 'Study Overview Session' and you would like to participate please contact Jennifer directly. Contact information is below.

If you are interested in more information please contact Masters student and researcher Jennifer Brenton-Peters: jbrenton@weightwatchers.ca

*Please note Jennifer also works for Weight Watchers Canada as a Regional Trainer for Atlantic Canada

Appendix D: Informed Consent Form

Informed Consent Form

Wellness at Work: What individual and organisational factors influence participation in and adherence to a workplace weight loss program?

Jennifer Brenton-Peters
Masters of Health Promotion Candidate
Regional Trainer for Weight Watchers Canada Ltd.
E: jbrenton@weightwatchers.ca
P: (902) 455-7400
Dalhousie University

Dr Susan Hutchinson, Supervisor
E: Susan.Hutchinson@dal.ca
P: (902) 494-1163

This Informed Consent Form has two parts:
• Information about the study
• Signature Page (for signatures if you choose to participate)

You will be given a copy of the Informed Consent Form

Introduction

You are invited to take part in a research study being conducted by Jennifer Brenton-Peters who is a graduate student at Dalhousie University, as part of her Masters in Health Promotion program. This study is in partnership with Weight Watchers Canada Ltd. Your participation in this study is voluntary and you may withdraw from the study at any time. This description tells you about the risks, inconvenience, or discomfort that you might experience. Participating in this study may not benefit you, but we might learn things that will benefit others.

Purpose of the study

We are asking you to help us learn more about participation in and adherence to a workplace Weight Watchers program. We want to find ways to help more people participate in and adhere to weight loss programming so they can improve their health. The purpose of this study is to learn what factors

influence your participation in (registration in the program) and adherence to the Weight Watchers program (ability set up new go-to routines and habits such as eating healthier and being more physically active). Note: You may choose not to participate in the Weight Watchers program but still participate in the study. However, you must participate in the study to participate in the Weight Watchers Program.

We believe by learning what factors helped you to participate in and adhere to the program, or why you decided not to participate in the program, we can help others do the same. Also, by learning what your barriers are to participation in and adherence to the program we help make changes to programs to increase attendance and make the healthy changes easier.

Study design

The Weight Watchers is provided as the 'intervention' for a 12 week period with weekly meetings facilitated by a Weight Watcher Leader, weigh-ins, online and group support. Factors influencing participation in and adherence to the Weight Watchers program are being studied. The Weight Watchers program itself is not part of the study.

You can participate in this study as a 'Weight Watcher Participant' or 'Non- Weight Watchers participant'.

As a Weight Watchers Participant the study will include a questionnaire to fill out before you start the Weight Watchers program, attendance recording (e.g., if you decide to attend any or all of the weekly Weight Watchers at Work meetings over a 12 week period, beginning March XX, 2014) and the possibility of a phone or in person interview within one month of the completion of the Weight Watchers at Work program. Your weight is recorded as part of the Weight Watchers program and is not part of the study.

As a Non-Weight Watchers Participant you can choose to fill out the initial questionnaire only. A free 2 week trial of the Weight Watchers program to use in the community will be provided to compensate for your time.

Who Can Participate?

All employees at your organization will be invited to participate in this study.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. The choice will have no bearing on your job or any work-related evaluations or reports. You may change

your mind later and stop participating in the study or the Weight Watchers program even if you agreed to participate previously.

Procedures

The first part of the research is an initial questionnaire that will be completed at an Overview Session. The Overview Session will be approximately 60 minutes and within this time the questionnaire will take approximately 15 minutes to complete. You do not need to put your name on the questionnaire. If you choose to participate in the Weight Watchers Program you will be provided with a registration number. If you choose not to participate in the Weight Watchers program please put NA in the box for the registration number.

The questionnaire will ask questions regarding your demographics (e.g., age, shift work), reasons for participating or not participating and current eating and physical activity habits.

For those who choose to participate in the Weight Watchers program attendance at the weekly Weight Watchers meetings will be recorded and linked to your registration number. The researcher will be present at the meetings to make sure that Weight Watchers policy and procedures are being followed and to make field notes on any factors mentioned in meetings that may influence participation in or adherence to the program. If direct quotes are recorded all identifying information will be removed from quote.

At the end of the 12 week study you may be contacted for a follow up phone or in person interview. The interview will take approximately 30 minutes to complete. This interview will ask questions regarding why you chose to participate and what factors influenced your participation. You will also be asked about your adherence to the program recommendations (e.g., tracking your food or activity) and what factors influenced your adherence. If you consent to the interview it will be recorded and transcribed. Quotes may be used from the interview. This interview will be kept confidential. This means all your identifying details will be removed. After transcription the recordings will be destroyed.

Duration

The research will take place over a four month period. If you choose to participate in the Weight Watchers program you will have an opportunity to attend a weekly weigh-in and meeting once per week. Attendance at these meetings is optional. You will have access to Weight Watchers online support eTools.

Risks

Individual behaviour change can be hard. If you decide to withdraw from the program you may feel negative emotions such as guilt or failure. If you do withdraw from the program and you would like more information on weight loss and behaviour change please use the researchers contact information above and resources will be made available to you.

There is also a risk that you may share some personal or confidential information by chance, or you may feel uncomfortable talking about some of the topics. However, we do not wish for any of this to happen. You do not have to answer any questions or take part in the questionnaire or meeting room discussions if you feel the questions make you feel uncomfortable.

Confidentially of your participation or non-participation in the Weight Watchers program is unable to be protected due to the group format of meetings in your workplace. However, all information collected in the study will be kept confidential with all identifying information (e.g., name) removed.

Benefits

Those who choose to participate in the Weight Watchers program will have free access to the research based weight loss program for 12 weeks including the online weight loss support of eTools. Those who choose not to participate in the Weight Watchers program at work will have access to a free 2 week trial in the community**.**

Your participation is likely to help us find out more about what individual and organizational factors influence participation in and adherence to workplace Weight Watchers program and thus help others to participate in programing.

Reimbursements

For Weight Watcher participants in exchange for your time you will receive the full Weight Watchers Canada Ltd. program and online weight loss support tool eTools for the duration of the program along with weekly weigh-ins and meetings.

For Non- Weight Watcher participants in exchange for your time you will receive a free 2 week trial of the Weight Watchers program in the community setting. See researcher for more details.

Confidentiality

Due to the group setting it may be impossible to maintain anonymity. While your anonymity cannot be guaranteed, collected data will be protected and remain confidential.

Information collected as part of the study will be shared in summary form with Weight Watchers Canada Limited, Weight Watchers International, Prochange Behaviour Systems Inc., and [Host Organization] with all identifying information removed (e.g., names). Any information about you will have a number on it instead of a name. All information collected will be stored in a password protected location and in a locked office. No individual data will be reported to your workplace or Weight Watchers Canada Ltd. At the end of the research the data will be stored by Dalhousie University in a locked cabinet for 7 years and then destroyed. If you participate in the interview quotes from the interview may be shared as part of the summary of results; however your name will not be used and no identifying information will be included (e.g., name, department).

Sharing the Results

The knowledge we get from this research will be shared with you and the research team before it is made available to the public. Each participant will be able to receive a summary of the results. There will be a meeting to share the information with you. The date and time of the meeting will be announced after the research is complete (approximately four months after the start date). If you are unable to attend the meeting please contact the researcher for a hard copy of the results emailed or mailed to you. Following the meetings, I may publish the results so that others interested in the research may learn about the study. Only de-identified information will be published.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so, and choosing to participate or not will not affect your job or job-related evaluations in any way. You may stop participating in the study at any time within the 4 month study duration. If you participate in an interview you will have the opportunity to review quotes attributed to you in the final summary report to be shared with your workplace, and you can ask to modify or remove portions of these quotes.

Who to Contact

If you have any difficulties with, or wish to voice a concern about, any aspect of your participation in this study, you may contact Catherine Connors, Director, Research Ethics, Dalhousie University for assistance at (902) 494-1462 or ethics@dal.ca

Part II: Signature Page

Wellness at Work: What individual and organizational factors influence participation in and adherence to a workplace weight loss program?

"I have read the explanation about this study. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I hereby consent to be a participant in the study. I realize my participation is voluntary and that I am free to withdraw from the study at any time"

Print Name of Participant_____

Signature of Participant _____

Date _____ Day/month/year

Appendix E: Initial Questionnaire

An informed consent form must be filled out prior to filling out this questionnaire.

Please do not put your name on this questionnaire.

Thank you for your time!

Registration number: _____

Please check the below...

Section 1:

1) Occupation:

☐ Administration

☐ Management

☐ Nursing

☐ Food Service

☐ Environmental Service

☐ Physical Plant

☐ Material Management

☐ Other please specify:

2) Do you work shift work (irregular or rotating hours outside of 8 a.m. to 6 p.m.)

☐ Yes

☐ No

3) Gender

☐ Male

☐ Female

4) Your age:_____

Section 2:

1) Are you planning to participate in the WW program?

☐ Yes

☐ No

Please state your reason for joining or not joining the study:

_____
_____
_____
_____

How would you rate the importance of your reason for joining?

1	2	3	4	5
Low		Moderate		High

Section 3:

Removed as per agreement with Pro-Change Behavior Systems, Inc.

Section 4:

Removed as per agreement with Pro-Change Behavior Systems, Inc.

Thank you for filling out this questionnaire!

Appendix F: Final Survey

Title of Study: Wellness at Work: What factors influence participation in and adherence to a workplace weight loss (Weight Watchers) program?

Principal Investigator: Jennifer Brenton – Peters Masters of Health Promotion Candidate, Registered Dietitian, Regional Trainer Weight Watchers Canada
E: jennbrenton@gmail.com P: 902-455-7400

Thank you for participating in the Wellness at Work study in partnership with Dalhousie University, Weight Watchers Canada Ltd. and Northwood. Due to the large number of participants the "Follow-up Interview" has been changed to a "Final Survey". This Survey seeks to learn what factors influenced your participation in and adherence to the Weight Watchers Wellness at Work program**.** Please note: **It is not an evaluation of the Weight Watchers Wellness at Work program.**

There are 3 Sections to this survey: 1- Participation 2- Adherence and 3- Final Comments. Completion of this survey will take approximately 15 minutes and is voluntary.
After you complete this survey please return it to the Principal Investigator Jennifer Brenton.

Options for return:

- In person: If at the last Weight Watchers meeting hand in directly to Principal Investigator.
- By email: An electronic copy of this Final Survey is available from the Principal Investigator.

  Please fill out – 'save as' and email back to Principal Investigator.
- Onsite at Northwood: A hard copy of the Final Survey and sealable envelope is available from

  Eileen Paddon Organizational Health. Please return completed survey in a sealed envelope to

  Eileen's office and she will return it to the Principal Investigator. Eileen Paddon, Organizational

  Health, Main Floor, Manor 454-8311 ext. 3177or epaddon@nwood.ns.ca

All information collected with this Final Survey will be kept confidential and only provided in summary form with all of your identifying information removed. There are very minimal risks associated with completing the survey. However, there is a risk that you may share some personal information by chance, or you may feel uncomfortable answering one of the questions. You do not have to answer all of the questions and can stop filling out the survey at any time. The benefits are that the researcher will learn about workplace factors affecting participation in and adherence to a workplace weight loss (Weight Watchers) program.

If you have any questions regarding this survey or the Study please contact Jennifer Brenton – Peters Principal Investigator 902-455-7400.
Thank you.

Registration number or name: enter text.

Section 1: Participation

1: What made you want to participant in the "Wellness at Work" study?
Weight loss☐ Health ☐Appearance ☐ Feel better ☐

Free/No cost to you ☐ Research ☐ Other: enter text.

How would you rate the importance of your reason for joining?

1☐ 2☐ 3☐ 4☐ 5☐

Low **Moderate** **High**

2: How many at work meetings of the 12 week Weight Watcher Program did you attend? enter text.

3: Did you attend meetings in the community if you were unable to attend at work?
Yes☐ No☐ Unsure☐

4: Do you believe your meeting attendance was sufficient to have fully benefitted from the WW program? Yes ☐ No ☐ Unsure ☐

5: Did you use the online website (eTools) as support? Yes ☐No ☐Unsure☐
6: If you missed meetings, why did you stop attending the Weight Watchers Program at Work?

Weight loss not as I expected ☐ Work related conflict ☐ No time ☐ Illness ☐

Family related conflict ☐ Did not connect with WW Leader ☐ Unsure ☐ Other☐

Please explain: enter text.

7: What made participating in the WW program easy?

Time slot ☐ Convenience/location ☐ Manager/supervisor support ☐

Personal motivation ☐ Support from co-workers ☐ Support at home from family and

friends ☐ Support in the community☐ Unsure ☐

Other: enter text.

8: What made participating in the WW program a challenge?

Not Convenient: Time slot ☐ and/or Location ☐

Lack of Manager/supervisor support ☐ Lack of personal motivation ☐

Lack of support from co-workers ☐ Lack of support at home ☐

Lack of support in the community ☐ Lack of connection to the WW Leader ☐

Unsure ☐ Other: enter text.

9: How did you overcome your challenges? enter text.

Section 2: Adherence

The Weight Watcher program consists of being aware of food and physical activity, and developing new Routines.

1: How often were you more aware of your eating habits?

Not at all ☐ Occasionally ☐ Some of the time ☐

Most of the time ☐ All of the time ☐ Unsure ☐

2: Do you believe your awareness was sufficient to have benefitted from the WW program? Yes ☐ No ☐Unsure☐

3: What factors influenced your ability to be aware of your eating habits?

of time ☐ Lack of support ☐ Lack of motivation☐

Too busy ☐ Unsure ☐ Other: enter text.

4: How often over the 12 weeks were you physically active?

Not at all ☐ Occasionally ☐ Some of the time ☐

Most of the time ☐ All of the time ☐ Unsure ☐

5: Do you believe your physical activity was sufficient to have benefitted from the WW program? Yes☐ No☐ Unsure☐

6: What factors influenced your ability to be active?

Lack of time ☐ Lack of support ☐ Lack of motivation☐

Too busy ☐ Unsure ☐ Other: enter text.

7: Did you develop new habits and routines?

None ☐One ☐Two ☐Three ☐Four or more ☐
Unsure ☐

8: If yes, what habits/routines did you develop?
enter text.

14: Do you believe your development of new habits/routines was sufficient to have benefitted from the WW program? Yes☐ No☐ Unsure☐

15: What factors influenced the development of these habits/routines?
enter text.

Section 3: Final Questions

1: What do you believe could be done to help you to maintain the healthy habits/routines you developed?
enter text.

2: What do you believe could be done to help your colleagues to participate in and adhere to this type of Wellness at Work programs?

enter text.

3: Final comments?
enter text.

Appendix G: Organizational Contact Interview Guide

Thank you for agreeing to speak with me today. My name is Jennifer Brenton-Peters. I am a Masters of Health Promotion student at Dalhousie University in partnership with Weight Watchers Canada Ltd. I am the researcher for the Host Organization. Before we start, you have been provided with a hard copy of the Host Organization Proposal and attended the Study Overview Session. I want to confirm that you understand the explanation of the purpose of the study you will be participating in?

Do you consent to take part in the interview today, and understand that you can stop at any time throughout the process and choose to withdraw yourself from the study at no consequence to you? With your permission, the information and selected quotes will be recorded and transcribed, with your name and identifying details removed, do you agree to this?

Organisational Contact Questions:

Question 1: What made you want to support the "Wellness at Work" study?

- Probing questions:
    - What is the goal for the organization?

Question 2: What organizational factors (e.g., policies, environment) do you feel influenced participation in the WW program?

- What factors promoted participation?
- What factors hindered participation?

Question 3: The participation was ____ of ____ employees. How did this rate of participation compare to similar programs at your organization?

- Why do you think this is?

Adherence Questions:

The average rate of attendance was ____

Question 4: Is this an expected rate of attendance for your organization?

Question 5: What organisational factors (e.g., policies, environment) do you feel supported adherence?

- How do you feel your organization can build on these policies to help more employees adhere to wellness programs?

Question 6: Were there any organizational factors (e.g., policies, environment) that hindered adherence?

- What do you think can be done to help overcome these challenges?

Question 7: Is there any additional comments you would like to make to conclude this interview?

Thank you for your time.

Appendix H: WW Leader Interview Guide

Thank you for agreeing to speak with me today. My name is Jennifer Brenton-Peters. I am a Masters of Health Promotion student at Dalhousie University in partnership with Weight Watchers Canada Ltd. I am the researcher for the Wellness at Work study at Host Organization. Before we start, I would like to confirm you have attended the Study Overview Session and that you understand the explanation of the purpose of the study you will be participating in?

Do you consent to take part in the interview today, and understand that you can stop at any time throughout the process and choose to withdraw yourself from the study at no consequence to you? With your permission, the information and selected quotes will be recorded and transcribed, with your name and identifying details removed, do you agree to this?

WW Leader Questions:

Question 1: What individual factors do you feel influenced participation in the WW program (e.g., individual readiness to make a change, felt confident in ability to make change)

Probing questions:

- Did you hear participants discuss any challenges to participation?
- If so, what were solutions mentioned to address these challenges?

Question 2: What organizational factors (e.g., workplace policies, environment and/or culture, social support) do you feel influenced participation in the WW program?

- What factors promoted participation?
- What factors hindered participation?

Question 3: Do you have any other observations regarding participation in the WW program?

Adherence Questions:

The average rate of attendance was ____

Question 4: What individual factors (e.g., stage of change, confidence to make change) do you feel influenced participant adherence?

- What factors promoted adherence?

- What factors hindered adherence?

Question 5: What organizational factors (e.g., policies, environment) do you feel influenced adherence?

- What factors promoted adherence?

- What factors hindered adherence?

Question 6: What do you think can be done to help overcome these challenges in the future?

Question 7: Is there any additional comments you would like to make to conclude this interview?

Thank you for your time.

Appendix I: CHEW Assessment

CHEW (Checklist of Health Promotion Environments at Worksites)		
Observer: Jennifer Brenton- Peters Date: June 6th, 2014		
Building Assessment:		
1	Number of buildings at worksite	
2	Number of floors (each)	
3	Worksite is on how many floors?	
4	Freestanding or connected building?	
5	Is the worksite all or part of building?	
6	Numbers of bikes seen stored outside building?	
7	Number of male changing rooms?	
8	Number of female changing rooms	
9	Number of unisex changing rooms (including showers)?	
The Information Environment		
10	Number of bulletin boards in the buildings	
Physical Activity:		
11	Number of signs/posters encouraging PA (other than related to stairs)	
12	Number of notices about onsite exercise classes	

13	Number of notices of onsite activities/sports sponsored by the specific worksite	
14	Number of notices about physical activity/sports	
Nutrition		
15	Number of signs/posters encouraging dietary fat reduction or promoting programs?	
16	Number of signs/posters encouraging fruit & vegetables or promoting programs?	
17	Notices on bulletin boards promoting dietary information	
18	Notices on bulletin boards promoting weight loss or promoting programs?	
Smoking		
19	Number of entrances to building	
20	Number of signs about smoking restrictions on or around entrance/ doors	
21	Number of notices on smoking cessation or smoking policies	

22	Number of signs /posters on smoking	
Health Promotion		
23	Number of bulletin boards dedicated to Health promotion	
24	Number of postings related to the combination of diet, PA, smoking or alcohol	
Elevator Checklist		
25	Elevator (or sign) visible from major employee entrances	
26	Sign encouraging using the stairs at elevators?	
27	Total number of elevators	
Stair Checklist		
28	Staircase not enclosed in stairwell	
29	Able to see stairs from entrance	
30	Carpeted stairs	
31	Painted/decorated/finished walls	
32	Utilities not visable in walls (pipes, electrical wires etc.)	
33	Door is ajar on most floors	
34	Door are unlocked on most floors	
35	Door marked 'stairs' not 'exit'	
36	No warnings or cautions on doors	

37	Floors number on inside of stairway	
38	No restricted exit (locked from inside)	
39	Signs encouraging use of stairs	
Fitness Centre Environment		
40	In the worksite or on the grounds	
41	Area for aerobics/dance/other activities	
42	Size of area	
43	Number of Treadmills	
44	Number of bikes	
45	Number of Rowing machines	
46	Number of stepper machines	
47	Free weights	
48	Resistance equipment	
49	Other machines	
50	TV in workout area	
51	Billiard tables	
52	Sauna	
53	Spa	
54	TV Lounge	
55	Canteen onsite	
56	Fresh fruit	
57	Green salads	
58	low fat milk/yogurt	
59	Number of low fat/fat reduced items on menu/notices	
60	Number of NHF ticks displayed or other labeling of low fat items	

61	Number of items with easily visible nutrition information signs (fat grams, calories etc.)	
62	Number of signs/prompts to choose low fat items	
63	Number of signs/prompts to choose fruits and vegetables	
Vending Machine Assessment		
64	Number of vending machines onsite	
65	Hot Drink Machine	
66	Soft Drink Machines	
67	Hot Drink Machine	
68	Number of items each machine holds	
69	Number of slots with low fat and/or low sugar items	
70	Fresh fruit	
71	Green salads	
72	Health Checks	
73	Slots with water or diet drinks	
74	Tea/coffee	
75	Sign encouraging low fat/ low sugar options	
Lunch Room Assessment		
76	Number in worksite	
77	Number of signs/posters encouraging dietary fat reduction or promoting programs?	

78	Number of signs encouraging more fruits and vegetables	
79	Number of signs/posters encouraging weight loss	
80	Microwave	
81	Oven or toaster	
82	Fridge	
83	Seating in or near for preparation area	
Parking Assessment		
84	Number of signs in parking lot encouraging drivers to park further away from work	
85	Number of bike racks	
86	Number of bikes parked outside	
Grounds Assessment		
87	Are grounds exclusive to target worksite or shared	
88	Volleyball court	
89	Basketball court	
90	Walking path on or adjacent to worksite	
91	Open space/grassy area large enough for PA	
92	Outdoor fitness or sport facility	
Neighbourhood Assessment		
93	Nearest roads	
94	Level of traffic	
95	Sidewalks	
96	Bike lanes	

97	Fitness facility visible from worksite	
98	Park/open space visible from worksite	
99	Pool visible from worksite	
100	Tennis court visible from worksite	
101	Squash court visible	
102	Major Shopping centre visible	
103	Shops that cigarettes are sold visible	
104	Is a pub/bar visible from worksite	
105	Is a liquor/ beer store visible from worksite	

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