“Be kind to yourself – because you’re doing fine”: Using Self-Determination Theory to Explore the Health-related Experiences of Primiparous Women Participating in a Motivational Interviewing-via-Co-Active Life Coaching Intervention

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Abstract

Background: Pregnancy and the postpartum period are a vulnerable time for the onset of obesity, especially in primiparous (first-time) mothers. Because postpartum weight retention is a strong independent risk factor for chronic disease, in addition to lifetime obesity with compounded risk for maternal/fetal complications in subsequent pregnancies, a need for lifestyle interventions promoting weight loss and health among primiparous mothers exists. Motivational Interviewing-via-Co-Active Life Coaching (MI-via-CALC) has shown significant results relating to evoking health behaviour change and weight loss in adults with obesity. However, no studies have explored the utility of MI-via-CALC as an intervention in primiparous women – a challenging population to reach due to competing demands and new responsibilities. As a cognitive-behavioural technique delivered over the telephone, MI-via-CALC may be optimal in this regard. The Co-Active model has been previously grounded in Self-determination Theory (SDT), which focuses on the concept of motivation. Given the similarities between the tenets of SDT and MI-via-CALC, and the notion that MI-via-CALC could support SDT's basic psychological needs (i.e., autonomy, competence, and relatedness), the use of this health behaviour change method in an intervention study has been recommended.

Purpose: The purpose of this study was to use SDT to explore the health-related experiences of primiparous women participating in a MI-via-CALC intervention. More specifically, the study sought to explore how participants' motherhood-related experiences detracted from their degree of basic psychological need satisfaction, and how participation in the intervention could address these challenges and support participants' need for autonomy, competence, and relatedness.

Method: First-time mothers ($\geq$ 18 years with a Body Mass Index $\geq$ 25kg/m^2, and a baby $\leq$ 10 months old) were invited to participate in this mixed-methods uncontrolled pilot study with a

pre-post design. Women engaged in eight weekly MI-via-CALC sessions delivered via telephone by Certified Professional Co-Active Coaches. Body composition, quality of life, and motivation were assessed at baseline, mid-, and post-intervention. Semi-structured interviews exploring study experiences were completed immediately following the program. Data were analyzed using visual inspection, effect sizes, and deductive content analysis.

Findings and Results: Nine women were enrolled in and completed the study. Self-Determination Theory's three basic psychological needs (i.e., autonomy, competence, and relatedness) were integrated to guide the analytical process. Detractors from autonomy centered around motherhood specific challenges (breastfeeding; fatigue; lack of time), while supporters of autonomy highlighted several post-intervention coaching-related outcomes (being in the present moment; letting go of control and being flexible; owning the choice; attaching meaning to health-related goals; aligning goals with a future self). Detractors from competence focused on misconceptions about motherhood (foreign territory; comparisons – every baby is unique), and supporters of competence identified coaching tools and strategies learned (new positive perspectives on stressors; asking for help and support; reframing situations; applying coaching strategies in life transitions; being kind to oneself). Detractors from relatedness centered around time constraints (scheduling challenges; unpredictability of maternal responsibilities), and supporters of relatedness focused on accountability (to one's coach; to significant others), and social support (other moms; family; one's coach). Quantitative results aligned with the positive qualitative findings, and revealed that most participants either maintained or improved their scores on all dependent measures throughout the intervention, with a large effect being observed for physical activity participation, a medium effect for physical quality of life, emotional quality of life, and perceived competence, and a small effect for relative autonomy.

Conclusion: This is the first study to examine MI-via-CALC in primiparous women - a unique population requiring an innovative intervention due to their new life roles. Based on the findings, MI-via-CALC could be a promising method for promoting physical and psychological health as well as enhancing satisfaction of the three psychological needs among these women. Consistent with previous coaching studies, participants experienced improved relationships with themselves (e.g., greater self-acceptance, and prioritizing of oneself). While the sample size was small, the trends for all variables were positive over time with a 100% compliance rate suggesting the treatment is warranted and promising; exploring the impact of a longer MI-via-CALC intervention with a larger sample size is recommended.

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Overview

According to recent data, nearly 50% of Canadian women have overweight or obesity (Statistics Canada, 2015b): conditions which have been correlated with a plethora of negative physical (e.g., cardiovascular disease, type two diabetes, and orthopedic complications) and psycho-social health sequelae (e.g., emotional well-being, social relationships, and weight/shape concerns; Centers for Disease Control and Prevention, 2016; Nigatu, Reijneveld, de Jonge, van Rossum, & Bültmann, 2016; van Zutven, Mond, Latner, & Rodgers, 2015; World Health Organization, 2010). Pregnancy and the postpartum period have been identified as vulnerable time periods for the onset of overweight and obesity, especially in first-time mothers (Biesmans, Franck, Ceulemans, Jacquemyn, & Van Bogaert, 2013; Gore, Brown, & West, 2003; Skouteris et al., 2012; Taveras et al., 2011; van der Pligt et al., 2013). In fact, some studies show that having one child (as opposed to never having children) doubles the risk of major weight gain and developing obesity over a 5-10-year period (Davis, Zyzanski, Olson, Stange, & Horwitz, 2009; Williamson et al., 1994). Research has shown that not returning to pre-pregnancy weight by one year postpartum predicts the incidence of deleterious health outcomes such as long-term obesity, coronary heart disease, and diabetes up to 15 years later (Linné, Dye, Barkeling, & Rossner, 2004; Rooney & Schauberger, 2002; Rooney, Schauberger, & Mathiason, 2005; Skouteris et al., 2012). Because postpartum weight retention is a strong independent risk factor for chronic disease, in addition to lifetime obesity with a compounded risk for maternal and fetal complications in subsequent pregnancies (Kac, Benicio, Velasquez-Melendez, & Valente, 2004;

Wilkinson, van der Plight, Gibbons, & McIntyre, 2015), a need for interventions aimed at promoting postpartum weight loss among primiparous (first-time) mothers, in particular, exists.

A significant body of research provides evidence for the positive impact that lifestyle behaviours (e.g., physical activity, nutrition, sleeping habits, etc.) can have on promoting overall health and well-being, including reducing morbidity, mortality, and related healthcare costs (Catenacci & Wyatt, 2007; Cramp & Bray, 2010; Dean et al., 2014; Kac et al., 2004; Olson, 2008; Patrick & Williams, 2012; Wilkinson et al., 2015; World Health Organization, 2010). In longitudinal, cross-sectional, and retrospective studies, one efficacious health behaviour method used to attain long-term weight control is physical activity (Catenacci & Wyatt, 2007). Canadian data show that the increasing prevalence of overweight and obesity in women of childbearing age has been correlated with a decrease in physical activity rates, with only 14% of women achieving the recommended amount (Colley et al., 2011). Not surprisingly, pregnancy and the postpartum period have been associated with physical and psychological changes that can promote inactivity (Symons Downs, Chasan-Taber, Evenson, Leiferman, & Yeo, 2013) despite the fact that physical activity during this time has been shown to elicit a plethora of benefits (e.g., decreased risk of postpartum depression, less maternal anxiety and distress, increased positive mood states, and weight control; Cramp & Bray, 2009). In light of the demonstrated efficacy of utilizing physical activity for improving health outcomes including long-term weight control (Atlantis, Barnes, & Singh, 2006; Föhr, et al., 2016; Haskell, Blair, & Hill, 2009; Klem, Wing, McGuire, Seagle, & Hill, 1997; Ohkawara, Tanaka, Miyachi, Ishikawa-Takata, & Tabata, 2007; Wilson, 2016; Wing & Phelan, 2005), and the propensity for postpartum weight retention and likelihood of inactivity in the postpartum population (Gore et al., 2003), it is important to explore avenues that could facilitate engagement.

Research has highlighted the importance of addressing both the physical and psychosocial origins and effects of obesity (Lee & Shapiro, 2003). This is especially noteworthy when interacting with primiparous women who experience an array of normal physical and psychological changes as a result of pregnancy (Bloch et al., 2000; Casey et al., 2005; Gingnell et al., 2015; Grattan, 2011; O'Hara & McCabe, 2013; Romano, Cacciatore, Giordano, & La Rosa, 2010). Motivational Interviewing (MI; Miller & Rollnick, 2013) applied using Co-Active life coaching (CALC; Whitworth, Kimsey-House, Kimsey-House, & Sandahl, 2007) tools (referred to herein as MI-via-CALC) is a cognitive behavioural technique, (Irwin & Morrow, 2005; Newnham-Kanas, Morrow, & Irwin, 2010; Pearson, 2011; Whitworth et al., 2007) that targets all aspects of an individual's life and has shown considerable promise as an intervention for evoking health improvements (Mantler, Irwin, Morrow, Hall, & Mandich, 2014; Newnham-Kanas et al., 2008; Newnham-Kanas, Irwin, Morrow, & Battram, 2011b; Pearson, Irwin, Morrow, Battram, & Melling, 2013b; Pearson, Irwin, Morrow, & Hall, 2012; van Zandvoort, Irwin, & Morrow, 2008, 2009). Specifically, research integrating MI-via-CALC among women with overweight and obesity has revealed significant improvements to health among participants (e.g., reductions in waist circumference, body weight, and body mass index; enhanced self-esteem; improved quality of life; Newnham-Kanas et al., 2008, 2011a; Pearson et al., 2012, 2013b; van Zandvoort et al., 2008, 2009), thereby emphasizing its utility as a viable individual health behaviour change intervention.

Research has demonstrated the importance of utilizing health behaviour change interventions that are grounded in theory (Brug, Oenema, & Ferreira, 2005; Rothman, 2004); theories provide insights into the facilitators and barriers associated with health behaviour change and help to inform the development, implementation, and evaluation of interventions

(Pearson, 2011). For example, theories that address motivation can be of particular interest to researchers given their inherent link to the behaviour change process, as well as their role in addressing the barriers and facilitators to engagement (Ryan & Deci, 2000). Self-determination theory (SDT; Deci & Ryan, 2000, 2002; Ryan & Deci, 2000) explores this concept with a focus on the origins and processes through which initial and sustained motivation are acquired (Ryan & Deci, 2000). Co-Active life coaching (Whitworth et al., 2007) and SDT (Deci & Ryan, 2000) similarly aim to facilitate behaviour change through the attainment of goals (Pearson, 2011). A recent position paper explored CALC's motivational underpinnings and recommended that empirical research be conducted to elucidate further the theoretical mechanisms responsible for health behaviour change acquired as a function of involvement in a CALC-based intervention (Pearson, 2011). Given the aforementioned similar aims of CALC and SDT with regards to goal setting (Pearson, 2011), and the known efficacy of MI-via-CALC for facilitating health behaviour change (Mantler et al., 2014; Newnham-Kanas et al., 2008; Newnham-Kanas et al., 2011b; Pearson et al., 2013b; Pearson et al., 2012; van Zandvoort et al., 2008, 2009) further exploration of the relationship between self-determination and health behaviour change among the postpartum population would be of benefit. Thus, the purpose of this project was to use SDT to explore the health-related experiences of primiparous women participating in a MI-via-CALC intervention. More specifically, the study sought to explore how participants' motherhood-related experiences detracted from their degree of basic psychological need satisfaction, and how participation in the intervention could address these challenges and support participants' need for autonomy, competence, and relatedness.

Background

The Postpartum Period and its Related Health Sequelae

Prior to discussing the relationships between physical activity, MI-via-CALC, SDT, and the postpartum experience, gaining an operational understanding of this timeframe in a woman's life and its related health sequelae is necessary to facilitate a thorough understanding of the complexity of this population. The postpartum period is often referred to as the fourth stage of labour, and consists of three distinct, but continuous phases (Romano et al., 2010). The initial, or acute phase (i.e., childbirth up to 12 hours postpartum), and the second, or sub-acute phase (i.e., 12 hours postpartum up to six weeks postpartum) consist of the time from childbirth up to six weeks postpartum and are periods of rapid change, both physically (e.g., relating to genitourinary recovery, perineal discomfort, incontinence, and metabolism) and emotionally (e.g., hormonal changes, postpartum depression; American College of Obstetricians and Gynecologists, 2002; Romano et al., 2010). The third, delayed phase can last from six weeks postpartum up to six (Brown, Posner, & Stewart, 1999; Romano et al., 2010) to twelve (Evenson, Mottola, Owe, Rousham, & Brown, 2014) months after delivery, and involves gradual changes over time rather than the acute pathology that is observed in the first six weeks following childbirth. These gradual changes include restoration of muscle and connective tissue to the pre-pregnant state, as well as changes to the genitourinary system (Romano et al., 2010). Typically, during the third phase of the postpartum period, women strive to return to their pre-pregnancy weight, which can be facilitated by engaging in health behaviours such as physical activity (Linné et al., 2004).

While postpartum women experience barriers to engaging in physical activity (e.g., fatigue, lack of time, mothering; Cramp & Bray, 2011; Evenson, Aytur, & Borodulin, 2009), many postpartum women report high motivation for weight loss, which highlights the

importance of intervening during this period in particular (Gore et al., 2003). Postpartum women have also reported related motivators for engaging in health behaviour change including feeling dissatisfied with body weight and having a strong desire for maintaining a healthy body composition (Gore et al., 2003). Focusing on health behaviour change interventions during the postpartum period (wherein weight loss could be a potential outcome) can reduce maternal concerns about the potential negative impact of weight loss on fetal health and birth weight during pregnancy, while giving women the opportunity to achieve improved health status (Gore et al., 2003). Women who reduce their weight after childbirth may be able to begin subsequent pregnancies at a healthier weight, thereby improving maternal and child health during this time of physical and psychological transition (Berger, Peragallo-Urrutia, & Nicholson, 2014; Song, Chae, & Kim, 2014).

Psychological health sequelae. A normal part of pregnancy and the postpartum period involves the adaptive endocrine changes that assist women with child delivery and breastfeeding (Grattan, 2011). Due to these hormonal changes, many women are at an increased risk for developing postpartum depression (i.e., negative feelings such as sadness, anxiousness, and worthlessness, that may begin during pregnancy or any time up to one-year post-childbirth; Canadian Mental Health Association, 2016) which suggests that these adaptive changes could affect maternal emotional processing (Bloch et al., 2000; Gingnell et al., 2015; O'Hara & McCabe, 2013). Additionally, many postpartum women experience maternal distress (i.e., negative emotional states including depression, anxiety, and stress; Miller, Pallant, & Negri, 2006), which has been linked with anxiety disorders such as post-traumatic stress disorder (Goodman, Watson, & Stubbs, 2016; Miller et al., 2006). These anxiety disorders can negatively affect child and maternal health, as well as child development (Glasheen, Colpe, Hoffman, &

Klein Warren, 2015). This is because mothers experiencing negative psychological or emotional health conditions are typically less responsive to infant distress cues, may exhibit negative mood states (e.g., sadness, anger, anxiety, etc.), have insecure attachment, and may be disengaged from their child (Croce Nanni & Troisi, 2017; Manber et al., 2010; Santona et al., 2015). Furthermore, the incidence of postpartum depression and psychological stress has even been shown to have a positive relationship with reporting an increased incidence of negative physical symptoms (e.g., headaches; Webb et al., 2008), thereby emphasizing the need for treatment efforts.

Physical health sequelae. In terms of physical changes, many women undergo childbirth-related symptoms and conditions up to 11 weeks after delivery, with other physical stress lasting even longer (McGovern et al., 2007). For example, many women experience discomfort for several weeks from: breast soreness and challenges with breastfeeding; urinary and fecal incontinence; constipation; haemorrhoids; perineal, pelvic, and back pain; severe headaches and migraines; and pain from cesaerean delivery or episiotomy (McGovern et al., 2007; Woolhouse, Gartland, Perlen, Donath, & Brown, 2014). While these conditions are typically resolved by approximately six weeks postpartum (McGovern et al., 2007), some conditions (e.g., pain related to intercourse, caesarean scar, the perineal or pelvic area, and urinary incontinence issues) tend to persist for longer into the postpartum period (i.e., up to 12 months after delivery; Declercq, Sakala, Corry, & Applebaum, 2007; Webb et al., 2008). In fact, urinary incontinence during pregnancy and the postpartum period affects approximately 32% of primiparous women (Casey et al., 2005; Romano et al., 2010). Women also experience significant changes to their sleep patterns during the postpartum period, and express their concern over sleep deprivation and fatigue when adapting to their responsibilities as new mothers (Gay, Lee, & Lee, 2004). Some studies have indicated that many women experience

"hidden morbidity" (Webb et al., 2008, p. 180) such as backaches, headaches, bowel problems, hemorrhoids, increased incidence of minor illnesses such as colds, and fatigue during the postpartum period. These health-related issues are of particular importance, as they can affect maternal health and quality of life, as well as infant health and well-being by impacting new mothers' parenting sensitivity and engagement (e.g., by beginning infant vaccinations late, or early breastfeeding cessation; Cheng, Fowles, & Walker, 2006; Feldman et al., 2009), as well as maternal-child attachment (Croce Nanni & Troisi, 2017; Santona et al., 2015). While many of these physical health conditions are typically considered transient, weight gain has been shown to have increased risk for permanency (Olson, 2008; Webb et al., 2008). Of particular concern, the postpartum period has been identified as a time when many women tend to retain gestational weight, or experience excessive weight gain (Taveras et al., 2011).

Weight gain and postpartum weight retention. Childbearing is a commonly cited cause of weight gain, with 45% of healthy, 40-50% of overweight, and 60% of women with obesity retaining all of their gestational weight gain at six months postpartum (Olson, 2008). The Society of Obstetricians and Gynaecologists of Canada (2016) recommends that over the course of a pregnancy, women with a pre-pregnancy body mass index that is: less than 18.5kg/m^2 gain between 12.5 to 18 kg; 18.5 to 24.9kg/m^2 gain between 11.5 and 16 kg; 25 to 29.9 kg/m^2 gain between 7 to 11 kg; and greater than 30 kg/m^2 gain at least 7 kg. While these recommendations suggest that women should set pregnancy weight gain goals based on their pre-pregnancy body mass index (Society of Obstetricians and Gynaecologists of Canada, 2010), it is important to note that gestational weight gain is expected and encouraged to support maternal and fetal nutritional needs (Chu et al., 2009). Further, while midwifery gestational weight gain guidelines align with the Society of Obstetrics and Gynaecologists of Canada, midwives acknowledge the

limitations of categorizing individuals based on body mass index, and that not all women within a given body mass index category are at equal risk for adverse outcomes during pregnancy or childbirth (Association of Ontario Midwives, 2010).

Women are typically encouraged to return to their pre-pregnancy weight by approximately one year postpartum, as weight that is gained during pregnancy is typically distributed centrally (i.e., around the hips) rather than peripherally (i.e., distributed throughout the limbs), which may increase the risk of developing a chronic disease (Biesmans et al., 2013; Gunderson, 2004; Taveras et al., 2011; Vissers et al., 2013). Central obesity, also referred to as visceral or abdominal adiposity, has been linked to multiple health conditions such as impaired glucose and lipid metabolism, insulin resistance, increased risk of colon and breast cancers, increased incidence of infection, and prolonged hospital stays (Shuster, Patlas, Pinthus, & Mourtzakis, 2012; Vissers et al., 2013). Furthermore, research has shown that the more weight women gain during pregnancy, the more they will be affected by postpartum weight retention (Ashley-Martin & Woolcott, 2014; Biesmans et al.). Postpartum weight retention can be defined as having a weight difference greater than 5% of one's pre-pregnancy weight during the postpartum period (i.e., up to one year after childbirth; Biesmans et al., 2013; Yang, Wroth, Parham, Strait, & Simmons, 2013). This means that a woman who had a pre-pregnancy weight of 150 pounds would be considered to have postpartum weight retention if she weighed greater than 157.5 pounds at the end of the postpartum period of one year after childbirth.

Multiple factors have been shown to increase postpartum weight retention; however, gestational weight gain that falls beyond the recommendations (outlined previously) is considered to have the greatest impact (Ashley-Martin & Woolcott, 2014; Harrison, Teede, & Lombard, 2014; Kac et al., 2004; Lowell & Miller, 2010; van der Pligt et al., 2013). Other

contributors toward postpartum weight retention include a shortened duration of breastfeeding (Kac et al., 2004), decreased maternal age (i.e., 15-19 year old mothers gain the most gestational weight; Lowell & Miller, 2010), less than eight years between menarche and the first delivery (Gunderson, Abrams, & Selvin, 2001), a pre-pregnancy body mass index within the overweight or obese categories (Ashley-Martin & Woolcott, 2014), ethnicity (i.e., individuals from Indigenous backgrounds typically gain more weight than non-Indigenous individuals; Lowell & Miller, 2010), low socioeconomic status (Lowell & Miller, 2010), age combined with marital status (i.e., older, single women experience less social support, leading to higher weight retention; Kac et al., 2004), no or little education (i.e., women with less than secondary education have higher gestational weight gain; Lowell & Miller, 2010), poor nutrition status, high depression score (Skouteris et al., 2012), and parity (Biesmans et al., 2013; Lowell & Miller, 2010; Skouteris et al., 2012).

Parity can be defined as the number of births that a woman has had, with multiple birth pregnancies being counted as one (Nguyen & Wilcox, 2005). Parity and its association with the development of obesity has not been consistently described in previous studies (Davis et al., 2014). For example, some research has shown that parity is independently associated with increased weight over time (Melzer & Schutz, 2010), meaning that the more children a woman has had, the higher the likelihood she will develop obesity (Davis et al., 2014). Thus, multiparous (having given birth to multiple children) women have a higher risk for developing obesity than primiparous (having given birth to only one child) women (Davis et al., 2014). The greater weight gains and retention observed among multiparous women could be attributed to short inter-pregnancy intervals (i.e., having children less than 12 months apart), and weight retained from pregnancy or gained during the postpartum period (Davis et al., 2014).

Conversely, evidence gathered from the 2006 Canadian Maternity Experiences Survey indicates that primiparous women reported higher gestational weight gain than multiparous women, ultimately leading to higher postpartum weight retention in the primiparous group, even when controlling for other variables (Chasan-Taber et al., 2008; Chu, Callaghan, Bish, & D'Angelo, 2009; Lan-Pidhainey, Nohr, & Rasmussen, 2013; Lowell & Miller, 2010; Kowal, Kuk, & Tamim, 2012). This difference could be attributed to the fact that many primiparous women enter their pregnancy at a lower body mass index than multiparous women (who are likely to retain weight between pregnancies suggesting that multiparous women may not need to gain as much gestational weight as primiparous women to achieve optimal outcomes; Lan-Pidhainey et al., 2013). Although postpartum weight retention appears to vary between women and pregnancies, increased body mass index between pregnancies is associated with increased risk for multiple, serious maternal and neonatal outcomes during subsequent pregnancies (Wilkinson et al., 2015). For example, excessive gestational weight gain resulting in postpartum weight retention could put women and their children at a higher risk of obesity (Skouteris et al., 2012; Song et al., 2014; van der Pligt et al., 2013). Furthermore, postpartum weight retention is associated with complications for subsequent pregnancies, including gestational diabetes mellitus, pre-eclampsia, birth defects, caesarean delivery for the second childbirth, and longer hospital stays post-delivery, which increases the risk of maternal and infant mortality (Bogaerts et al., 2013; Callaway, Prins, Chang, & McIntyre, 2006; McIntyre, Gibbons, Flenady, & Callaway, 2012).

Examining postpartum weight retention among primiparous mothers is of particular importance, as this period represents a time wherein a woman's long-term weight trajectory can be impacted. That is, by the end of the postpartum period (at approximately one-year after

childbirth) research has shown that many women have plateaued in terms of losing their gestational weight, and may have begun gaining more weight (Lan-Pidhainey et al., 2013). In light of research indicating that primiparous women typically gain more gestational weight than multiparous women of similar body mass indices, and that the postpartum period represents a critical time for promoting ongoing health and well-being (Yang et al., 2013), it is important to support primiparous women in returning to their pre-pregnancy health status given their increased risk for developing postpartum weight retention (Lan-Pidhainey et al., 2013).

Health Behaviour Change Interventions

Health behaviour change interventions can be defined as programs that are designed to affect individuals' actions associated with their health (Cutler, 2004). These initiatives can be implemented at the micro-level (McKenzie & Smeltzer, 2001), with the goal of encouraging individuals who are at an increased risk of developing a condition to modify their behaviours to reduce their risk (McKenzie & Smeltzer, 2001). For example, an individual at risk of developing postpartum weight retention could engage in physical activity during the postpartum period to reduce weight retention. Research has shown that personal behaviours can influence health, and that individuals can improve their health status by engaging in health behaviour change (Ryan, 2009). This perspective ascribes to a health promotion lens, wherein health promotion is the process of empowering individuals to take control over and improve their health (World Health Organization, 1986). This tenet is of great significance, as it highlights the importance of emphasizing personal responsibility for health; individuals are encouraged to learn more about health and enhance their life skills (World Health Organization, 1986). Among the postpartum population, health behaviour change interventions with a focus on physical activity have been shown to be valuable for improving psychological health (Muresan-Madar & Baban, 2015),

dietary habits (Wilkinson et al., 2015), and weight control (Althuizen, van Poppel, de Vries, Seidell, & van Mechelen, 2011; Skouteris et al., 2012). While these interventions have been effective at promoting health behaviours, it is also important to acknowledge that individual health behaviour change interventions could lead to victim blaming, wherein individuals may feel at fault for not engaging in physical activity, and ultimately resist changing their behaviours, highlighting the need for interventions with more positive messages (Cutler, 2004). Health behaviour change interventions have also been known to have low participant engagement, which could be partially attributed to the challenges associated with transitioning into a new maternal role (Glasheen, Colpe, Hoffman, & Klein Warren, 2015; Larson-Meyer, 2003; Manber et al., 2010), and failing to address psychological determinants of health behaviours (Clark, Skouteris, Wertheim, Paxton, & Milgrom, 2009).

Shortcomings of traditional health behaviour change interventions. One method that has traditionally been used for increasing physical activity involves health behaviour change interventions with a heavy reliance on education (Gaume, Gmel, Faouzi, & Daeppen, 2009; Wiley, Irwin, & Morrow, 2012). However, this format has shown little efficacy for sustaining health behaviour change, as it relies on advice-giving and persuasion (rather than integrating the client in the process), thereby reducing engagement in the intervention (Silva et al., 2010; Skouteris et al., 2012). In fact, previous research has shown that unsolicited advice-giving (which is typically practitioner-centered) can result in increased resistance to health behaviour change, whereas taking a more client-centered approach (i.e., striving to understand individuals as a whole, developing a partnership between the client and practitioner, listening, exploring concerns, etc.) can lead to higher client satisfaction and motivation for change (Cronbach's α = 0.92; Little et al., 2001; Wiley et al., 2012). Furthermore, many traditional health behaviour

change interventions focus mainly on behaviour changes alone (Skouteris et al., 2012); however, there is evidence indicating that the behavioural *and* psychological determinants should be addressed to maintain health behaviour changes associated with healthy weight loss and maintenance in the long term (Clark et al., 2009; Rallis, Skouteris, Wertheim, & Paxton, 2007). For example, Silva et al. (2010) highlighted the importance of understanding the motivation associated with initiating *and maintaining* physical activity. This is because motivation (i.e., moving oneself to act; Ryan & Deci, 2016) has been shown to play a role in physical activity participation. Thus, it makes sense to examine both the behavioural (e.g., physical activity) and psychological (e.g., motivation, quality of life) dimensions associated with involvement in a health behaviour change intervention among the postpartum population.

Health Behaviour Change Interventions and Postpartum Physical Activity

Due to the prevalence of overweight and obesity in our society, health behaviour change interventions with a focus on increasing physical activity during the postpartum period have been implemented (Cramp & Bray, 2011). Regular (i.e., approximately 30 minutes per day on at least five days per week) moderate to vigorous intensity physical activity (Canadian Society for Exercise Physiology, 2011) has been identified as a key health promotion strategy following pregnancy given its ability to reduce excessive weight gain and accelerate postpartum weight loss through increasing energy output (Cramp & Bray, 2011; Verhoef & Love, 1992). In fact, epidemiological studies have indicated that postpartum women who engage in higher levels of aerobic activity are more likely to return to their pre-pregnancy body weight, and have less incidence of postpartum weight retention than their less active peers (Larson-Meyer, 2003; Ohlin & Rossner, 1996; Sampselle, Seng, Yeo, Killion, & Oakley, 1999). Activity has also been shown to have long term positive effects, wherein women engaging in more aerobic physical activity

during the postpartum period typically gain less weight than sedentary postpartum women over the next ten years (Rooney & Schauberger, 2002; van der Pligt et al., 2013).

Engaging in postpartum physical activity has also been associated with an improved ability for new mothers to care for themselves and their new baby due to increased aerobic fitness, muscular strength, and improvements in overall mood and psychological well-being (Larson-Meyer, 2003). This is an important outcome, as many women experience declines in physical conditioning during pregnancy (Larson-Meyer, 2003). Thus, by encouraging women to engage in physical activity shortly after childbirth, they may be better able to return to their pre-pregnancy physical condition, and simultaneously restore musculature stressed during child delivery (Dickinson, 1990; Larson-Meyer, 2003; Ohlin & Rossner, 1996). Lastly, engaging in regular physical activity can promote lifelong physical activity engagement for both new mothers and their children (Larson-Meyer, 2002; Larson-Meyer, 2003). In previous studies, parental participation in regular physical activity was shown to influence offspring's physical activity level (Fogelholm, Nuutinen, Pasanen, Myohanen, & Saatela, 1999; Moore et al., 1991) and frequency (Gottlieb & Chen, 1985), as well as physical fitness (McMurray et al., 1993). In fact, children of active mothers have been shown to be more likely to engage in regular physical activity compared with children of inactive mothers (Jacobi, et al., 2011; Moore et al., 1991).

Other short and long terms benefits of initiating physical activity after childbirth include a decreased risk of postpartum depression, anxiety, and distress, as well as increased positive mood states, quality of life, and overall perceived well-being (Claesson, Klein, Sydsjö, & Josefsson, 2014; Cramp & Bray, 2011; Evenson et al., 2014; Gaston & Vamos, 2012; Larson-Meyer, 2003; Nordhagen & Sundgot-Borgen, 2002). These improved psychological health sequelae have been shown to facilitate maternal care of her infant and herself (Cramp & Bray,

2010; Larson-Meyer, 2003). In fact, a longitudinal study found that women engaging in vigorous intensity physical activity scored higher on postpartum psychosocial well-being and adaptation six weeks after childbirth, and were more likely than non-exercisers to socialize and engage in hobbies to enhance overall well-being (Sampselle et al., 1999).

Despite the apparent benefits of engaging in physical activity, research has shown that women in the postpartum period are at high risk for physical inactivity with as many as two thirds not meeting formal exercise recommendations (i.e., to engage in 20-30 minutes of continuous physical activity each day, accumulating a total of 150 minutes each week; Albright, Maddock, & Nigg, 2005; Brown, Brown, Miller, & Hansen, 2001; Evenson et al., 2014; Sampselle et al., 1999). Canadian guidelines indicate that depending on the type of childbirth, most types of physical activity can be resumed in the immediate postpartum period; however, if there were complications with childbirth, it is suggested that women consult their healthcare provider for recommendations (Davies, Wolfe, Mottola, & MacKinnon, 2003). It is important to note that the Canadian recommendations for postpartum women are similar to the guidelines set out for all adults between the ages of 18-64 years, which encourage individuals to accumulate 150 minutes (in bouts of at least 10 minutes) of moderate or vigorous intensity physical activity each week (Canadian Society for Exercise Physiology, 2011). This indicates that postpartum women can strive to return to their pregnancy and pre-pregnancy physical activity habits as soon as they feel that they are ready, or after they have received clearance from their physician (typically at six weeks postpartum).

As physical activity has been increasingly introduced into the postpartum period in recent years in an effort to enhance health status and reduce postpartum weight retention, concern has been expressed over the impact of physical activity on lactation (Mottola, 2002). Given that

exclusive breastfeeding is encouraged for the first six months postpartum (Chalmers & Royle, 2009), and that both breastfeeding and physical activity are physiologically energy-demanding, their compatibility has been addressed in the scientific literature (Spaaij, van Raaij, de Groot, & Boekholt, 1994). Research has shown that postpartum physical activity does not result in an accumulation of lactic acid in breast milk, changes in breast milk volume, or decreased infant growth (Carey & Quinn, 2000). Due to the fact that breastfeeding and physical activity have not been shown to negatively impact each other, it is suggested that women engage in both health behaviours to enhance maternal and infant health status (Carey & Quinn, 2000).

Aside from concerns regarding the impact of physical activity on breastfeeding, the most commonly cited barriers for not engaging in postpartum physical activity include being too tired, a lack of time, and mothering-related responsibilities (Cramp & Bray, 2011; Evenson et al., 2009). Experiencing fatigue has been identified as a prevalent concern among the postpartum population, which is reasonable given the sleep patterns of infants and new maternal responsibilities (i.e., feeding, changing diapers, nurturing and caring for one's infant; Evenson et al., 2009). One study examined perceived barriers to physical activity among mothers during the postnatal period and found that exercise self-efficacy (i.e., confidence in one's ability to engage in at least 30 minutes of moderate-intensity aerobic physical activity) and barrier self-efficacy (i.e., confidence in one's ability to overcome barriers to engaging in physical activity) were associated with one another, and with the amount of physical activity at each assessment time (Cramp & Bray, 2011). The authors determined that women were more likely to engage in physical activity when they believed in their ability to complete the exercise and to overcome related barriers (Cramp & Bray, 2011).

This finding aligns with research indicating that interventions focusing on improving psychological indices such as self-efficacy typically results in better outcomes than behavioural interventions alone, with sustained changes up to 6 to 12 months later (Butler et al., 2013; Clark, Abrams, Niaura, Eaton, & Rossi, 1991). Similarly, in one study that explored the beliefs, barriers, and enablers of postpartum physical activity, social support and motivation were identified by participants as the most common enablers (Evenson et al., 2009). Given the multitude of benefits associated with engaging in postpartum physical activity and the challenges associated with postpartum women attaining physical activity guidelines, it is clear that there is a need for postpartum health behaviour change interventions that address psychological health sequelae such as motivation (Cramp & Bray, 2011; Evenson et al., 2009).

Motivational Interviewing and Co-Active Life Coaching

Motivational interviewing. One potential avenue for facilitating health behaviour change in postpartum women could be motivational interviewing (MI): an evidence-based and client-centered counselling style that helps people to explore and resolve ambivalence toward change (Miller & Rollnick, 2013). Motivational Interviewing can be defined as a collaborative, goal-oriented style of communication, with emphasis placed on exploring and addressing ambivalence toward a behaviour or change (Miller & Rollnick, 2013). An important tenet of MI that is fundamentally different from many other health behaviour change interventions is that motivation for engaging in behaviour change is elicited from individuals, rather than advised from a practitioner (Miller & Rollnick, 2013).

Motivational interviewing focuses on increasing intrinsic motivation for behaviour change by identifying and working through ambivalence (i.e., when clients experience contradictory feelings and/or ideas about engaging in a behaviour; Miller & Rollnick, 2013).

Practitioners utilizing MI to engage clients in health behaviour change use open-ended questions and reflections to facilitate dialogue with the client to explore reasons for change (Miller & Rollnick, 2013). Practitioners also practice empathy, and seek to avoid confrontation with clients to facilitate behaviour change (Miller & Rollnick, 2013). While research has provided evidence for the efficacy of MI for health behaviour change ultimately leading to weight loss (e.g., Armstrong et al., 2011; DiLillo & Smith West, 2011), a number of detriments have been identified including a lack of treatment fidelity, inconsistent delivery, varied training, and an ambiguity of the content of MI sessions (Hettema & Hendricks, 2010; Lai et al., 2010; Mesters, 2009). Critics have also expressed concern over practitioner non- or partial-implementation, as well as failure to maintain the necessary skills to implement MI (Mesters, 2009). In light of these shortcomings, the need for a standardized and efficacious approach to implement MI principles has been identified (Newnham-Kanas et al., 2010).

Co-Active life coaching. Because of the similarities between their client-centered styles, researchers have connected MI with tools and skills utilized in Professional Co-Active Life Coaching (CALC; Liu et al., 2015; Newnham-Kanas et al., 2010). To explore the similarities between MI and CALC, the CALC model will be introduced first, followed by an introduction of MI-via-CALC, and then a description of MI-via-CALC in practice will be outlined. The CALC model is a specific style of life coaching which seeks to deepen a client's personal learning and/or forward him/her toward meaningful action (a detailed description and visual representation of the CALC model is provided below; Kimsey-House et al., 2011; Whitworth et al., 2007). By pairing CALC with MI, researchers are able to address the lack of standardized training and implementation associated with MI (Goddard & Morrow, 2015; Newnham-Kanas et al., 2010). The profession of Co-Active coaching requires individuals to undergo rigorous

training through a program that is accredited by the International Coaching Federation (Newnham-Kanas et al., 2010; The Coaches Training Institute, 2015). Completion of the thorough and consistently administered program (i.e., five separate but related three-day hands-on training courses, followed by a 25-week certification program) results in a Certified Professional Co-Active Coach (CPCC) designation, and facilitates the uniform implementation of CALC by those who participate (Kimsey-House et al., 2011). During the training and certification process, coaches are taught numerous skills and techniques to enhance their coaching acumen (e.g. active listening, offering reflective summaries, asking meaningful questions; The Coaches Training Institute, 2015). The skills applied are dynamic to suit the needs of the client to facilitate client empowerment for behaviour change (Whitworth et al., 2007).

Motivational interviewing-via-Co-Active life coaching. Motivational Interviewing (Miller & Rollnick, 2013) applied using CALC tools (henceforth referred to as MI-via-CALC; Whitworth et al., 2007) is an evidence-based, theoretically grounded cognitive behavioural technique that targets all aspects of an individual's life, and has shown considerable promise as an intervention for supporting health improvements (Irwin & Morrow, 2005; Newnham-Kanas et al., 2008, 2010, 2011b; Pearson, 2011; Pearson et al., 2012, 2013b; van Zandvoort et al., 2008, 2009; Whitworth et al., 2007). A primary assumption of CALC is that clients are considered experts in their own lives and concomitantly are assumed to have the answers to their questions; thus, clients choose what direction the coaching sessions take (Whitworth et al., 2007). Through sessions typically administered over the telephone, the coach's role is to assist the client in accessing these answers in a supportive, motivating manner by discussing feelings and goals interactively. Telephone-based supports that have been theoretically-grounded and are evidence-

based (such as MI-via-CALC) have been shown to be as effective as face-to-face supports (Opdenacker & Boen, 2008), and have been shown to be effective for supporting lifestyle changes among the postpartum population (Eakin et al., 2010; Wilkinson et al., 2015). Furthermore, MI-via-CALC is often delivered over the telephone due to its convenience, and can facilitate the accessibility of the intervention in rural and remote areas, and could be particularly useful among postpartum women given that clients could be in the comfort of their own home while discussing personal challenges and experiences (Goddard & Morrow, 2015; Pearson, Irwin, & Morrow, 2013). Current research integrating MI-via-CALC in women with overweight and obesity has revealed significant improvements to health among participants (e.g., reductions in waist circumference, body weight, and body mass index; enhanced self-esteem; improved quality of life; Newnham-Kanas et al., 2008, 2011a; Pearson et al., 2012, 2013b; van Zandvoort et al., 2008, 2009; discussed below), thereby emphasizing the method's utility as a viable individual health behaviour change intervention.

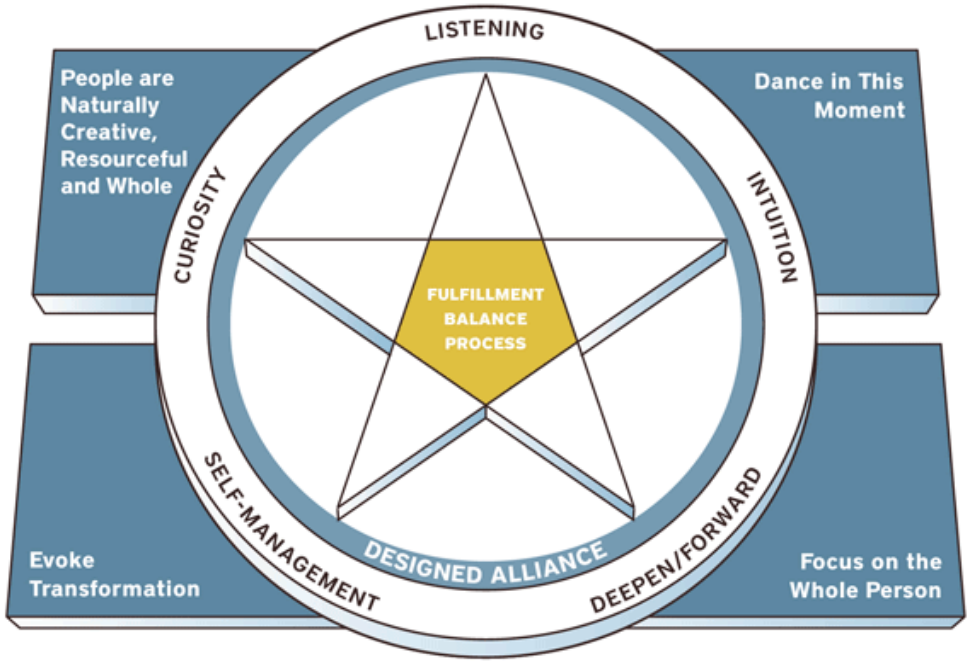

Figure 1. The Co-Active model. This figure illustrates the cornerstones, contexts, and the heart of Co-Active Life Coaching (Kimsey-House et al., 2011).

The designed alliance. In the Co-Active Model, the client and his/her agenda are at the center of the model; the client and his/her needs are the focus of the coaching relationship (Kimsey-House et al., 2011). At the outset of a coaching relationship, it is important for the coach and client to design an alliance wherein an effective working relationship can grow (Kimsey-House et al., 2011). This designed alliance can be visually represented (refer to Figure 1) as encircling the client and his/her agenda (Kimsey-House et al., 2011). It is vital that clients express how they wish to be coached in order to help create a relationship that fits their needs and learning style (Kimsey-House et al., 2011). By designing an alliance, the coach and client can choose the best communication approach, while simultaneously developing reciprocal responsibility, and building rapport (Kimsey-House et al., 2011). It is anticipated that through this process, clients learn that they are in control of the coaching relationship, and the behaviour changes that they choose to engage in (Kimsey-House et al., 2011).

Fulfillment coaching. Central to the CALC model is the notion that the client's decisions are always related to the three core principles of coaching which are guided by the CPCC: fulfillment, balance, and process (Kimsey-House et al., 2011). Fulfillment is personal, and can include external measures of success (e.g., getting promoted, earning more money, etc.), as well as a deeper level of fulfillment based upon personal beliefs and values (Kimsey-House et al., 2011). It is important for clients to explore what would be fulfilling for oneself in the present, rather than someday in the future (Kimsey-House et al., 2011). One way of achieving this is to identify one's personal values to ultimately facilitate life choices that align with those values, and encourage a more satisfying and fulfilling life (Kimsey-House et al., 2011).

Balance coaching. The CALC principle of balance focuses on exploring different perspectives, and adding choices (Kimsey-House et al, 2011). This is important, as our lives tend to be centered around responsibilities and distractions, which can lead to an unbalanced life (Kimsey-House et al., 2011). Balance coaching involves choosing to say yes to certain things and no to others that do not align with one's view of leading a balanced life (Kimsey-House et al., 2011). In our society, this can be difficult, since many client's wish to say yes to everything, which can be a disservice to themselves given that they may feel overwhelmed by their numerous responsibilities (Kimsey-House et al., 2011). Balance can be thought of as a dynamic construct, wherein individuals are constantly moving either toward or away from balance, so it is often addressed many times throughout a coaching relationship (Kimsey-House et al., 2011).

Process coaching. Finally, the principle of process is focused on what is happening within oneself, and being in the moment (Kimsey-House et al., 2011). This involves a curious exploration of what is going on within oneself, which could sometimes be an antecedent to to making behaviour changes (Kimsey-House et al., 2011). Process coaching can be explained through the use of a river analogy, wherein our lives, just like a river, flow in various directions and speeds at different times throughout life (Kimsey-House et al., 2011). During all of this, the coach is to 'be with' the client, wherever they are, and to notice and point out where the client is in the process (Kimsey-House et al., 2011). Thus, the coach encourages and supports clients, and accompanies them during their emotional journey (Kimsey-House et al., 2011).

The Co-Active cornerstones. As depicted in Figure 1, the model has four cornerstones that provide the foundation on which the coaching relationship can be built: people are naturally creative, resourceful, and whole; focus on the whole person; dance in this moment; and evoke transformation (Kimsey-House et al., 2011). The fact that clients are considered "naturally

creative, resourceful, and whole" (Kimsey-House et al., 2011, p. 3), means that they do not need fixing; rather, they can be empowered to explore the answers to what they are looking for. It is important to note that the client's whole life is explored (i.e., another cornerstone), rather than focusing only on a particular challenge, goal, or behaviour (Kimsey-House et al., 2011). This practice arises from the notion that a client's heart, mind, body, and spirit are all connected, and that the main focus of a coaching session (i.e., a challenge or goal) cannot be addressed in isolation (Kimsey-House et al., 2011).

Another cornerstone of CALC is to "dance in this moment" (Kimsey-House et al., 2011, p. 6), meaning that coaches are encouraged to be present in what is currently happening in the coaching dialogue, and to respond to wherever the conversation goes, rather than attempting to follow a specific plan. It is important for coaches to be attuned to the dynamic interplay between themselves and the client, and to be attentive to the subtle nuances of the conversation (Kimsey-House et al., 2011). In fact, the "dance" of "dance in this moment" refers to responding Co-Actively, meaning that the client and coach collaborate to move the discussion forward (Kimsey-House et al., 2011).

Ultimately, it is the coach's role to remain cognizant of the client's goal, to trace it back to its roots, and to see the client's fully connected life (Kimsey-House et al., 2011). When the connection between goal attainment and life's potential is made, the impact can be transformative (another cornerstone of the model), as the client's personal capacity for growth is expressed (Kimsey-House et al., 2011). This transformative learning experience can then be applied in other contexts within the client's life to further his/her potential (Kimsey-House et al., 2011). Throughout this process, clients still select the topic and direction of the conversation;

however, coaches play an important role in holding a vision for what is possible (Kimsey-House et al., 2011).

The contexts of the Co-Active model. In the visual representation of the Co-Active Model (Figure 1), the five points of the star illustrate each of the contexts that the coach draws from: listening, intuition, curiosity, forwarding and deepening action, and self-management (Kimsey-House et al., 2011). The most important component of listening involves being attuned to the meaning behind words, or recurring themes that could deepen learning (Kimsey-House et al., 2011). It is important that the coach listens for the client's disclosure of his/her purpose and values; however, it is also paramount that the coach listens for resistance, fear, and objections to change (Kimsey-House et al., 2011). It is also important for coaches to be in tune with their intuition (i.e., a typically unspoken knowing that resides in one's subconscious), to synthesize new conclusions and information that they may not be able to consciously access (Kimsey-House et al., 2011). Curiosity is another powerful context that occurs during coaching, wherein the coach asks questions to facilitate dialogue and uncover client answers to draw out insights (Kimsey-House et al., 2011). As clients learn to be curious about their lives, it lowers feelings of apprehension and they may become more interested in exploring these places (Kimsey-House et al., 2011). The outcome or goal of coaching is to forward and deepen the client's learning and action for change (Kimsey-House et al., 2011). This is an important context for the coaching relationship, as it stresses the importance of having balance between action and learning, especially in our society where achievement is highly valued (Kimsey-House et al., 2011). Lastly, self-management involves the coach setting aside his/her personal beliefs to become immersed in the client's situation (Kimsey-House et al., 2011). This is important, as it means that

the coach gives up his/her need to look good and be right, and to ensure that the client is supported in his/her endeavors (Kimsey-House et al., 2011).

As the previous discussion regarding the tenets and contexts of MI-via-CALC have indicated, the coach's role is to act as a catalyst to facilitate change, while working alongside the client (Kimsey-House et al., 2011). Thus, it is important for the coach to actively support the client in achieving a purposeful life (Kimsey-House et al., 2011). Achieving this higher purpose can be observed in different contexts. In recent years, MI-via-CALC has been applied in a variety of research settings to explore its efficacy for facilitating health behaviour change.

Efficacy of MI-via-CALC for Addressing Health Behaviour Change

One study that explored the impact of a one-on-one MI-via-CALC intervention as a treatment for adults with obesity produced positive outcomes, thereby emphasizing its effectiveness for health behaviour change (Newnham-Kanas et al., 2008). Twenty men and women between the ages of 35 and 55 years, with a body mass index greater than, or equal to, 30 kg/m^2 participated in the study (Newnham-Kanas et al., 2008). Participants engaged in six to eight 35-minute MI-via-CALC sessions, wherein participants initiated dialogue on a topic of their own choosing. Measures included the Rosenberg Self-Esteem Scale, the SF-36 Functional Health Status Scale, and the International Physical Activity Questionnaire. Results indicated that the MI-via-CALC intervention was associated with decreases in waist circumference, and increases in self-esteem and perceived functional health status. Furthermore, participants noted that they experienced improved self-acceptance and mood states (i.e., optimism) when thinking about making health behaviour changes (Newnham-Kanas et al., 2008).

In a similar health-behaviour change study, researchers examined the impact of a 12-week pre-post MI-via-CALC intervention on task and barrier self-efficacy and self-esteem

regarding physical activity engagement in women (Goddard & Morrow, 2015). Twenty-five women between the ages of 30 and 55 years who were inactive and wanted to increase their physical activity were recruited. At the introductory meeting, women: were asked to complete a series of baseline questionnaires and anthropometric measurements; had the online questionnaires assessing variables such as physical activity participation, self-esteem, and self-efficacy explained to them; and were provided with Canada's Physical Activity Guide for Healthy Active Living (Goddard & Morrow, 2015). Following this, participants received a brief description of MI-via-CALC, were given their coach's contact information and asked to make contact with him/her within one week of the introductory meeting. All participants received 12, 30-45-minute coaching sessions through the phone for convenience and standardized delivery. The measures that were taken at the introductory meeting were repeated at mid-point, and after the last session. The results demonstrated that the participants had statistically significant decreases in body mass index, waist-to-hip ratio, and waist circumference, and an increase in self-reported physical activity. The authors attributed the increasing physical activity rates to participants having the opportunity to understand that they may have previously been operating with low self-efficacy, which may have prevented them from engaging. The authors also postulated that the MI-via-CALC intervention helped participants improve their self-esteem and assisted participants with shifting negative perspectives and self-talk (Goddard & Morrow, 2015). These study findings indicated that MI-via-CALC is a promising avenue for increasing physical activity engagement among women who are seeking to improve their health status (Goddard & Morrow, 2015).

Another study that explored self-esteem in the context of health behaviour change compared MI-via-CALC with a validated obesity intervention (i.e., the LEARN Program for

Weight Management) in a population of university students (Pearson et al., 2012). Inclusion criteria required that individuals were between the ages of 18-24 years with a body mass index greater than, or equal to, 30 kg/m^2 (Pearson et al., 2012). Participants engaged in 12, weekly 30-45-minute telephone-based sessions (either MI-via-CALC or LEARN; Pearson et al., 2012). All participants engaged in assessments at baseline, mid-intervention, post-intervention, and three and six months following the intervention (Pearson et al., 2012), during which a series of questionnaires (e.g., the Short Form 36-Item Functional Health Status Scale, the Rosenberg Self-Esteem Scale, International Physical Activity Questionnaire, Perceived Competence Scale), blood lipid measures, and anthropometric measures were taken (Pearson et al., 2012, 2013a, 2013b). At the last three time points, an open-ended questionnaire was administered to explore participant experiences on the program (Pearson et al., 2013b).

Data from this study (Pearson et al., 2012) indicated that both interventions are effective at eliciting positive changes in young adults with obesity. This is an important finding, as it suggests that MI-via-CALC has similar efficacy to LEARN, a well-validated and long-established lifestyle modification program, in terms of being a viable individual intervention for health behaviour change (Pearson et al., 2012). Furthermore, data revealed that there were consistent decreases in participant weight across all time points, indicating that MI-via-CALC could be an effective means for engaging individuals in weight loss and control (Pearson et al., 2013a).

Similarly, another study that explored, both quantitatively and qualitatively (Newnham-Kanas et al., 2011a), the impact of MI-via-CALC as a measure of weight control among eight women between the ages of 35-55 years living with obesity. Participants were asked to engage in an introductory meeting wherein the study was explained, anthropometric measurements were

taken, and a series of questionnaires (i.e., SF-36 Short Form Functional Health Status Questionnaire, Rosenberg Self-Esteem Scale, a self-efficacy questionnaire, International Physical Activity Questionnaire, and a three-day food diary) were completed (Newnham-Kanas et al., 2011a). Participants also completed a 10-15-minute semi-structured interview wherein participant experiences associated with obesity were explored (Newnham-Kanas et al., 2011b). Following the initial meeting, participants met for one hour in-person with their coach, at which point participants scheduled the remaining 17 weekly, 35-minute phone coaching sessions with their coach (Newnham-Kanas et al., 2011a). After the intervention, participants completed the same measurements from the introductory meeting, a 20-minute post-intervention interview exploring study experiences, and one-year after the initial coaching session, participants returned for weight and waist circumference measures (Newnham-Kanas et al., 2011a). By the end of the coaching intervention, all participants had lost weight, and four participants continued to decrease or maintain their weight at the six-month follow-up (Newnham-Kanas et al., 2011b). Of the individuals who had gained some or all of the lost weight back by the follow-up assessment, most of them had experienced other medical conditions (i.e., injuries from a car accident, increased asthma symptoms) that could have affected their ability to engage in health behaviours such as physical activity (Newnham-Kanas et al., 2011b). Self-esteem, functional health status, and overall quality of life increased at the end of the coaching intervention (Newnham-Kanas et al., 2011b). The authors posited that these improvements in psychological health could have improved from learning how to cope with stressors through engaging in the coaching intervention (Newnham-Kanas et al., 2011b). In addition to the positive quantitative results, the qualitative findings from the pre- and post-intervention interviews were promising (Newnham-Kanas et al., 2011a).

Following completion of the intervention (Newnham-Kanas et al., 2011b), participants expressed increased self-confidence, effective methods of coping with stressors, prioritizing self, emotional healing, increased social networks, and learning to step outside comfort zones (Newnham-Kanas et al., 2011a). Six months after the completion of the study, participants expressed that the MI-via-CALC intervention was an integral component in their health behaviour change, as it helped them make changes that align with their vision of living a healthy life (Newnham-Kanas et al., 2011a). More specifically, participants indicated that their weight was a symptom of other challenges in their lives, so by being addressed in a holistic manner, participants were better able to initiate and maintain health behaviour change (Newnham-Kanas et al., 2011a). The authors noted that while weight gain is typically attributed to an energy imbalance, the findings of this study highlight the impact of emotional factors on health behaviours (Newnham-Kanas et al., 2011a). Most importantly, participants (whether their weight decreased significantly or remained stable), expressed feelings of empowerment upon completion of the intervention, which they felt facilitated their ability to make choices that supported their goal of having a healthier body and mind (Newnham-Kanas et al., 2011a).

These findings (Newnham-Kanas et al., 2011a, 2011b) are similar to those from other MI-via-CALC qualitative research studies that demonstrate the positive impact of MI-via-CALC on empowerment (e.g., Newnham-Kanas et al., 2008; van Zandvoort et al., 2009). Participant feedback (Newnham-Kanas et al., 2008, 2011a; van Zandvoort et al., 2009), indicates that MI-via-CALC is an efficacious intervention that supports individuals who struggle with weight management in making health behaviour changes in line with their goal of living a healthier lifestyle, as well as maintaining the health behaviour changes up to six months after the intervention (Newnham-Kanas et al., 2011a). While MI-via-CALC as an intervention for

addressing health behaviours and weight management shows promise, it is important to address why coaching works, and how it can support individuals in engaging in health behaviours (Irwin & Morrow, 2005).

Theory, Health Behaviour Change, and Coaching

In recent years, the tendency toward focusing on health-related behaviour change has stimulated an increased emphasis on the use of theory in developing and evaluating interventions (Patrick & Williams, 2012). This is due to the fact that health behaviour theories can provide valuable insights into the psychological processes (e.g., motivation) that are hypothesized to guide behaviour (Rothman, 2004). In fact, researchers exploring health behaviour change have identified that increasing autonomy (i.e., having volitional control) while facilitating intrinsic motivation (i.e., engaging in a behaviour for interest and personal growth) is a vital component for initiating and sustaining health behaviour change over time (Deci & Ryan, 2000; Ryan, Patrick, Deci, & Williams, 2008).

The Co-Active model has been previously grounded in behavioural theories such as Social Cognitive Theory (Irwin & Morrow, 2005), the Theory of Reasoned Action (Irwin & Morrow, 2005), the Theory of Planned Behaviour (Irwin & Morrow, 2005), and Self-determination Theory (SDT; Pearson, 2011). In particular, SDT (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000) has been associated with behaviour change, and can be used to explore why people do, or do not, engage in health behaviours (Deci & Ryan, 2000). By applying health behavioural theories to the CALC model of coaching, researchers can gain a better understanding of the efficacy of CALC as an intervention for improving health behaviours (Irwin & Morrow, 2005). Furthermore, linking CALC to health behaviour theories (such as SDT; Deci & Ryan,

2000; Ryan & Deci, 2000) can be beneficial in terms of comparing and contrasting its efficacy with other health coaching models (Irwin & Morrow, 2005).

Self-Determination Theory

Self-determination Theory is a theory of human motivation with a particular emphasis on the initiation and maintenance of health-related tendencies (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000). Central to this theory is a continuum wherein autonomous (i.e., intentional behaviours that are self-enacted) versus controlled (i.e., intentional behaviours that are enacted due to pressure from others) motivation are examined (Deci & Ryan, 2000; Friederichs et al., 2014; Ryan & Deci, 2000). The theory authors (Grolnick, Deci, & Ryan, 1997; Ryan, Connell, & Deci, 1985) postulated that individuals can move along the continuum to become more autonomously regulated, a process referred to as "internalization." This involves the individual modifying the performance of a behaviour originating from an external source, to an internal one by connecting the behaviour to personal values and self-regulations (Deci & Ryan, 2000; Fortier, Duda, Guerin, & Teixeira, 2012; Ryan et al., 1985). Internalization is important, as it gives individuals the means to assimilate previously extrinsic behavioural regulators so that the individual can be self-determined (Deci & Ryan, 2000). Research has indicated that autonomous and controlled motivation can both strengthen and direct behaviour; however, each can lead to different outcomes. For example, autonomous motivation is more likely to facilitate greater commitment and sustained maintenance of behaviour change (Ryan & Deci, 2000). This is because individuals are more likely to sustain a behaviour when it aligns with their identity and values (Deci & Ryan, 2000).

As depicted in Figure 2 (Ryan & Deci, 2007), SDT differentiates autonomous (i.e., intrinsic) from controlled (i.e., extrinsic) motivation using motivation-based regulations, wherein

intrinsic motivation refers to one's initiation and maintenance of a behaviour due to an inherent satisfaction (e.g., enjoyment), and extrinsic motivation relates to initiating or maintaining a behaviour for an external reward or avoidance of a punishment (Deci & Ryan, 2000). While intrinsic motivation is typically associated with better outcomes, Ryan and Deci (2000) have acknowledged that some behaviours cannot be intrinsically motivated (i.e., those that do not satisfy the basic psychological needs, or those that an individual does not hold as being innately novel, challenging, or appealing), and that there are different levels of extrinsic motivation (i.e., external, introjected, identified, and integrated regulation; Deci & Ryan, 2000).

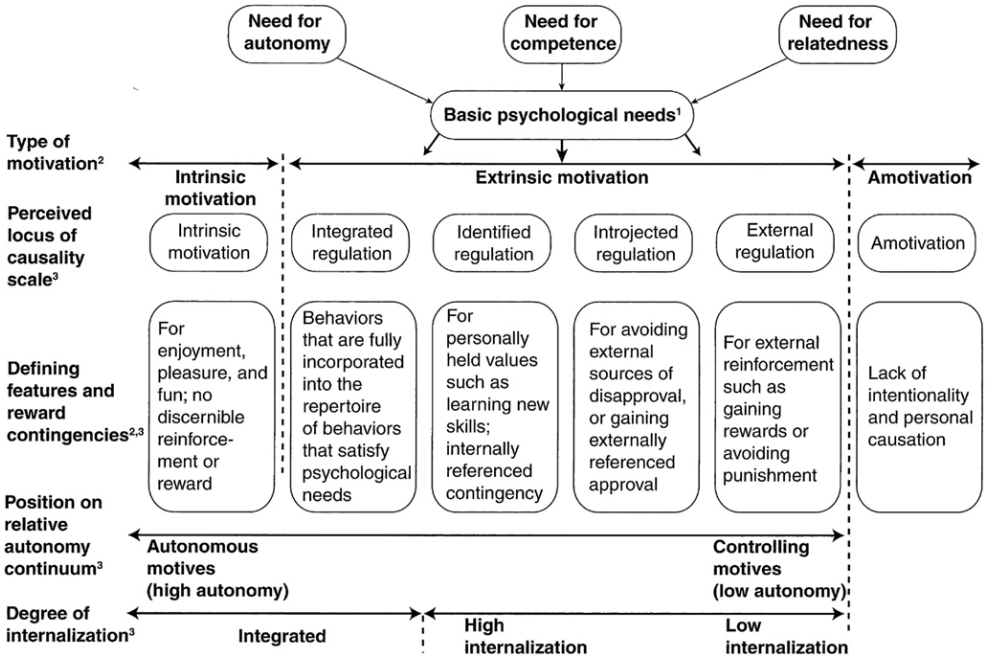

Figure 2. Self-determination theory motivational continuum. This figure shows the motivational, regulatory, perceived causality, and the degree of self-determination for behaviours (Ryan & Deci, 2007).

Self-determination theory's regulations. Types of controlled motivation include: external regulation (i.e., an individual who is motivated by the notion of receiving an award or avoiding a punishment such as receiving a medal for running a race); introjected regulation (i.e.,

an individual who is motivated by the avoidance of negative emotions such as guilt); identified regulation (i.e., acknowledging the importance of engaging in a certain behaviour); and integrated regulation (i.e., fully internalized extrinsic motivation; Friederichs et al., 2014). External regulation is typically associated with poor behaviour maintenance and transfer to other contexts, especially when the external regulator (e.g., money) is removed from the situation (Deci & Ryan, 2000). Thus, in the context of health behaviour change, individuals who are externally regulated are not likely to continue to engage in health behaviours in the long term. Introjected regulation refers to individuals taking in external regulations, but not internalizing them (Ryan & Connell, 1989). While external regulation involves regulators coming from others, introjected regulation comes from the individual themselves, and involves internal conflicts between the demand of wanting to engage in a certain behaviour, and feeling a lack of desire to execute the action (Deci & Ryan, 2000). For example, an individual may feel guilty or shameful for behaving a certain way, and therefore may avoid doing that behaviour to avoid experiencing these negative feelings (Deci & Ryan, 2000). Thus, the behaviour has become partially internalized (i.e., regulations come from within the individual), but has not become part of the individual's sense of self. While introjected regulation may lead to better outcomes in the long term than external regulation, more autonomous forms of regulation will be more effective for sustained change (Deci & Ryan, 2000).

Identified regulation refers to when individuals can acknowledge and/or appreciate the value of engaging in a behaviour (Deci & Ryan, 2000). With this type of regulation, individuals have further internalized the behaviour (compared with external and introjected regulation), and have more fully accepted it as their own (Deci & Ryan, 2000). For example, an individual who understands that engaging in physical activity can improve his/her health is more likely to

continue to engage in that behaviour (Deci & Ryan, 2000). While identified regulation is more autonomous than external and introjected regulation, and expected to have improved prospects for maintaining behaviours in the long term, it is still considered extrinsically motivated because the behaviour is not being engaged in for the sole purpose of enjoyment or interest (Deci & Ryan, 2000).

Integration is the most complete form of internalizing extrinsic motivation (Deci & Ryan, 2000). This process involves accepting the value of engaging in certain behaviours and then integrating these identifications into some aspect of oneself (Deci & Ryan, 2000). By bringing previously extrinsic behavioural regulators into harmony with one's identity and values, the individual can be considered self-determined (Deci & Ryan, 2000). However, it is important to note that integrated regulation is not synonymous with intrinsic motivation. Rather, it remains extrinsic in nature because, even though the behaviour is fully performed by choice, it has some component that is engaged in for an extrinsic purpose (Deci & Ryan, 2000). In contrast to both autonomous and controlled motivation is amotivation (Deci & Ryan, 2000). Amotivation involves an individual lacking any intention to engage in behaviours, which often occurs when individuals lack self-efficacy or perceived control over a situation or desired outcome (Deci & Ryan, 2000).

Self-determination theory's psychological needs. Ideally, a behaviour is autonomously performed (i.e., self-determined); an individual's ability to achieve goals in this manner is dependent upon the degree that he/she is able to satisfy three innate psychological needs (Deci & Ryan, 2000). Psychological needs can be defined as essential entities for ongoing well-being and efficient functioning that must be fulfilled to encourage psychological health: these include autonomy, competence, and relatedness (Deci & Ryan, 2000). The need for autonomy refers to

individuals acting in a way consistent with one's integrated sense of self and self-initiating actions, rather than being controlled by someone else; competence reflects humankind's nature to pursue mastery; and relatedness refers to humankind's need for feeling connected and belonging, feeling loved and cared for, as well as loving and caring for others (Deci, 1980; Deci & Ryan, 2000).

In particular, relatedness has been associated with increased internalization, as it can be facilitated when significant others value and encourage certain behaviours (Ryan & Deci, 2000). For example, an individual who has many friends and family members who engage in regular physical activity and encourage others to do the same, is more likely to internalize motivation for engaging in physical activity (Deci & Ryan, 2000). Conversely, if an individual feels excluded from friends and family who always engage in physical activity together, the individual may be less likely to be active (Deci & Ryan, 2000). Each psychological need plays a unique role in optimal functioning, so it is important to support each one simultaneously (Deci & Ryan, 2000). Individuals will become more or less interested in a certain behaviour based on the degree to which their psychological needs are fulfilled when engaging in that behaviour (Deci & Ryan, 2000).

Self-Determination Theory and Health Behaviour Change Interventions

By using the tenets of SDT in the development of health behaviour change interventions, researchers can explore the experiences of individuals within the context of goal-directed behaviour (Deci & Ryan, 2000). Self-determination theory-based interventions have demonstrated positive results (e.g., improvements in health measures such as body composition, increased compliance to health behaviour change interventions, etc.) in terms of the initiation and maintenance of health behaviour change in a variety of contexts such as diabetes

management, smoking cessation, healthy eating, and weight management (e.g., Patrick & Williams, 2012; Patrick, Verstuyf, Vansteenkiste, & Teixeira, 2012; Teixeira, Silva, Mata, Palmeira, & Markland, 2012; Williams, Niemiec, Patrick, Ryan, & Deci, 2009). Unlike certain health behaviours that are typically less intrinsically satisfying such as dental flossing, teeth brushing, and wearing a seat belt, intrinsic motivation can be targeted to a greater degree toward health behaviour changes such as physical activity, by honing in on an individual's natural interests and enjoyment of activities (Fortier et al., 2012). This is because engaging in health behaviours, such as physical activity, can include inherently rewarding activities that increase happiness and perceived health status (Ryan, Williams, Patrick, & Deci, 2009). When individuals are active, they typically have more energy and are able to satisfy psychological needs to improve their overall perceived wellness (Ryan et al., 2009).

According to SDT, the more that one's environment facilitates the satisfaction of psychological needs, the higher his/her psychological well-being (Vlachopoulos & Karavani, 2009). Thus, physical activity can provide individuals with the opportunity to fulfill these psychological needs: autonomy can be satisfied through choosing what behaviours to engage in (e.g., deciding to hike instead of playing on a sports team); competence can be facilitated when individuals feel effective at what they are doing (after practicing); and relatedness can be fulfilled through belonging to a specific social group (e.g., a team; Vlachopoulos & Karavani, 2009). For example, while an individual may be interested in a particular sport, a controlling coach can quickly diminish any interest for subsequent engagement (Ryan et al., 2009). Similarly, when an individual experiences overwhelming challenges regarding a specific physical activity environment, the he/she is likely to feel incompetent and be less engaged (Ryan

et al., 2009). Alternatively, a coach that promotes player autonomy is likely to facilitate interest in individuals who also feel confident in their skills (i.e., competence; Ryan et al., 2009).

Fortier et al. (2012) identified that need-supportive environments (i.e., a relationship or setting that supports individuals' basic psychological need for autonomy, competence, and relatedness) can facilitate physical activity, and acknowledged that there has been an increased tendency for researchers to implement and evaluate physical activity interventions that are grounded in SDT (Fortier et al., 2012). One such study examined the impact of a 12-month SDT-based weight management intervention on psychological mediators, physical activity, and body composition (Silva et al., 2010). Inclusion criteria required that participants were female, between 25 and 50 years, and have a body mass index between 25 and 40 kg/m^2 (Silva et al., 2010). Participants were assigned to either an intervention focused on promoting intrinsic motivation and autonomous forms of extrinsic motivation, or to the control group, wherein participants received a general health education program (Silva et al., 2010). To develop the autonomy-supportive environment, participants were encouraged to develop a sense of ownership for their health behaviours and goals by facilitating choice and self-initiation, and supporting participants in exploring the similarity between their personal values and their behaviours (Silva et al., 2010). At the end of the program, intervention participants demonstrated higher weight loss and physical activity levels than the control group, indicating that the autonomy-supportive environment facilitated engagement in health behaviours (Silva et al., 2010).

Another study analyzed the impact of an autonomy-supportive environment and teaching style on exercise class engagement, psychological need satisfaction, and motivation (Edmunds, Ntoumanis, & Duda, 2008). Female participants between the ages of 18 to 53 years signed up for

a ten-week exercise program, and were exposed to either an SDT-based or normal teaching style (Edmunds et al., 2008). Compared to the control group, participants in the SDT intervention group had a significantly higher increase in relatedness and competence, positive affect, and attendance rates (Edmunds et al., 2008). In addition, autonomy support was positively linked to behavioural intention (Edmunds et al., 2008). Thus, these findings indicated that providing a psychological need-supportive environment for participants can facilitate engagement in physical activity (Edmunds et al., 2008). This conclusion was identified similarly in a study conducted by Markland and Tobin (2010), that explored the mediating effects of psychological need satisfaction and the internalization of behavioural regulations for physical activity in a physician-referred exercise program. Participants were females between the ages of 23 and 80 years who had engaged in an exercise program through a referral in the previous year, and were asked to complete a series of questionnaires including the Behavioural Regulation in Exercise Questionnaire – 2, and the Leisure Time Exercise Questionnaire (Markland & Tobin, 2010). The results of this study identified that practitioners should facilitate autonomy, competence, and relatedness to help facilitate interpersonal support for engaging in health behaviours such as physical activity (Markland & Tobin, 2010). In line with this notion, it would seem that exploring avenues for satisfying the psychological needs should be addressed and would be particularly valuable and novel in a MI-via-CALC-based study (Pearson, 2011).

Self-Determination Theory and MI-via-CALC

An increasing number of studies have utilized SDT to design health promotion interventions intended to elicit health behaviour change, with a specific emphasis on physical activity engagement (Fortier et al., 2012). One of the benefits associated with applying the tenets of SDT to such health behaviour change interventions is that researchers can implement

interventions that are intended to satisfy the three basic psychological needs, which in turn, can facilitate internalization and positive behaviour change toward adoption and maintenance (Fortier et al., 2012). Motivational Interviewing-via-Co-Active Life Coaching has been identified as having theoretical underpinnings that align with SDT (Pearson, 2011; Ryan & Deci, 2000). Specific to MI-via-CALC, Pearson (2011) has posited that coaching aims to move the client through the SDT continuum for motivation so that he/she can internalize behaviours and ultimately become more self-determined; however, empirical research is needed to explore these relationships. Given the similarities between the tenets of SDT and MI-via-CALC, and the notion that MI-via-CALC could improve client progression through the motivational continuum, the use of this health behaviour change method in an intervention study has been recommended and is warranted (Pearson, 2011).

Purpose

To date, an appreciable amount of evidence exists indicating that the postpartum period is an important transition into a new life stage (i.e., motherhood; Muresan-Madar & Baban, 2015; Song et al., 2014); women during this time have more frequent interactions with the healthcare system and may be especially receptive to making health behaviour changes (Skouteris et al., 2012) given the significant pregnancy-related weight gains they experience leading up to, and weight fluctuations following childbirth. Motivational Interviewing-via-Co-Active Life Coaching has shown promising results relating to physical activity engagement (e.g., Goddard & Morrow, 2015), weight loss (e.g., Pearson et al., 2013b), and improved mental health (e.g., Pearson et al., 2012) in populations with similar attributes (e.g., women; individuals struggling with their weight or wanting to modify health behaviours). Based on the notion that both MI-via-CALC and SDT aim to enhance growth and potential through exploring goal pursuits for health

behaviours, it stands to reason that applying this coaching-based approach in a population of primiparous mothers could prove successful with regards to attenuating postpartum weight retention and improving physical activity engagement. Furthermore, there does not appear to be any SDT-grounded MI-via-CALC studies focusing on physical activity and the postpartum population. As such, the purpose of this project was to use SDT to explore the health-related experiences of primiparous women participating in a MI-via-CALC intervention. This was achieved in two ways: a) through exploring study-related experiences (through the lens of SDT's basic psychological needs) qualitatively among primiparous women using semi-structured interviews following completion of the 8-week MI-via-CALC intervention delivered by CPCCs, and b) through examining changes in physical activity engagement, body composition (i.e., waist circumference and Bioelectrical Impedance Analysis), and psychological indices of health (i.e., health-related quality of life, exercise motivation, and perceived competence) over time via assessments conducted at baseline, mid- and post-intervention. Given the promising findings of other MI-via-CALC studies, it was anticipated that participants would discuss improvements in their quality of life, self-acceptance, and more positive self-talk during the semi-structured interviews. Based upon the results of previous coaching studies, the quantitative hypothesis of this research project was that after engaging in the MI-via-CALC intervention, participants would have increased physical activity engagement, as well as improved body composition and psychological health indices compared to baseline values.

Method

Study Design

A pilot study with an uncontrolled pre-post, mixed-methods design was used to enhance understanding of participants' study-related experiences through a SDT lens, and to examine

changes to physical activity participation, body composition, and psychological indices of health (i.e., health-related quality of life, motivation, and perceived competence) that occurred throughout the intervention. The central tenet of mixed methods research involves applying multiple methods within one study (Creswell & Clark, 2007). This can offset the weaknesses of individual methods, and can take advantage of the unique properties offered by each, therein providing a better understanding of the relationships between variables (Creswell & Clark, 2007).

Mixed-methods research guides the direction of data collection and analysis through the mixture of qualitative and quantitative methods in many phases within the research process (Creswell & Clark, 2007). While the quantitative measures for this research project were completed first (and throughout the intervention), they were embedded within the qualitative data as a means to gain insight into the context that participants were coming from (Creswell & Clark, 2007), and to enable comparisons to other similar MI-via-CALC studies. More specifically, the quantitative results were used to corroborate the qualitative findings to help explore how MI-via-CALC could facilitate the satisfaction of the three basic psychological needs. In the case of exploring postpartum women's study experiences through a SDT lens, it was valuable to include both qualitative and quantitative methods to develop a greater understanding of these interrelated entities.

Participants

Upon receiving ethical approval from the Research Ethics Board at Lakehead University (refer to Appendix A), it was anticipated that 20 primiparous women living in Northwestern Ontario would be recruited. This sample size was primarily determined given the fact that this is a pilot study, and having a relatively small sample size would facilitate the feasibility of

completing the study in the given timeframe. The secondary reason for selecting this sample size was that it fell within Creswell's (1998) suggested range (i.e., between 5-25 participants) for reaching saturation (i.e., wherein no new themes are identified with further data collection). Thirdly, this sample size aligned with previous MI-via-CALC studies with similar goals (i.e., providing a coaching intervention to facilitate health behaviour change in groups ranging from 5-25 participants; e.g., Goddard & Morrow, 2015; Gorczynski, Morrow, & Irwin, 2008; Newnham-Kanas et al., 2011a; van Zandvoort et al., 2009).

Inclusion criteria required that the women: were primiparous (i.e., only had one child); had given birth to their child biologically (i.e., adoptive and surrogate cases were not included) within the last 10 months; had a body mass index greater than or equal to 25 kg/m^2; were aged 18 years or older; English-speaking; and self-reported that they had received medical clearance for engaging in physical activity from their physician. A body mass index greater than or equal to 25 kg/m^2 was identified based on the inclusion criteria outlined for previous studies exploring health behaviour change during pregnancy or the postpartum period (e.g., Harrison et al., 2014; Liu, Wilcox, Whitaker, Blake, & Addy, 2015; Wilkinson et al., 2015). The reason for recruiting individuals in this age cohort (greater than 18 years) was to ensure that all participants were adults, as older women (i.e., greater than 18 years of age) have been shown to have lowered risk of developing postpartum health conditions (e.g., high blood pressure and anemia), and are more likely to engage in ongoing appointments with healthcare practitioners during the postpartum period (American Academy of Pediatrics, 2011). By recruiting women greater than 18 years, it was anticipated that the population may have been more homogenous than a younger sample, as it may have reduced the likelihood that participants had other health conditions.

Prior to enrolling in the study, the student researcher completed a participant eligibility form (refer to Appendix B) with all interested individuals via telephone. Participants must have self-identified as being inactive (i.e., engaging in moderate or vigorous intensity physical activity for less than 30 minutes a day on three or fewer days per week during the last six months; Bo et al., 2015; Gorczynski et al., 2008; Opala-Berdzik et al., 2014), or struggling to achieve moderate physical activity levels, with an interest in modifying their physical activity levels (Goddard & Morrow, 2015). To further enhance the homogeneity of participants, all individuals were asked (on the Demographic Information Survey [refer to Appendix C] and participant eligibility form) whether they had ever been diagnosed with a health condition such as postpartum depression or anxiety disorders, as well as anything physically that could preclude them from engaging in a physical activity-based study. If participants self-reported having been diagnosed with a pre-existing mental or physical health condition, they would have been excluded from participating in an effort to reduce participant variability. Related to maternal health, it was important that participants received medical clearance from their physicians to engage in exercise, given that the intention of the intervention was to promote health behaviours such as physical activity. At the study outset, eligible participants must have fallen within the period of greater than six weeks, but less than 10 months postpartum. This period was specified as most women are given medical clearance to exercise from their physician after six weeks postpartum (World Health Organization, 1999), and women can experience pregnancy and childbirth-related physical and emotional symptoms up to one year postpartum (Romano et al., 2010; Song et al., 2014). To ensure that all participants completed the intervention by the one-year postpartum time-point, participants must have been 10 months postpartum or less at the study outset. This criterion was intended to accommodate the duration of the proposed MI-via-CALC intervention (i.e., eight

weeks), the potential for delays (e.g., due to scheduling conflicts between the introductory assessment and the beginning of the coaching sessions), as well as any re-scheduled appointments.

Procedures

Participant recruitment. Participants were recruited through referrals from local baby-wellness and other health-related postnatal programs (e.g., Healthy Babies Healthy Children Program, Our Kids Count, the Body Mind Centre baby and mom classes, local parent and tot swimming classes). The student researcher also, upon receiving permission from organizations, hung recruitment posters (refer to Appendix D) in local venues such as supermarkets, fitness facilities, community centres, and libraries, outlining the study and the student researcher's phone number and email address (Goddard & Morrow, 2015). Upon receiving correspondence from potential participants, the student researcher completed a screening form either over the phone or by email with the individual to briefly explain the study, determine eligibility, and answer any questions. Provided that the individual was interested in participating and met all eligibility criteria, the student researcher and participant determined a mutually convenient time to meet and conduct the baseline assessment session (outlined in more detail below).

Certified Professional Co-Active Coach recruitment. The CPCCs for this pilot study were recruited, screened, and enrolled on a volunteer basis prior to the recruitment of participants using techniques outlined previously (Pearson et al., 2013a). Specifically, volunteer CPCCs were recruited via an online poster (refer to Appendix E) through the Co-Active Network, a web-based platform affiliated with the Coaches Training Institute. Upon receiving email correspondence from interested coaches, the student researcher sent potential CPCCs a recruitment letter (refer to Appendix F) to provide more information about the study. Eligibility

criteria required that CPCCs were from North America (to avoid major time differences and costly phone calls), had completed the certification requirements through the Coaches Training Institute, and committed to coaching at least two participants (Pearson et al., 2012, 2013a). Given that all CPCCs had completed the same rigorous training, it was expected that coaches would deliver the intervention consistently (van Zandvoort et al., 2008).

As CPCCs were recruited nationally and internationally, all participants were given a phone card to cover the costs of long-distance phone bills for both parties. The CPCCs were also given an honorarium (with funds obtained from the Lakehead University Regional Research Fund) as a stipend for services rendered and a gesture of appreciation for their valuable time. It is important to note that the CPCCs who served as the study coaches had no other role in the study. This means that the CPCCs were not involved in the researcher's meetings, or in data collection and analysis. Coaches were also asked to conduct the study coaching sessions in alignment with training acquired through the Coaches Training Institute in order to enhance consistency and maintain the integrity of the intervention (Pearson et al., 2012).

Informed consent. Following the recruitment process, participants (i.e., including postpartum women and CPCCs) deemed eligible and willing to participate were provided with a Letter of Information (refer to Appendix G and H, respectively) giving a detailed description of the study, including an outline of any foreseeable risks, harms, inconveniences, and potential benefits associated with participation in the project. During the introductory meeting with each postpartum participant (described below), or the introductory phone call with CPCCs, the student researcher verbally explained the research project and gave the participant the opportunity to ask questions prior to providing consent. By signing the consent form, the participant acknowledged that she understood the risks and benefits of the study and wished to participate. The participant

was also informed at that time, and postpartum participants were also informed at the start of each assessment session that she had the right to withdraw from the study at any time with no penalty, and could have refused to answer any question during the study.

Data collection. Quantitative data were collected during assessment sessions conducted by the student researcher at baseline, mid-intervention (i.e., four weeks), and immediately post-intervention (i.e., eight weeks; Refer to Figure 3). At each time point, participants completed a series of questionnaires (detailed below) and had their body composition assessed. Participants then engaged in a 20-30-minute semi-structured interview exploring study experiences upon completing all MI-via-CALC sessions (i.e., Time 3).

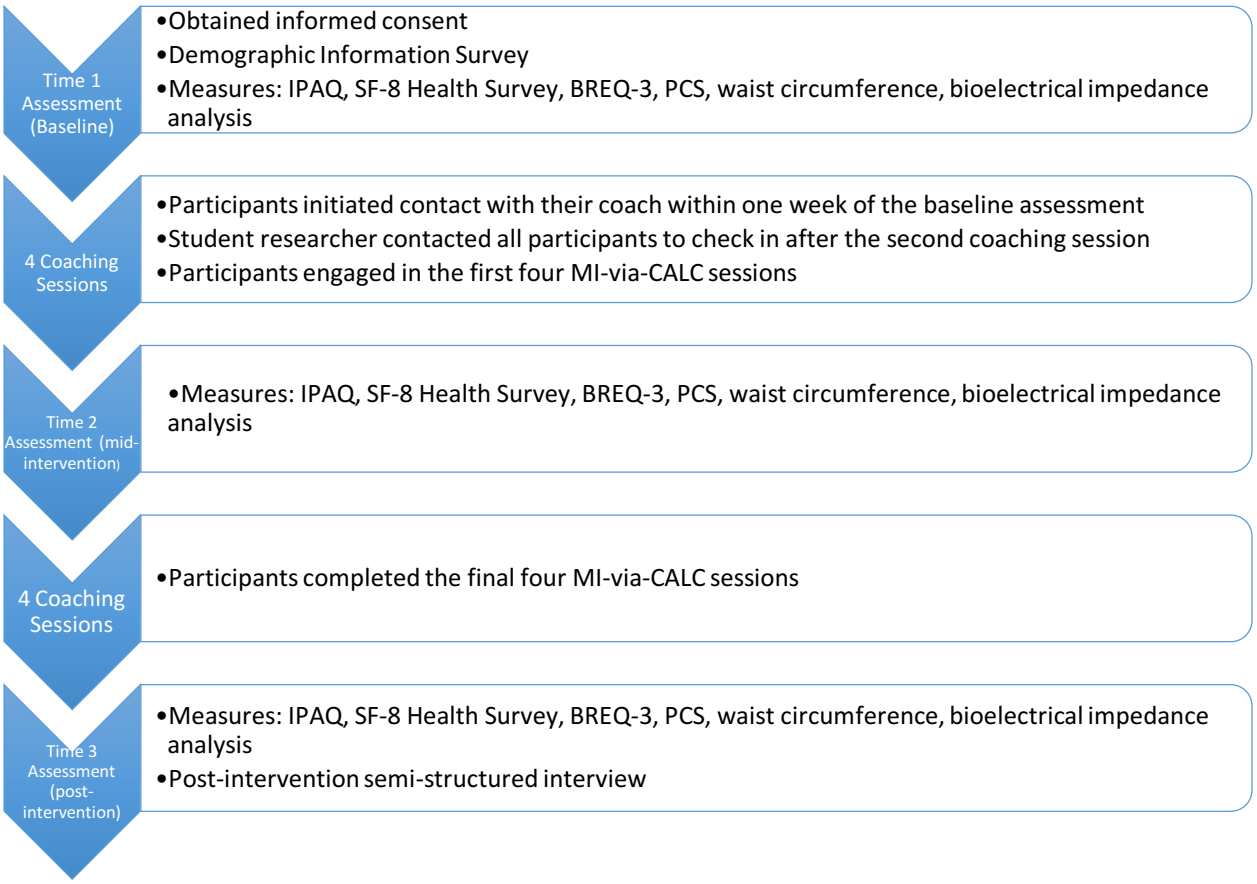

Figure 3. Study Procedures Summary. This figure provides a visual representation of the study procedures.

All assessments were conducted in the Lakehead University C. J. Sanders Fieldhouse. To support participants in engaging in the study assessments, a volunteer undergraduate research assistant was available to assist with childcare duties as required. In alignment with the purpose of the study, at the final assessment session, participants were asked to complete a post-intervention semi-structured interview (in addition to the other measures; refer to Appendix I) with the student researcher, which explored their general study experiences, and provided an opportunity to expand on their answers from the quantitative measures (outlined in more detail below). As stated previously, one purpose of this study was to explore study-related experiences qualitatively among primiparous women; the post-intervention semi-structured interviews provided the researchers with the means to fulfill this purpose. Upon completion of the semi-structured interview, participants were given a resource booklet (refer to Appendix J) outlining local health-based programs offered for women and families during the postpartum period with the intention of encouraging health behaviours in the long term.

Each baseline session took approximately 45-60 minutes to complete, while the mid-intervention session took approximately 20-30 minutes, and the final assessment took approximately 30-50 minutes. During each assessment, participants were asked to complete a series of questionnaires (i.e., a brief demographic questionnaire, the International Physical Activity Questionnaire, the Short Form 8-item Health Survey, the Behavioural Regulation in Exercise Questionnaire – 3, and the Perceived Competence Scale; refer to Appendix C, and Appendix K-N, respectively) which are outlined in more detail below. As stated previously, one of the study's main purposes was to examine changes in physical activity engagement (as assessed by the International Physical Activity Questionnaire), body composition (as assessed by the waist circumference measures and Bioelectrical Impedance Analysis), and psychological

indices of health (as assessed by the Short Form 8-item Health Survey, the Behavioural Regulation in Exercise Questionnaire – 3, and the Perceived Competence Scale).

Upon completion of the questionnaires, participants were asked to have their body composition assessed and recorded (refer to Appendix O) through the completion of a waist circumference measure, a body weight measure on a scale, and a Bioelectrical Impedance Analysis scan. At the baseline session following these procedures, participants were given the contact information for their assigned CPCC (refer to Appendix P). In line with the Co-Active method (Whitworth et al., 2007), participants were responsible for initiating contact with their coach. The coach's contact information was also provided via a follow-up email sent out the same day, to ensure that the information was not misplaced. Each participant and coach were also given a tracking sheet (refer to Appendix Q) to record the date and time of each coaching session (Pearson et al., 2013a). Because coaching is delivered over the telephone and CPCCs for the study were from across North America, the CPCCs and participants were matched by the researcher based primarily upon time preferences for coaching sessions and coach availability (Goddard & Morrow, 2015). Once a match was made, the student researcher contacted the assigned CPCC to advise her to expect a phone call or email from a participant (Pearson et al., 2013a). Aligning with the tenets of MI-via-CALC and promoting autonomy, each participant was asked to contact her coach within one week of the introductory meeting with the student researcher to set up pre-arranged appointments for the phone coaching sessions (Goddard & Morrow, 2015; Mantler et al., 2014; Pearson et al., 2013a). At this time, the student researcher also gave participants a brief description of MI-via-CALC, and asked them to think about area(s) in their life where they may have wished to make a change (Pearson et al., 2013a). Given that the study was about lifestyle change, it was anticipated that participants would have goals related to

these topics; however, to align with the MI-via-CALC model, the topic of coaching was entirely up to the participant (Pearson et al., 2013a).

MI-via-CALC sessions. Following the introductory meeting with the student researcher, participants engaged in an eight-week MI-via-CALC intervention. This involved weekly 30-45-minute unscripted phone coaching sessions. Participants were asked to notify the student researcher once they had made contact with their coach so that an estimate of weekly progress could be made to aid in booking subsequent sessions (Pearson et al., 2013a). During the first phone call, the coach answered any questions that the client may have had about coaching, explained the nature of coaching, and then collaborated with the client to develop a working alliance for their relationship, as well as identify the client's primary agenda (van Zandvoort et al., 2009). All sessions were conducted over the telephone or via internet technology (e.g., voice calls on Skype), for mutual convenience and to ensure a standardized delivery of the intervention (Goddard & Morrow, 2015). Following the second coaching session, the student researcher checked in with each participant (via telephone or email) to ask how the coaching relationship was working. It is important to note that participants were not asked by the student researcher about the content of their coaching sessions, rather the purpose of the check-in was to ensure that the client and coach had a positive coaching relationship and both parties were interested in moving forward together. No re-designations were necessary.

Instruments and measures. Participants were asked to have their body composition measured (i.e., via weight, waist circumference measures, and Bioelectrical Impedance Analysis) and complete a series of questionnaires (i.e., International Physical Activity Questionnaire, Short-Form 8-item Health Survey, Behavioural Regulation in Exercise Questionnaire -3, and the Perceived Competence Scale) at three different time points throughout the study (i.e., pre-, mid-,

and post-intervention). At the first session, participants were also asked to complete a Demographic Information Survey. At the final time point (at the end of the intervention), participants were also asked to complete a post-intervention semi-structured interview with the student researcher.

*Waist circumference***.** Waist circumference measures were taken at each time point. Waist circumference has been shown to be a means of assessing weight-related health risk (Heart and Stroke Foundation, 2015). This is because centrally-distributed fat can increase health risks such as high blood pressure, high cholesterol, cardiovascular disease, and type two diabetes (Biesmans et al., 2013; Gunderson, 2004; Heart and Stroke Foundation, 2015). These measures were taken in alignment with the Heart and Stroke Foundation's (2015) guidelines, which measures the waist at the top of the iliac crest. To enhance reliability, the same measuring tape was used for all participants across all times points (Newnham-Kanas et al., 2008).

Body composition. Body composition was assessed using Bioelectrical Impedance Analysis (BIA) through the Quantum IV BIA from RJL Systems. Bioelectrical Impedance Analysis is the study of the electrical properties of biological material and their changes over time (RJL Systems, 2013). The BIA is a fast, accurate, non-invasive, and safe method for measuring components of body composition including fat and fat-free mass, and is valuable for studying these components over time (RJL Systems, 2013). The Quantum IV BIA measures resistance and reactance at 50 Khz, and involves a current being passed between surface electrodes placed on the hand and foot (Kyle et al., 2004a). The current passes through intra-cellular and extra-cellular fluid, and the proportion varies among different tissues (Kyle et al., 2004a). The resultant participant data derived from the BIA have been developed from multiple empirical equations to generate relationships between body fluid compartments (Kyle et al.,

2004a). While the validity of single frequency BIA is low among individuals with significantly altered hydration, it can be used among normally hydrated individuals (Gudivaka, Schoeller, Kuchner, & Bolt, 1999). This is because significant changes among fluids and electrolytes can affect intra-cellular and extra-cellular water, which can impact resistivity (Kyle et al., 2004a).

As participants must have normal fluid and electrolyte levels, they were asked to refrain from exercising or taking a sauna within eight hours of the assessment, and refrain from consuming alcohol within 12 hours of the assessment (RJL Systems, 2013). To verify levels, participants were asked to complete an eligibility checklist before beginning the assessment. Given that some women in this cohort were breastfeeding, social desirability concerns (e.g., for women who may have consumed alcohol while breastfeeding) could impact responses (Tourangeau & Yan, 2007). In an effort to reduce social desirability bias, women self-administered the eligibility checklist, which aligned with previous findings indicating that this strategy could enhance reporting compared with researcher-administered questions (Tourangeau & Yan, 2007). Participants were also asked to schedule all appointments at approximately the same time of day to minimize differences in hydration due to circadian rhythm, and food consumption (Kyle et al., 2004b).

Prior to the BIA, the participant's height and weight were recorded, and the BIA process was explained to the participant prior to her lying down, as participants were asked to lie quietly for the duration of the test (i.e., 2-5 minutes; RJL Systems, 2013). The subject was also asked to remove any jewelry on the right side of the body, as well as her right sock and shoe, as the assessment is typically done on the right side (Lukaski, Hall, & Siders, 2007; RJL Systems, 2013). The electrode sites were cleaned with alcohol to remove any lotions or skin oils that could

have affected the results (RJL Systems, 2013). Adhesive electrodes were placed on the hand and foot in alignment with the manufacturers' instructions (Refer to Figure 4).

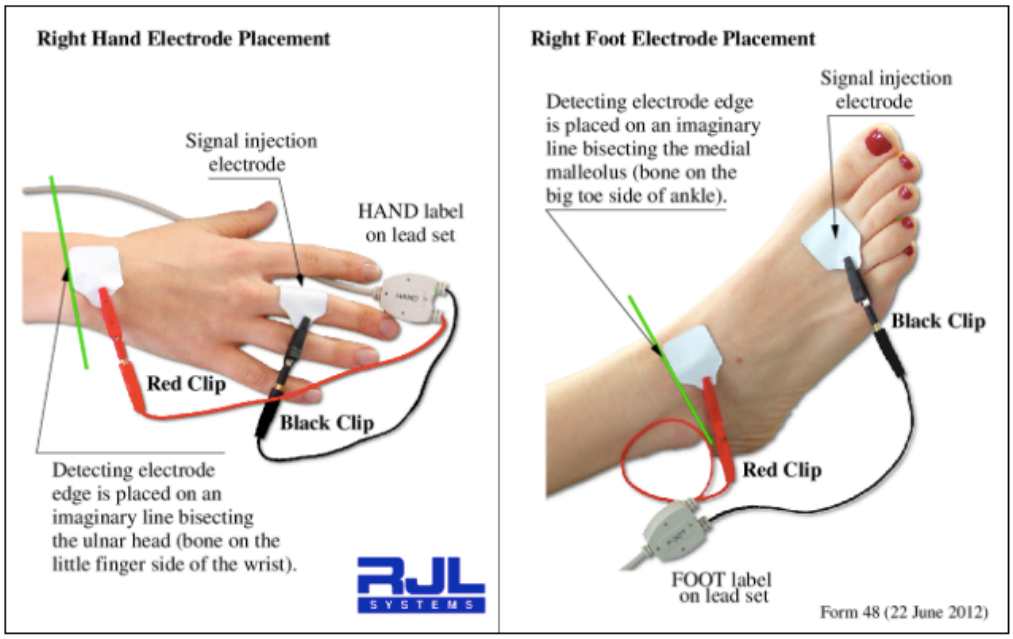

Figure 4. BIA Electrode Placement. This figure illustrates the correct electrode placement for completing a BIA assessment (RJL Systems, 2013).

Following this, the analyzer was turned on, and the subject was asked to refrain from moving (RJL Systems, 2013). When the measurement values stabilized, the student researcher recorded the displayed resistance and reactance along with the participant's age, gender, height, and weight (RJL Systems, 2013). The student researcher then gently removed and discarded the electrodes (RJL Systems, 2013). The entire set-up and BIA assessment took no longer than five minutes, with the actual analysis taking less than one minute (RJL Systems, 2013).

To ensure that the assessments were completed correctly, the manufacturer (RJL Systems, 2013) recommends that the operator develops a level of proficiency so that two consecutive measurements on the same, stable subject produces values within one percent; this proficiency was achieved via the student researcher conducting a separate pilot study using the

BIA equipment. The participant was not in direct contact with any active circuits or ground paths to help minimize stray capacitance and noise, resulting in improved reliability, accuracy, and repeatability (RJL Systems, 2013). Previous research has validated the use of BIA among postpartum and breastfeeding women, when monitoring longitudinal changes in total body water (Lukaski, Siders, Nielsen, & Hall, 1994).

Demographic information survey (refer to Appendix C). Participants were asked to complete a demographic information survey at the initial meeting, which included open-ended questions asking about information such as their age, ethnicity, highest completed level of education, employment status, relationship status, age at menarche, and number of weeks postpartum.

International Physical Activity Questionnaire (IPAQ; refer to Appendix K; Craig et al., 2003). The IPAQ has been developed as an instrument for the assessment of physical activity in a variety of contexts, both cross-culturally and across research studies, and has been used as a standardized measure of habitual physical activity (Craig et al., 2003). Since its development, it has been validated with accelerometers, and overall reliability has been established across 12 countries (Craig et al., 2003). Furthermore, the IPAQ was developed with the intent of using it for physical activity surveillance: a purpose congruent with the present study (Shephard, 2003). The IPAQ asks questions such as, "During the last seven days, on how many days did you bicycle for at least 10 minutes at a time to go from place to place?" Participants are then prompted to indicate the number of days per week that they did the activity, and the average time that they typically spent engaging in the activity.

This instrument has shown to be efficacious at measuring levels of physical activity among 18-65-year-old adults in a variety of sociocultural contexts (Kurtze, Rangul, & Hustvedt,

2008). Despite the fact that two versions of the IPAQ were developed, the short form (nine-items) has been recommended for monitoring populations (Craig et al., 2003), and not for research that requires precise physical activity evaluation at the individual level (van der Ploeg et al., 2010). Thus, the long form (27-items) has been selected for this project. The long form version of the IPAQ was developed to assess the time spent walking, as well as engaging in moderate- and vigorous-intensity physical activity, in a variety of contexts relating to occupation, transportation, domestic (i.e., house and yard work), and leisure time physical activity (Maddison et al., 2007). The long form IPAQ is appealing for use in a research setting as it prompts recall of physical activity in multiple contexts, which can help provide an accurate and reliable measure of physical activity, especially for individuals who engage in physical activity outside of leisure time (i.e., at work or through transportation; Levy & Readdy, 2009; Mâsse et al., 1998). It is important to note that while the reliability and validity properties of the IPAQ have some limitations, research has concluded that it has acceptable psychometric properties that are at least as good as other self-reported questionnaires (Craig et al., 2003).

Computing the total scores for the IPAQ requires that the sum of the duration and frequency for all types of physical activity be taken in all contexts so that a total score in MET-minutes/week can be computed by summing the context-specific scores (IPAQ Research Committee, 2005). The context-specific scores can be computed by adding the scores for walking, moderate-intensity and vigorous-intensity physical activity within each context (IPAQ Research Committee, 2005). A MET, or a metabolic equivalent of task, which equates to 1 kcal/kg/hour, is useful for describing the energy expenditure from an activity, as it is the ratio of the rate of energy being expended (Craig et al., 2003). One MET is the rate of energy expended while the body is at rest, so if an individual expends 5 MET during an activity, it uses up five

times the amount of energy required by the body at rest (Craig et al., 2003; IPAQ Research Committee, 2005). If an individual engages in a 5 MET activity for 20 minutes, he or she would have completed 5 MET x 20 minutes = 100 MET-minutes. It is recommended that individuals engage in 500-1000 MET-minutes/week to experience health benefits, which would equate to engaging in at least a moderate-intensity activity (above 3.3 MET-minutes) for 150 minutes per week (Office of Disease Prevention and Health Promotion, 2017).

Short Form 8-item health survey (SF-8; refer to Appendix I; RAND Corporation, 2016; Ware, Kosinski, Dewey, & Gandek, 2001). One of the most widely used health-related quality of life surveys is the Short Form 36-item Health Survey (SF-36; Hopman et al., 2000). This survey was developed out of the RAND Corporation's health insurance experiment called the Medical Outcomes Study, and is now widely used for monitoring of care and intervention outcomes in adults (RAND Corporation, 2016; Ware, Brook, Williams, Stewart, & Davies-Avery, 1980). The SF-8 Health Survey was developed as a shorter alternative to the SF-36, and covers topics related to eight health domains through the use of Likert-type questions (i.e., physical functioning, role limitations due to physical health problems, bodily pain, social functioning, general mental health, role limitations due to emotional problems, vitality, and general health perceptions; Brazier et al., 1992; Hopman et al., 2000; McDowell, 2006; Ware et al., 2001).

Given that the SF-8 Health Survey uses a four-week recall period, and the measure was administered once every four weeks (at baseline, mid-intervention, and post-intervention), it was deemed an appropriate instrument for use in this study (Ware et al., 2001). Test-retest reliability of the SF-8 Health Survey has previously been investigated and shown to be strong, thus it can be used to assess changes in health-related quality of life across time points (Lefante, Harmon, Ashby, Barnard, & Webber, 2005).

After scoring the SF-8, a profile of eight section scores and two summary scores (one physical, and one mental) can be produced (McDowell, 2006; Ware et al., 2001). First, it is important to review all values and orient all item scores so that higher scores correspond with better health (McDowell, 2006). After recoding the scores, so that the lowest and highest possible scores were 0 to 100, respectively, the second step involved averaging the items from each scale (i.e., either physical or emotional) to produce the two component scores that indicated an individuals' physical or emotional quality of life (RAND Corporation, 2016).

Behavioural Regulation in Exercise Questionnaire – 3 (BREQ-3; refer to Appendix M; Markland & Tobin, 2004; Wilson, Rodgers, Loitz, & Scime, 2006). The original BREQ (Mullan, Markland, & Ingledew, 1997) was developed to measure different types of behavioural regulations (i.e., external, introjected, identified, and intrinsic) based on Deci and Ryan's (1985) continuum of motivation. Since the development of the original tool, modifications (i.e., to explore amotivation, and integration) have been made to produce the BREQ-2, and BREQ-3 (Markland & Tobin, 2004). Given that the BREQ-3 includes an integrated regulation (i.e., the most autonomous form of extrinsic motivation, when behaviours reflect personal values, goals, and needs) subscale, which has been shown to be an important motivational construct for health behaviours such as physical activity engagement (Wilson et al., 2006), the BREQ-3 was used in this research project.

The BREQ-3 is a 24-item measure using a five-point Likert scale wherein participants are asked to choose on a continuum of numbers between zero (meaning "not true for me") and four (meaning "very true for me"; Markland & Tobin, 2004; Wilson et al., 2006). Items include statements such as "I exercise because it is consistent with my life goals," "I don't see why I should have to exercise," and "I get restless if I don't exercise regularly" (Markland & Tobin,

2004; Wilson et al., 2006). Each item corresponds with one of the behavioural regulation types (i.e., external, introjected, identified, integrated, and intrinsic regulation, as well as amotivation) so that researchers can quantify motivational tendencies toward physical activity (Markland & Tobin, 2004; Wilson et al., 2006).

In the original confirmatory factor analysis article on the BREQ, the authors (Mullan et al., 1997) supported the use of the original four subscales (i.e., external, introjected, identified, and intrinsic regulation), with findings indicating acceptable (i.e., greater than 0.7) discriminant validity and internal consistency. Further research (Markland & Tobin, 2004), where exercise participants completed the BREQ-2, revealed acceptable Cronbach's alpha reliability values (0.83 for amotivation, 0.79 for external regulation, 0.80 for introjected regulation, 0.73 for identified regulation, and 0.86 for intrinsic motivation; Markland & Tobin, 2004). Subsequent research that was completed on the BREQ-3 suggested that including the integrated subscale did not compromise the BREQ's theoretical trustworthiness or the structural validity, and that the internal consistency reliability, as well as the construct, convergent and divergent validity of the integrated regulation items were acceptable (Wilson et al., 2006).

In terms of scoring, the BREQ-3 can be separated into subscale scores (i.e., type of behavioural regulation), or as one index measuring the degree of self-determination (Markland & Tobin, 2004; Ryan & Connell, 1989; Vallerand, Pelletier, & Koestner, 2008). In the context of this research project, the uni-dimensional score, the Relative Autonomy Index (RAI) was used, as research has demonstrated its utility for assessing individuals' degree of self-determination (Ryan & Connell, 1989; Vallerand et al., 2008). When using the RAI scoring method, the scores from each of the BREQ-3 subscales (i.e., amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic regulation) are weighted and then

aggregated to produce a single numerical value that reflects an individuals' degree of self-determination (Ryan & Connell, 1989; Vallerand et al., 2008; Wilson et al., 2006). In order to do this, the mean scores for the items on each subscale were calculated: the mean amotivation score was calculated from items 2, 8, 14, and 20; the mean external regulation score was calculated from items 6, 12, 18, and 24; the mean introjected regulation score was calculated from items 4, 10, 16, and 22; the mean identified regulation score was calculated from items 1, 7, 13, and 19; the mean integrated regulation score was calculated from items 5, 11, 17, and 23; and the mean intrinsic regulation score was calculated from items 3, 9, 15, and 21 (Ryan & Connell, 1989; Vallerand et al., 2008; Wilson et al., 2006). Following this, the mean subscale scores were multiplied by a weighting to produce the relative autonomy index: the mean amotivation score was multiplied by -3, external regulation was multiple by -2, introjected regulation was multiplied by -1, identified regulation was multiplied by +1, integrated regulation was multiplied by +2, and intrinsic regulation was multiplied by +3 (Ryan & Connell, 1989; Vallerand et al., 2008; Wilson et al., 2006).

Perceived Competence Scale (PCS; refer to Appendix N; Williams & Deci, 1996; Williams, Freedman, & Deci, 1998). The PCS was developed originally to assess patient perspectives on patient-centred environments among diabetes patients (Williams et al., 1998), and to assess perceived competence among medical students for learning new material (Williams & Deci, 1996). The PCS is a 4-item questionnaire that is typically written to be specific to the context being studied (Williams & Deci, 1996). It aims to determine how competent participants perceive themselves to be in regards to engaging in a certain behaviour (e.g., physical activity; Williams & Deci, 1996).

The version that was used in this study was modified to ask participants about their perceived competence for engaging in physical activity. Some of the items ask participants to rate how true each item is with respect to their experiences during the study on a Likert-scale from 1 (meaning "not true at all") to 7 (meaning "very true"; Williams & Deci, 1996; Williams et al., 1998). Some items included, "I feel confident in my ability to engage in physical activity," and "I am able to achieve my physical activity goals" (Williams & Deci, 1996; Williams et al., 1998). The PCS has been shown to have acceptable internal consistency, (= 0.80; Williams & Deci, 1996; Williams et al., 1998). Each item was scored by averaging the participant's responses on each of the four items, so that total scores ranged from a low of 1, to a high of 7 (Williams & Deci, 1996; Williams et al., 1998).

Post-intervention semi-structured interview (refer to Appendix I). The semi-structured interview guide was developed based on previous MI-via-CALC studies that included a pre- or post-intervention interview (Newnham-Kanas et al., 2011a; Pearson et al., 2013). Participants were asked to complete the audio-recorded post-intervention semi-structured interview in-person at the final assessment to explore study experiences, allow participants the opportunity to expand on their answers to the quantitative measures, and gather participant insights into further improving the intervention (Creswell & Clark, 2007). Items on the interview guide included, "At present, what (if any) would you say is the greatest challenge you are facing with respect to making lifestyle changes (e.g., participating in physical activity)?", "What did you find most helpful about the study?", "What is it like being you, and how has this changed since you started the program?", and "The number one thing that I got out of the study was…" (Newnham-Kanas et al., 2011a; Pearson et al., 2013).

Data analysis. All quantitative data were inputted into Statistical Package for the Social Sciences (SPSS) Version 24. Participant demographic information (e.g., age, number of weeks postpartum, self-reported pre-pregnancy physical activity, ethnicity, relationship status, education, employment status) was analyzed using descriptive statistics to determine frequencies and measures of central tendency (e.g., mean, standard deviation) of the sample. Effect sizes (η^2) were calculated for all dependent variables (i.e., physical activity, waist circumference, percent fat-free mass, physical quality of life, emotional quality of life, relative autonomy index, perceived competence) to provide a standardized measure of the size of the effect that was observed across time points (Field, 2009). More specifically, in the context of this study, eta squared represented the proportion of variance between the groups (i.e., pre- and post-intervention) on each of the dependent variables (Field, 2009; Levine & Hullett, 2002).

By using a standardized effect size, researchers can compare effect sizes across different studies that have used different measures or variables (Field, 2009). Effect sizes can indicate the strength of relationships between two or more variables or groups (Levine & Hullett, 2002). Eta squared (η^2), also known as the correlation ratio (R^2), can be defined as the ratio between the effect sum of squares to the total sum of squares (Bakeman, 2005; Cohen, 1988). Eta squared (η^2) is additive, so the sum can never exceed a value of 1.00 (Levine & Hullett, 2002). When interpreting results from an effect size variable such as η^2, a small effect is considered 0.02, a medium effect is considered 0.13, and a large effect is considered 0.26 (Bakeman, 2005; Cohen, 1988). Effect size (η^2) was selected for data analysis given the smaller than anticipated sample size. A parametric test such as a repeated measure ANOVA would not be appropriate, and results indicating a statistically significant difference would likely be falsely positive (i.e., a type 1 error; Christley, 2010; Diekhoff, 1992). Due to the fact that significance tests are dependent on

sample size, research with small sample sizes can still report non-significance of strong and important effects (i.e., a type 2 error; Levine & Hullett, 2002). Further, effect size (η^2) provides an indication of the clinical significance (i.e., whether the intervention makes a practical difference in everyday life of the clients; Thompson, 2002) of the intervention.

All semi-structured interview findings were analyzed using deductive content analysis by two researchers independently. Deductive content analysis is applicable when the analysis is operationalized on the basis of previous knowledge (e.g., a theory; Kyngas & Vanhanen, 1999), as is the case in the present study, wherein MI-via-CALC is being explored through the lens of SDT. Given that deductive content analysis is based on a theory or model, it involves moving from more general to more specific categories (Burns & Grove, 2005). Throughout this process, participants' answers to interview questions were classified into more specific categories pertaining to the theory that was used to frame the analysis, thereby gaining a comprehensive understanding of the information shared by participants and identifying pertinent and recurring themes in the responses (Elo & Kyngas, 2008; van Zandvoort et al., 2009).

This process included three phases: preparation, organization, and reporting (Elo & Kyngas, 2008). The preparation phase involved selecting a unit of analysis such as a word, theme, or interview (Polit & Beck, 2004). In the context of this research project, the unit of analyses were portions of the post-intervention semi-structured interview transcripts. Following the selection of the unit of analysis, it was imperative for the researcher to obtain a sense of the data as a whole by reading through the written material several times (Burnard, 1991). This was an important part of the process, as the researcher would have been unable to develop insights about the data without being familiar with it (Polit & Beck, 2004).

The organization phase involved developing a categorization matrix, and then coding the data (i.e., the highlighted portions of the interview transcripts) according to the categories (Elo & Kyngas, 2008). The post-intervention interviews were analyzed through the lens of SDT (Deci & Ryan, 2000, 2002; Ryan & Deci, 2000). Specifically, the three basic psychological needs (i.e., autonomy, competence, and relatedness) were integrated to guide the analytical process, as the broad categories within the unconstrained categorization matrix. This means that each of the three basic psychological needs were used as broad categories during the analysis, and then the participants' quotes were placed into sub-categories within the broad categories (Elo & Kyngas, 2008). This framework was selected because one of the basic principles of SDT posits that the three basic psychological needs support self-determined motivation, which is important for sustaining positive health behaviour change (Ryan & Deci, 2000; Williams, 2002). By analyzing the interview transcripts through this lens, it was anticipated that conclusions could be made regarding the degree to which participants' self-determination was facilitated through the satisfaction of the three basic psychological needs in relation to participants' MI-via-CALC experiences. After the unconstrained categorization matrix (i.e., wherein different sub-categories were created within its categories) was developed, all of the data (i.e. portions of text from the interview transcripts) were reviewed and coded for correspondence with the identified categories, and subcategories (e.g., detractors from and supporters of each of the basic psychological needs) were created throughout the process (Polit & Beck, 2004).

After each of the two researchers had completed this process, they met to compare the identified themes, and determined which ones most accurately captured the participants' experiences in line with SDT's basic psychological needs. This involved discussing the placement of quotes that they did not agree on to clarify the context from which participants

were speaking so that the quote could be appropriately placed, and modifying the sub-category names to ensure that they were reflective of all interview quotes within the category (van Zandvoort et al., 2009). The third and final phase of the deductive content analysis process involved reporting on the findings, which can be challenging, given that the findings can be quite diverse (Elo & Kyngas, 2008). During this phase, the researchers presented their findings in a comprehensive manner to ensure that the integrity of the data was maintained (Elo & Kyngas, 2008).

Trustworthiness of the data. In accordance with Lincoln and Guba (1985), several strategies were implemented throughout the qualitative data collection and analysis phases, to enhance the trustworthiness of the findings. Credibility can be defined as the confidence in how well the data address the intended focus of the measures, and involves accurately describing participants (Elo et al., 2014; Lincoln & Guba, 1985; Polit & Beck, 2004). Credibility was addressed through triangulation of the data (i.e., utilizing a mixed-methods approach) to corroborate the findings, and to ensure that the data were comprehensive (Lincoln & Guba, 1985). Providing participant quotations when reporting on the findings of the semi-structured interviews also helped address credibility, to ensure that the researcher understood each respondent's perspective (Thomas et al., 2005). Dependability refers to the stability of the data over time and across different contexts (Elo et al., 2014; Lincoln & Guba, 1985). Dependability was facilitated by clearly outlining the methods used to sample participants, as well as reporting on participant demographics so that the application of the findings to other contexts could be assessed (Elo et al., 2014; Lincoln & Guba, 1985). Confirmability refers to the objectivity of the findings, meaning that the findings could be congruent between two or more individuals (Elo et al., 2014). This element was addressed by having two researchers (i.e., the student researcher and

supervisor) complete the deductive content analysis process independently before meeting to compare findings, to ensure that interpretations of the data were not fabricated by the researchers, but were representative of the information provided by participants (Elo et al., 2014). Transferability can be defined as the potential for extrapolation to other contexts, and was enhanced by attempting to recruit participants from various community demographics and socioeconomic statuses, to facilitate the data being representative of the population at hand (Elo et al., 2014; Lincoln & Guba, 1985; Thomas et al., 2005).

Results

In total, nine participants completed the entire intervention. Despite a 12-week recruitment window (i.e., January to March 2017), the researchers were not able to enroll additional participants. To facilitate the study timeline, all recruitment efforts were ended in March 2017. Given the lower number of participants enrolled in the study, the researchers modified the data analysis for the quantitative data (i.e., from a series of one-way repeated measures Analysis of Variance tests, to visual inspection and effect sizes, as outlined above).

All assessments were conducted at the Lakehead University C. J. Sanders Fieldhouse. The baseline session took approximately 40-60 minutes, the mid-intervention session took 20-35 minutes, and the post-intervention session took 35-60 minutes to complete. All sessions were completed during business hours (i.e., 9:00 am – 5:00 pm), and efforts were taken to schedule participants for approximately the same time of day across all assessments.

Participant Adherence and Demographics

All participants that began the intervention completed all eight MI-via-CALC sessions, and all three assessment sessions. Participants ranged in age from 28 – 34 years (mean ± Standard Deviation [SD] = 31.1 ± 2.2 years). The mean (± SD) age of participants at menarche

was 12.4 (± 0.7) years. Upon beginning the study, participants ranged from 8 – 40 weeks postpartum (mean ± SD = 28.7 ± 9.6 weeks). Most participants (55.6%) had a cesarean delivery, and 66.7% of participants were breastfeeding at the time of the first assessment session. The majority of participants (*n* =7) self-reported complications during childbirth, including having a Cesarean delivery (*n* = 5), issues with the placenta and blood loss (*n* = 1), and tearing during vaginal delivery (*n* = 1). Prior to pregnancy, the mean (± SD) self-reported physical activity frequency was 4.67 (± 3.4) times per week, with the mean (± SD) physical activity duration prior to pregnancy being 59.4 (± 27.8) minutes. Participants' demographic information, including ethnicity, relationship status, highest level of education, and employment status, are represented in Figures 5-8.

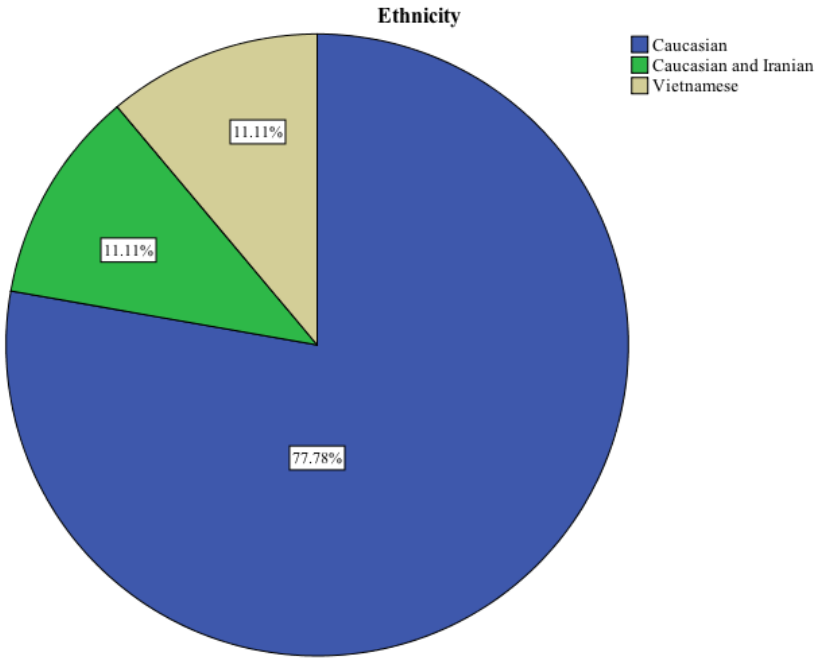

Figure 5. Participant Ethnicity. This figure demonstrates participants' self-reported ethnicity.

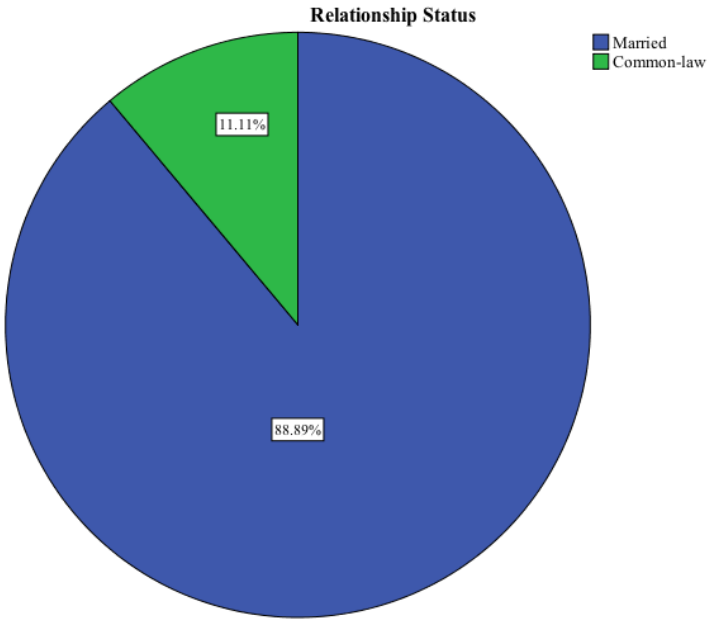

Figure 6. Participants' Relationship Status. This figure illustrates participants' self-reported relationship status.

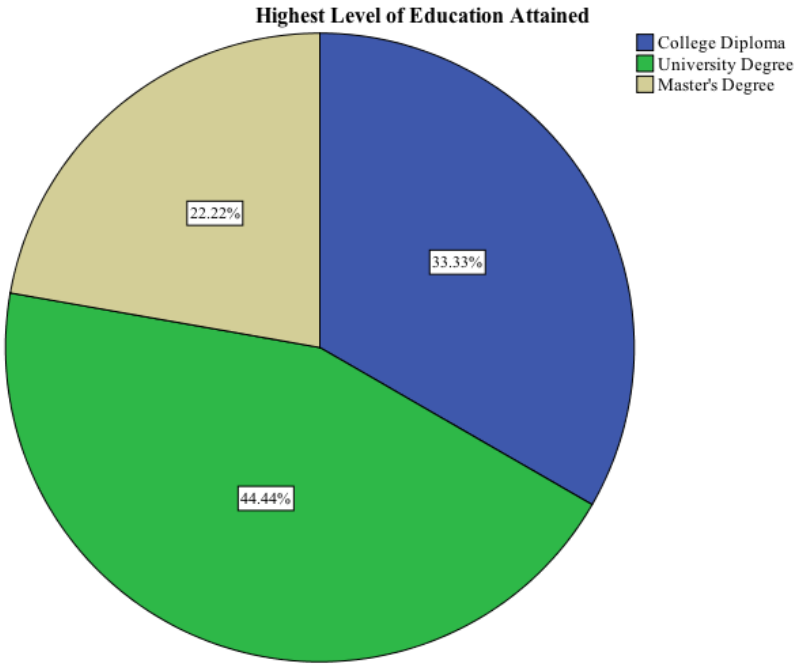

Figure 7. Participants' Education. This figure shows the highest level of education that participants had attained.

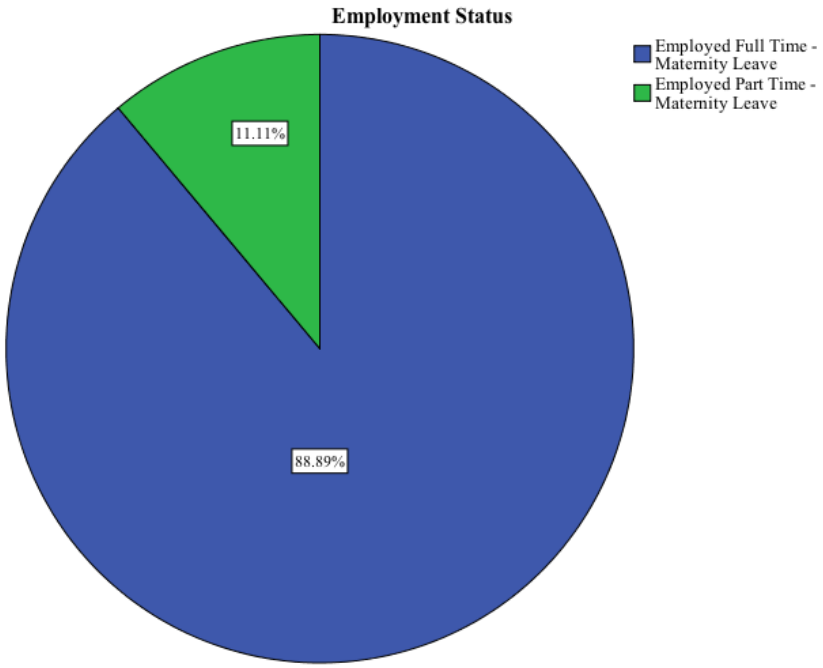

Figure 8. Participants' Employment Status. This figure displays participants' employment status.

Participant Recruitment

In total, 13 individuals expressed interest in study participation; however, upon receiving more information, four were no longer interested as they felt that they did not have the time to commit to the study. Participants were recruited through multiple methods, including posters hung in local community organizations (e.g., grocery stores, community centres, cafés), online advertisements through Kijiji and Facebook, as well as in-person (e.g., when presenting the project to local parent and tot playgroups, swimming classes, and fitness classes). Figure 9 provides a visual representation of recruitment methods identified by participants when asked how they heard about the study. Parent and tot classes as well as online avenues proved to be the most successful.

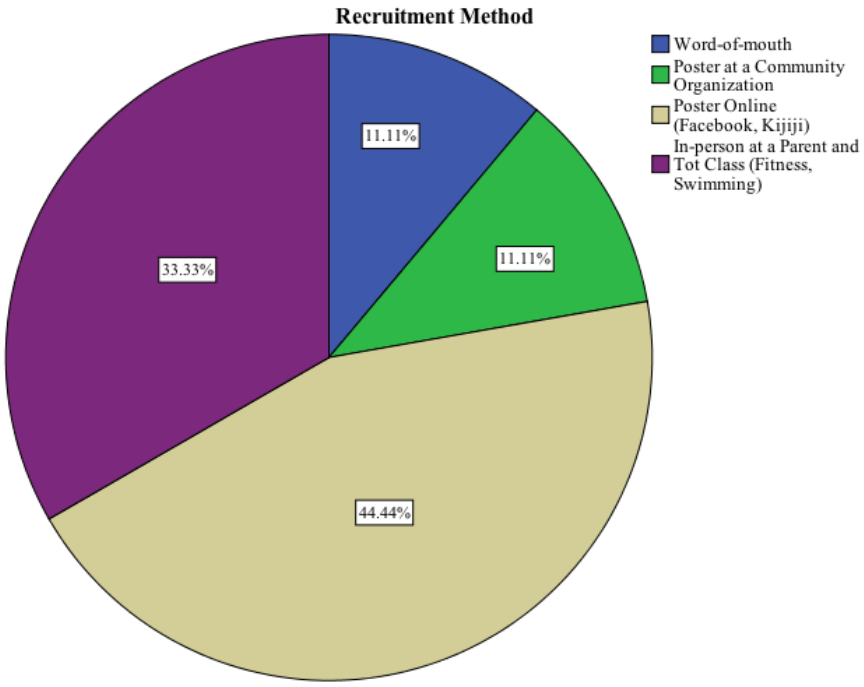

Figure 9. Methods of Participant Recruitment. This figure represents the recruitment methods identified by participants when asked how they heard about the study.

Qualitative Findings

Because the quantitative data were collected in order to add context to the qualitative findings, the participant interviews have been reported below first. Several themes and subthemes emerged from the data, and were categorized as detractors from and supporters of the three basic psychological needs within the contexts of mothering, lifestyle changes, and participants' study-related experiences. It is important to note that at times, some subthemes overlapped between more than one psychological need. In these cases, themes/subthemes were placed to best represent the context from which participants were speaking, in accordance with the researchers' familiarity with the data and the definition of each psychological need. Refer to Figure 10 for a visual representation of the themes and subthemes. Lastly, participants' discussed several recommendations for future coaching studies involving postpartum women, which did not align with the psychological needs. Since these data can be important for developing future

coaching studies, a summary of these findings was included after the SDT-based analysis.

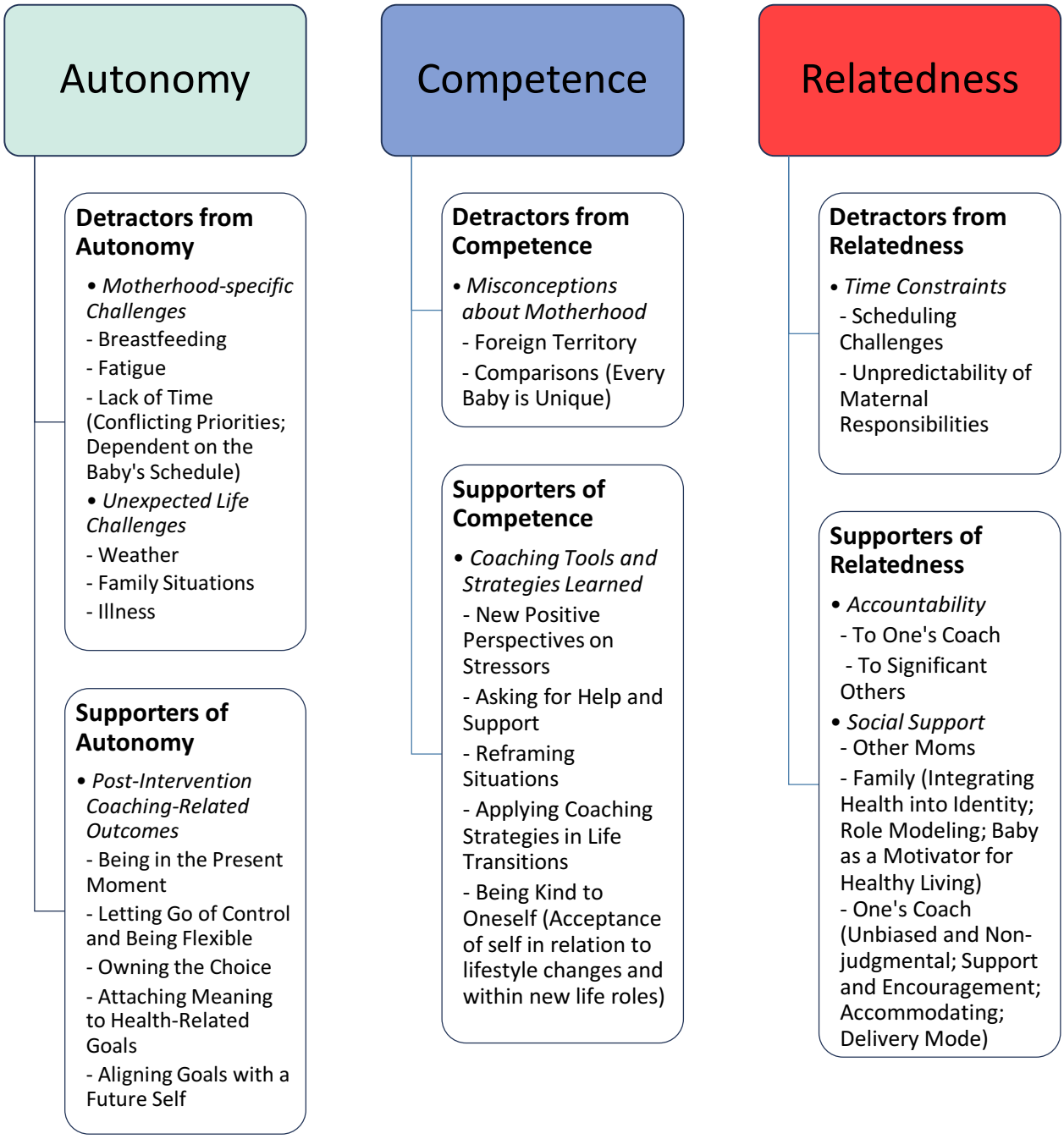

Figure 10. Post-Intervention Interview Themes and Subthemes. This figure provides a visual representation of the salient themes and subthemes identified during interview analysis using a SDT lens.

Autonomy

Detractors from autonomy for engaging in lifestyle changes. As indicated previously, autonomy involves an individual's perceptions of their volitional control and self-initiating actions (rather than feeling controlled by someone else), and to having behaviours align with an integrated sense of self (Deci, 1980; Deci & Ryan, 2000). Participants identified common factors that could be considered detractors from autonomy in relation to engaging in lifestyle changes. These included motherhood-specific barriers, and unexpected life challenges. *Motherhood-specific barriers* pertained mostly to factors that were out of the participant's control (e.g., challenges with breastfeeding, fatigue). All participants identified a lack of time due to conflicting priorities (e.g., choosing to care for one's child rather than engaging in physical activity or cooking healthy meals), and/or being dependent on infant schedules (e.g., nap times and duration, feedings) as the main barriers to engaging in health behaviours. Refer to Table 1 for a summary of the themes, subthemes, and the corresponding representative quotes.

Table 1

Detractors from Participants' Autonomy for Engaging in Lifestyle Changes – Motherhood Specific Challenges

Breastfeeding
• "I've had really extensive difficulties with breastfeeding. Like I, I pump 5 times a day. Yep. Which… is **disheartening. And also time consuming**." *(Participant 6)* • "[W]e've now worked through most of our **breastfeeding problems**…had I started the study maybe at the 6-month marker… Uh, the goal of getting [back to physical activity] probably would've happened." *(Participant 1)* • "Uh, the breastfeeding … has been horrible. Absolutely horrible. Um… But I'm very committed to it. So I've stuck it out. I just think it's really important for (baby's name). So, we've had extreme difficulties breastfeeding. He **doesn't breastfeed like a normal kid**… We saw a lactation consultant frequently. [My baby] had trouble with weight gain." *(Participant 7)* • "When I breastfeed him, I have to breastfeed him in the dark, lying down, with the sound machine on. And I also have to use like a little tube of supplemented milk to feed into him as well. 'Cause he can't actually draw enough milk from my breast… I think that's significantly affected how I was going to kinda get back in shape… I spent a lot of my energy worrying about him, and trying to get that stuff sorted out. As well as a lot of actual chronological time just dealing with him. Like **I don't have a kid that I can feed, breastfeeding on the go**. That whole… breastfeeding's portable thing… yeah no…No, it's not. Not for me. I'm sure it is for some people. But it hasn't been at all for us. So needing to make sure that I'm at home with him has meant things like… no, we can't go on great big afternoon hikes places. Because… my kid's gonna need to eat." *(Participant 6)*
Fatigue
• "Um… Sometimes just that motivation…And a lot of it sometimes is because, you know, there are days where **she doesn't sleep a lot** at night still. Um, so you wake up tired." *(Participant 5)* • "Well, there were just a lot of questions, and I didn't know what the answers were. And I was so tired. And **sleep deprived**. And… I remember I put her down, she was finally asleep. I did it, and by the time I was able to go to sleep, she woke up." *(Participant 1)* • "[My baby] **slept an hour** [between feedings], if that… And so it's kinda like, okay, well… Certain things aren't going our way." *(Participant 1)*
Lack of Time
Conflicting Priorities • "And I have to remember, 'cause I don't use it as an excuse, but sometimes when I say… you know, I say I didn't go for a walk because I had to do laundry, or I had to do this or whatever… It kinda sounds like an excuse, but it is the truth. Like… **I do have like house-life and wife stuff to do**. So, it's not that I'm not thinking about myself and taking time to, you know, meal plan, healthy meals…or go for a walk, or go to the gym. It's just, at this exact moment, I have to do laundry. Right? … It's not necessarily an excuse. It's a reality." *(Participant 9)* • "**These guys kinda suck up your time**. Right? … So unless you're willing to stay up late after their bedtime, or get up before they get up to work out… Or workout during their napping time, and you don't nap… and depending on their feeding, too." *(Participant 1)*

- "Um… what's it like being me… I don't know… busy. Um… yeah. I would say busy, I guess. Like it's kind of like a constant, always… being a new mom, you've always got something to do. **You're like running around all the time**." *(Participant 8)*
- "Uh… time. Like I find it hard to find time to… Go to the gym. So a lot of the exercise I do is fairly like low intensity. Like walking kinda thing. And then eating. I find it hard just to get like meals out in general. So sometimes [the meals I cook] **being healthy like kinda falls by the wayside** versus just getting something on the table." *(Participant 7)*
- "'Cause most days I'm really good [at eating healthy and being active]. Like… it's just hard when there's so many like family events to do... it's just **life keeps busy, but we keep trying to keep up**. Like so far, so good. It's just laundry and… everything that builds up when you're not home, right?" *(Participant 8)*

Dependent on the Baby's Schedule

- "Um, I think the unpredictability of… life with a baby. I think would be the biggest [barrier to making lifestyle changes]. Because, you know, she could have a really great day, one day… of like napping and eating. And then the next day she could be pushing a tooth and it being a really tough day. So like… it's kind of **hard to plan** how… like, she's not even 5 months old yet. And so you can't really make those types of plans, let's say. To get to where you thought you would be." *(Participant 1)*
- "It's **not all gonna just be easy and peasy** and that you can plan everything. Like they don't have a schedule, necessarily. And babies… they create their schedule as they go. And you have to be flexible with it. Which means that sometimes you don't get to do things." *(Participant 1)*
- "But with having a child, it's a lot more difficult, because they kind of go **based on their time and their schedule**." *(Participant 6)*
- "I think a lot of like getting out and being able to do stuff **depends a lot on the kid**." *(Participant 8)*
- "You know, a lot is dependent on um… the baby. So she had a week, a week where she was teething and sick. And up lots, and you know…We would be going swimming, but you know, she's got a super snotty nose. So you kind of decide, well, I guess we're not going to do that today. Because… So maybe we try to go for a walk, but if it's raining, or cold out… So there were definitely days where that was sort of impacted on by what, how she's [baby] doing. Um… and that would probably be the biggest challenge. Is just… you know, you're, you're… **accommodating somebody else's schedule** all of a sudden." *(Participant 5)*
- "You know, I was so focused on… Okay, I'm 8 weeks postpartum … Like, I've been cleared for physical activity. Let me go. **Not thinking that [my medical clearance was] not the only thing that's not allowing me to go to the gym.** That I have a baby at home that will need to be fed and doesn't take the bottle. Had she taken the bottle… But she never did. So that was a huge set-back to those types of things." *(Participant 1)*

Most participants also outlined *unexpected life challenges* that took place during the intervention that negatively impacted their ability to engage in lifestyle changes or in the coaching intervention. These factors were outside of participants' volitional control, and

included challenges such as bad weather (e.g., cold, rain, snow), stressful family situations (e.g., arguments with significant others, a death in the family, moving homes), and illness (e.g., of oneself, one's baby, or family members). Almost all participants identified ill infants or being sick themselves as one of the most common barriers to engaging in lifestyle changes. Refer to Table 2 for a summary of the themes, subthemes, and the corresponding representative quotes.

Table 2

Detractors from Participants' Autonomy for Engaging in Lifestyle Changes – Unexpected Life Challenges Experienced During the Study

Weather
• "And you know, if the weather's crappy, it really **makes it hard to get out**. And, you know, you don't want to take her…" (*Participant 5)*
• "Um… Weather is a big one. That was pretty much a topic of conversation every session I had with [my coach]. Um…. And how like that **hindered my ability to get out** and do something." *(Participant 9)*
Family Situations
• "Um… I mean, **every relationship isn't perfect**. Like my husband and I fight. So there's a couple of those." *(Participant 8)*
• "Um… this was uh… the 5-year **anniversary of my sister's death**, too, so…That was um… that was hard." *(Participant 8)*
• "And then on top of like [my baby] getting sick, and then there was a funeral, and all that stuff too… And it just **all happened, like… all at once**." *(Participant 9)*
• "Uh… **moving [homes] was like a big [life challenge** during the study]. It's hard to move with a… he was 9 months old at the time. So… and unpacking was obviously like a really slow process as well." *(Participant 3)*
Illness
• "**I was sick twice** [during the study]. I got a cold probably after the second session, and then both of us just got over the flu… Because like I said, I didn't even work out that much last week because I was, you know…Dying. But yeah. So that impacted it, for sure." *(Participant 2)*
• "No. And like… During this process too, [my baby] **came down with a really bad flu.** And so, you know, that definitely throws things off, you know? So for those 4 days, we didn't get to be as active as you know, you want to." *(Participant 1)*

Supporters of autonomy for engaging in lifestyle changes. Analysis of the interview transcripts revealed a number of supporters of autonomy for engaging in lifestyle changes within the overarching theme of *post-intervention coaching-related outcomes*. These included: being in

the present moment; letting go of control and being flexible; owning the choice; attaching meaning to health-related goals; and aligning goals with a visualized future self. These coaching-related outcomes reflected participants' perceptions of having increased volitional control over their choices. For example, a few participants discussed that *choosing* to let go of control in certain areas of their life (e.g., housework) allowed them to be more fully present and enjoy personally meaningful areas of their life (e.g., spending time with their child). When speaking about being in the present moment, participants expressed a shift in their priorities; from being action-oriented and planning for the future, to being more aware of what was going on around them in the present. This was one of the most salient themes, with almost all participants speaking to a shift in their priorities to focus more on enjoying time with their baby while they are young. Refer to Table 3 for a summary of the themes, subthemes, and representative quotes.

Table 3

Supporters of Participants' Autonomy for Engaging in Lifestyle Changes – Post-Intervention Coaching-Related Outcomes (Being in the Present Moment)

Being in the Present Moment
• "And just trying to be in the moment more affects that as well. 'Cause if you're not in the moment… If you're planning everything for the future, and you're over-planning, like I call it. Then like there's no way you can be in the moment, because you're just looking too far ahead, and you're just going to miss everything else… I want to **savour as much of this time as possible**. Because she's changing so much, so fast, that it's pretty impressive, you know? You know, I don't want to miss any of it." *(Participant 1)*
• "And really, like she's only this little for this long. So, **I better enjoy it or I'm going to miss it**." *(Participant 3)*
• "You have to be okay with [being flexible] because it's only **a very short amount of time** that this happens. And even though it feels, when you're in it… It feels like it's been the longest thing ever. It really is a super short amount of time." *(Participant 1)*
• "[I learned from coaching] to like **just be in the moment a bit more**. And not get too ahead of myself… it's really easy to just be on your phone when you're nursing. Especially when they're little … I was just getting so far ahead of myself. And like I remember the one day… [Coach's name] was like, 'Well, how about we try to like not… Like just be in the moment more. And do that.' And that day that I didn't have my phone… I purposely left my phone somewhere where I couldn't reach it while I was nursing. And you know, she like stopped nursing, and she looked up at me and smiled at me for the first time. And I was like, **I would've missed this if I was on my phone**… That moment definitely kind of resonated

with me." *(Participant 1)* • "I am **trying to be more present**, in the moment. Rather than worrying about things that I can't change. Or, you know, the mundane day-to-day things. I just try to be… Be more in the moment. Um… than I used to be." *(Participant 4)* • "… [W]ith going back to work, I'm, you know, really gonna **focus on being more present**, in the moment, enjoying the time with her. Um… You know, trying to set aside the time for us to do, you know, the walks, or bike riding, and that kind of stuff. Um… because that's important to me." *(Participant 7)* • "I said I was stressed about you know, making sure [my baby] had a good meal on the table. And [my coach] said, you know, he's **going to remember the time with you** more than he remembers like what you made him for dinner. So just remembering stuff like that. And keeping your priorities in check." *(Participant 8)* • "And I have a huge fear of missing out when I go back to work. So I want to be able to do everything that I can [with my daughter now]. Yeah. I want to. So **I don't want to miss anything**." *(Participant 9)*

Many moms also identified a transition involving letting go of control and being more flexible, which was helpful for being kind to oneself and being in the present moment as it allowed women to focus more on what was going on around them rather than planning for the future. Refer to Table 4 for a summary of the themes, subthemes, and representative quotes.

Table 4

Supporters of Participants' Autonomy for Engaging in Lifestyle Changes – Post-Intervention Coaching-Related Outcomes (Letting Go of Control and Being Flexible)

Letting go of Control and Being Flexible
• "[My primary goal changed throughout the study t]o be **less Type A** and focused in on one thing. (laughing)" *(Participant 1)* • "[My primary goal moving forward is t]o just realize that like I **don't have to control everything, and still things will work out**. (laughing) It's not the end of the world, yeah. I can, you know, not have a clear plan every day. And if I don't get to something… the day wasn't wasted. I don't need to have like my to-do list complete. And I don't always need to make a to-do list." *(Participant 6)* • "I think **I'm more relaxed about things**, more than I was before… and just kind of more like… let's see how things play out… Before I was like, no. Things have to play out like this. And things have to happen in this order. And, you know, the dishes have to be done all the time and put away. And things have to have like order … And now, I'm like, okay, well if the dishes aren't done today, they'll be done tomorrow. It's fine. Like it's not the end of the world. Whereas [before] I would think that like it was [the end of the world]." *(Participant 1)* • "I think **not having to control things 100% of the time** is something that… Once you learn… You never really give up. Right? Like it's almost like you've seen the light, and you don't want to go back. So like, I think I'll take that [from my coaching experience]."

(Participant 1) • "Uh, well… I think [coaching's] gonna help me get through it a lot better… and not just get through it. But I think just enjoy it more. Rather than getting really stressed and focusing on what's, what's going wrong, and being a super control freak. I think it's gonna help me just **actually enjoy being a mom**… And I think it's gonna help me get myself back into shape. 'Cause I'm just sorta getting a grip on it now. I'm like, ah yes. It's all coming together. Things are working out." *(Participant 6)*

A few participants discussed the importance of changing their wording of their behaviours from "should" to "choose". This slight modification helped women to own the choices that they were making, helping them to feel more in control of their behaviours. Refer to Table 5 for a summary of the themes, subthemes, and representative quotes.

Table 5

Supporters of Participants' Autonomy for Engaging in Lifestyle Changes – Post-Intervention Coaching-Related Outcomes (Owning the Choice)

Owning the Choice
• "And, **and making it a choice** versus should… I have a tendency to say, 'Well, I should do more exercise tomorrow.' … Which isn't really something that commits yourself to it… And instead saying, you know, 'I choose tomorrow to do more exercise. I am going to.'" *(Participant 6)* • "[I]t was still helpful to have that sort of person to talk to a little bit, that, you know, wasn't a mom giving you advice, or like a parent or another mom giving you advice and telling you what to do. 'Cause it wasn't like advice-giving. It was more just um… solution-focused, or, and motivational… **trying to find the answers yourself**." *(Participant 8)* • I mean I… I grasp that it's just a change in wording. It's not like a magic trick. Um… But there's still something about it… it **helps you take ownership** of what's going on. So for me… [saying that I choose to do something rather than saying that I should] has been helpful… But instead of saying, you know, 'I shouldn't eat more cookies' … [I would say] 'I don't want to be the kind of person who eats all the cookies. So I am *not* going to be the person who eats all the cookies…' So rather than it being like a, a should, or a shouldn't, or a shaming… Or feeling bad about it… **It's just making a choice** about lining up your image of what you want to be. And then **choosing the actions** that are gonna take you there." *(Participant 6)*

Almost all participants discussed the important role that coaching played in helping them to explore personal meaning and values behind setting health-related goals. Participants expressed that identifying personally meaningful goals was useful in terms of identifying *why*

they were engaging in health behaviours; this was particularly helpful for sustaining health behaviours over time. Refer to Table 6 for a summary of the themes, subthemes, and representative quotes.

Table 6

Supporters of Participants' Autonomy for Engaging in Lifestyle Changes – Post-Intervention Coaching-Related Outcomes (Attaching Meaning to Health-Related Goals)

Attaching Meaning to Health-Related Goals
• "And if you have **more reasons why to [engage in lifestyle changes]**, then you kinda, you find less excuses… If you actually make it part of your lifestyle, it's not so much of a chore." *(Participant 2)* • "You know what? I think I'm happier now. I'm happier, and more confident. You know, I feel like I'm moving towards my goals. And part of the coaching session, we looked at my values and really put those into place. So it kinda **gives me a grounding**." *(Participant 3)* • "Like [my coach was] very supportive in really like helping me look at like what are some deeper goals. And **the deeper meaning behind my goals**. And then like really pinpointing that being active was something really, like *really* important. I didn't notice, realize how important it was to me until starting the coaching. That, you know… Having an **active lifestyle is something that like [is]… a core value for me.** So, yeah." *(Participant 4)* • "Everyone usually knows why [they should exercise and eat healthy]. But like really, *why*? Like list more reasons, and like let's go into it. And then when you actually think about it, and you have more specific reasons, and you list them out, then you can always go back to that … Having like a list and specific points and … And reading that, and going back to it when you're having a bad day kinda like, really kinda **brings you back to like the core**." *(Participant 2)* • "Yeah. And working towards my goals is, you know, a big… happiness and confidence booster too. And knowing what those are. You know, I'm not just blindly going through life anymore. Like **these are the goals I want to do, and this is why I want to do them**." *(Participant 3)* • "And making exercise, you know, at the forefront. So I think that'll be easy to continue moving forward, to know **how important [exercise] is to me and why**." *(Participant 3)* • "I feel like [coaching] really helped me, yeah, become **more in-tune with, you know, my core values**… And goals that I really want to achieve." *(Participant 4)* • "We definitely did a lot of different um… discussions and deeper meanings about different values. Um… Yeah. So less goal-setting, but more… We didn't do a lot of goal-setting, but lots of **looking at what my values are**, and what really is important. And why, you know, we spend time doing some things." *(Participant 5)* • "So kind of identifying what you value, what's important, and then… **Making choices that, that are consistent with your values**. So not doing things that are shooting yourself in the foot, right?" *(Participant 6)*

Lastly, a few participants mentioned that having goals and outcomes aligned with a visualized future self was helpful for making choices in line with that future self. This is a coaching-based activity wherein coaches work to facilitate participants' exploration of a future self, often through a meditation or visualization activity (Whitworth et al., 2007). Individuals can then identify what that future self may say to oneself currently by identifying what the best version of oneself may be like in the future (Whitworth et al., 2007). Refer to Table 7 for a summary of the themes, subthemes, and representative quotes.

Table 7

Supporters of Participants' Autonomy for Engaging in Lifestyle Changes – Post-Intervention Coaching-Related Outcomes (Aligning Goals with a Future Self)

Aligning Goals with a Future Self
• "[My coach] did this one exercise that like really stuck with me. It was like looking at a future self. And it was really neat. It was more of like a meditation exercise where like I closed my eyes, and she kind of talked me through it. And talked me through like meeting my future self. And what does that future self look like? And what advice does she have for me to achieve like where I want to be. And so that was really good. So like I took away a lot from that. And just really like looking within, like **what do I want my future to look like, and how am I going to make those steps happen** to get there?" *(Participant 4)*
• "And you know, looking to the future and **what I want our future to look like**, and how am I gonna take the steps, you know, to get there, so…" *(Participant 4)*
• "So… [Coach's name] went through quite a few helpful strategies, and probably the one that sticks out the most was, um… sort of visualizing the outcome that you want to see. So really... For example, if you're saying, okay, I'm gonna be more active this week… Then actually sitting and listing out **what that's going to look like for yourself**…So not just saying I'm gonna move more. But okay, what are you gonna do? Okay, well, every day I'm going to walk to the store instead of driving. I'm going to… Get on my elliptical for 30 minutes. I'm gonna… Eat salad every day for lunch. And just really… Detailing it out. And picturing yourself being there." *(Participant 6)*

Competence

Detractors from competence for engaging in lifestyle changes. As previously outlined, competence reflects humankind's nature to pursue mastery, and the importance of feeling efficacious at pursuing goals (Deci & Ryan, 2000). Factors that could be considered detractors

from competence for engaging in lifestyle changes that were identified by participants centred mainly around their *misconceptions about motherhood* (e.g., motherhood being foreign territory, and comparisons – every baby is unique). Most participants expressed how motherhood was foreign territory to them, and discussed that before entering this life stage, they didn't realize how much work it would take to care for a baby and themselves during the first year of motherhood. Comments surrounding the subtheme of foreign territory were focused on feeling non-efficacious at being a new mom, and sacrificing their own goals (e.g., lifestyle changes) in service of caring for their infant. Refer to Table 8 for a summary of the salient themes, subthemes, and illustrative quotes.

Table 8

Detractors from Participants' Competence for Engaging in Lifestyle Changes – Misconceptions about Motherhood (Foreign Territory)

Foreign Territory
• "And sometimes things are just a little bit more important, right? Is it more important that [my baby] is fed and being taken care of? Or that I went for a run? Well… The run is important, but it still falls underneath childcare and that kinda stuff… And [childcare duties] take up a lot more time than I thought they would. I had no idea how much time looking after a baby takes up. Which sounds really naïve. And **I think I came into it… Pretty naive.** Yep. I'm [participant's age], and had no idea how much work babies are. I'd never babysat before, so I really didn't conceptualize…" *(Participant 6)*
• "Because of how sick I was during my pregnancy, I saw having a baby as kind of like… 'Okay, great. Then I can get back to my life.' And like… Yeah, I knew I'll have a baby, and you have to wait until you're cleared to do medically, you know, physical things and all of those things. But I didn't really… **I knew there would be sleepless nights, but I don't think I realized that there's more to it than that.**" *(Participant 1)*
• "I mean, don't get me wrong. As sarcastic as I am, I love [my baby] to bits. He's the most wonderful thing in the world. It's just uh… It's a shift in the balance. And **it's taken me much longer to find my stride than I thought it would**. I sort of anticipated myself… you know, 6 weeks post-C-section being like, okay, well, back to all my physical activity. And won't be eating anymore junk food. And [baby's name]'s gonna just be, you know, tagging along with me to all these physical activities, and it'll just be super easy, and I'll have all this time to catch back up on my health. I'll be back in my regular pants, and, you know… By Christmas time… No. That's, nope. You gotta re-assess those goals." *(Participant 6)*
• "It really is [a huge learning curve]. And just, you know, just the day-to-day of taking care of his needs takes a lot of hours. So… **all that free time I thought I was gonna have is… Not really existent**. So I have to be a little bit more… more persistent in where I'm willing to

shift things. And make time for things." *(Participant 1)* • "And it's a, a very unique situation for me compared to previous experiences in my life. I mean… I have been overweight before, and had no problem losing weight. And then maintaining that weight for years at a time. And then having a child just… All the things that normally would work just kinda go out the window. So, **it's very foreign territory for me**." *(Participant 6)*

A few participants also mentioned the struggles that resulted from comparing one's postpartum recovery or baby's needs/development to other moms. When making these comparisons, participants expressed feelings of inadequacy and frustration, especially when they did not feel successful within a certain area of motherhood (e.g., returning to physical activity shortly after childbirth). Refer to Table 9 for a summary of the salient themes, subthemes, and illustrative quotes.

Table 9

Detractors from Participants' Competence for Engaging in Lifestyle Changes – Misconceptions about Motherhood (Comparisons – Every Baby is Unique)

Comparisons – Every Baby is Unique
• "I was like, well, everyone else is… Like I have a friend who started running like 6 weeks after. Like why can't I be that? Well, her baby ate well, didn't have breastfeeding problems, and, you know, was sleeping well. So those kind of things didn't happen for us right away. So, of course **I couldn't compare myself to that kind of postpartum recovery**." *(Participant 1)* • "And being a new mom, your life is … just thrown to the wind. Who knows what's gonna come out. So…**And each baby is so different**. So… during my time, like her personality has also come out more… Definitely being a mom is a… different experience than you'll ever experience." *(Participant 4)* • "I think there's a lot of different scenarios that could've played out, um… that would've changed my initial goal. Like **I just assumed that babies take bottles. Not all of them take bottles.** So… we're still working on the bottle thing. You know? Just those kinds of… I think… But yeah… I just didn't know what I was doing. Let's be real. Let's call it what it is." *(Participant 1)*

Supporters of competence for engaging in lifestyle changes. Participants identified several factors that supported feelings of competence throughout their coaching experience with regards to making lifestyle changes; specifically, those centered around a number of *coaching*

tools and strategies learned (e.g., new positive perspectives on stressors, asking for help and support, reframing situations, applying coaching strategies in life transitions, being kind to oneself). A few participants discussed how coaching supported them in taking on new positive perspectives relating to stressors, which ultimately allowed them to feel more efficacious when addressing them. Refer to Table 10 for a summary of themes, subthemes, and representative quotes.

Table 10

Supporters of Participants' Competence for Engaging in Lifestyle Changes – Coaching Tools and Strategies Learned (New Positive Perspectives on Stressors)

New Positive Perspectives on Stressors
• "I think one of the good things that it was so early on is that **I learned a lot about stuff that… Like that I was stressing about**." *(Participant 1)*
• "I mean, it's just… there's things you cannot change, I guess, with a baby, right? 'Cause you can't control them. So when they're upset, um… We did some different techniques of like looking at, you know, **'[W]hat about your baby fills your heart and makes you happy?'… Even in those frustrating moments**, can you pull on some of the, you know, all the joy that they brought into your life?" *(Participant 5)*
• "It was interesting to identify… [my stress eating] during some of the coaching sessions. That was helpful to kind of um **manage my stress levels a little bit better**. So that hopefully I cannot eat all the… cookies. (laughing) Because, you know, it makes me feel like I'm 12 years old or something, like, 'Oh, cookies!'" *(Participant 6)*
• "I learned a lot of **strategies on coping with stress**. And… um how to prioritize certain things in my life." *(Participant 7)*

Most participants also expressed being more open to asking for help and support from family and friends when needed, which helped them feel that they would be successful when working to attain new goals. Refer to Table 11 for a summary of themes, subthemes, and representative quotes.

Table 11

Supporters of Participants' Competence for Engaging in Lifestyle Changes – Coaching Tools and Strategies Learned (Asking for Help and Support)

Asking for Help and Support
• "And then… it just kinda clicked in my head. It's like 'Oh, you know what? **When you**

need help, ask for help. Don't be ashamed.'" *(Participant 8)* • "I know **I need more support systems than I did before** I had [my baby]. Um, because it is tougher for me to stick with [lifestyle changes] and to just… Stay focused. So… identifying that has been helpful." *(Participant 6)* • "I guess **I just need support**. Like in… like from my family, from my husband. To… you know, keep being easier on myself. And then I do need work to make some adjustments. Or I need to make the adjustments at work. Like I need to learn to say no to things, and say I can't. Whereas before I really wanted to do everything." *(Participant 7)* • "And you know… after talking [with my coach] … like from the beginning [of the study] to now, it's just admitting, like if… **when I need help, I need help. And ask for it… Don't feel bad for asking."** *(Participant 8)* • "[Y]ou know what? It's hard being a mom. It's okay to ask for help. It's like kinda a big relief off my chest. It's just like, 'You know what? **You're not doing this alone. You have help. Ask for it.'"** *(Participant 8)*

Further, a few participants identified reframing situations as being helpful (e.g., using a new lens to view a circumstance where they previously felt stuck), especially in regards to life stressors, as it enabled them to view situations in a more positive light, and ultimately helped them feel more confident with regards to overcoming stressful circumstances. Refer to Table 12 for a summary of themes, subthemes, and representative quotes.

Table 12

Supporters of Participants' Competence for Engaging in Lifestyle Changes – Coaching Tools and Strategies Learned (Reframing Situations)

Reframing Situations
• "Oh yeah, I had a good time. It was funny. She'd be like… yeah, she'd call me out on a few things. And I'm like, **I never thought of it like that**. But thank you for that." *(Participant 1)* • "So she helped me um **think of things a different way**, right?" *(Participant 2)* • "[L]ife coaching was helping [me] to re-direct. So, you know, there's times when you're frustrated 'cause your baby's crying. And, and they're teething, and all these things. And, … [my coach] sort of had a good way of **re-directing and looking at some of the positive aspects** [of my baby, even when I'm frustrated with her crying]." *(Participant 5)* • "And so how to look at [stressors] **in a different light sometimes**… looking at the bigger circle, and… not taking on other people's feelings, I guess. Yeah. Being in control. So it was very interesting, and very helpful, I think. 'Cause I often feel responsible for… like my mother's feelings, or, or my spouse's feelings… [My coach] sorta helped me look at not taking that on. And maybe even just being aware that sometimes that's something I was doing." *(Participant 5)* • "Like **looking at things differently** [will be helpful moving forward] … When things come up, or things change a little bit here and there… That, you know, I still have those [coaching]

tools to go back to." *(Participant 2)* • "[My life] has changed. Like **I look at things differently**. Like I don't get too overwhelmed by it because I am so busy, and I always have stuff to do. Like always cleaning, and like a list of things to do… So I guess I can handle it a lot better, or I just don't get overwhelmed by it, right? Because [those stressors are] always gonna be there." *(Participant 2)*

A couple of participants also expressed that the coaching strategies they learned would be helpful during other life transitions, especially when returning to full-time work at the end of their maternity leave. In particular, participants were concerned about this upcoming transition, and several anticipated using coaching tools to facilitate the process. Refer to Table 13 for a summary of themes, subthemes, and representative quotes.

Table 13

Supporters of Participants' Competence for Engaging in Lifestyle Changes – Coaching Tools and Strategies Learned (Applying Coaching Strategies in Life Transitions)

Applying Coaching Strategies in Life Transitions
• "I just like talking through what I was going through with [my coach]. Uh… that was nice. And just the timing of where it was in my maternity leave like worked out pretty well. Because I was like, well, I'm worried about sending [my baby] to day care, and I'm worried about work-life balance, and like… a few months ago, my worries would've been totally different. It would've just been like coping day-to-day. Um, so it was nice to have someone to talk to about **strategies I could implement, like in the next couple weeks** [when I return to work]." *(Participant 7)* • "I want to make sure I **have work-life balance**. Which before… if I worked late, it was kind of annoying for me and my husband. But now… it's like super important [that I leave work on time], I need to get him [baby] from day care, I need to make sure he eats… Like we can't have takeout all the time. So… Yeah. [Coaching] just really changed my whole outlook." *(Participant 7)* • "I definitely think **there are [coaching] tools that we… that I learnt that I'll take, bring forward. Especially when going back to work.** Um, 'cause that will be a big, a big challenge. So, you know, looking at some of that tools that she gave me. And… um… using that, I think that will be a big impact in trying to juggle being active and… going to work full time, and being present with [my baby]." *(Participant 5)* • "I really hope [the coaching] helps with my transition back to work. I think it'll help me **stand up for myself** a little bit more. Um… like I think in a way, I was kinda gonna do that a bit anyway. 'Cause I'm kinda standing up for like [baby's name], right? Not just myself. Like I'm **protecting my time with him**. But… yeah. [Coach's name] really made me see that like, **I don't have to be everything to everyone**. And like, you have to put up… yeah, boundaries where necessary." *(Participant 7)* • "Just with the timing of where I'm at in my maternity leave, we talked a lot about **my return**

back to work. Because I found that was really weighing heavily on me. So uh [Coach's name] had kinda given me some strategies um as to how to deal with that. And work through those like feelings." *(Participant 5)*
• My mom got really sick. Like she was sick for like 5 weeks. And we brought her to Emerg, and they were all like, 'oh my God, it's really serious. You know, she needs to go in for surgery right now.' And she wouldn't go, wouldn't go. Yeah, so she came home. She chose not to go for surgery. They gave her antibiotics. She said, I'm not doing this. And that was hard. 'Cause I thought she was gonna die. But she got better. But at the same time, **I was able to stand up to her** and say, look… I don't agree with you. I don't agree with the course of action that you're taking. And I've never been able to do that with her before. So that was kinda cool, too." *(Participant 3)*

Lastly, being kind to oneself in regards to lifestyle changes and within new life roles was identified by all participants as a coaching-related strategy that was learned during the study. When discussing lifestyle changes, some participants expressed a shift from dichotomous thinking (e.g., giving up if they missed a day of physical activity) to acceptance (e.g., getting back to physical activity goals the next day), as well as a sense of understanding that their life and ability to engage in lifestyle changes may look a bit different when compared to other moms. A couple of participants also identified that their original reason for joining the study was focused on a specific goal (e.g., weight loss); however, throughout the coaching intervention, participants stated that they shifted from a sense of self-pressure for goal achievement to a more internal focus on health and self-acceptance. Being kind to oneself within the context of one's new life role as a mother centered around shifting from unrealistic expectations of oneself at the study outset, to taking more time for oneself and acknowledging successes as a new parent. Refer to Table 14 for a summary of themes, subthemes, and representative quotes.

Table 14

Supporters of Participants' Competence for Engaging in Lifestyle Changes – Coaching Tools and Strategies Learned (Being Kind to Oneself)

Being Kind to Oneself
Acceptance of Self in Relation to Lifestyle Changes
• "But um part of it, too, was just **becoming like easier on myself**. Like, if I wasn't able to

meet that goal that week, or whatever it was. 'Cause I tend to be a little bit hard on myself … So that was really helpful during the sessions. You know, **just kind of not beating myself if I didn't get to something** that week, because [my baby] was either sick or something came up." *(Participant 4)*

- "There was only so much to talk about with, you know, me continuing to eat the cookies before realizing that there was probably something else going on besides me needing motivation to get back on the elliptical or take another walk, or whatever it was… And in a lot of the coaching sessions…we looked at different stress management things, and you know, self-care techniques and ideas about being nicer to myself. They were really helpful. So some of my goals did change in terms of… 'Yes, I would still like to lose the 8 pounds.' … **Being less critical of myself became a bigger goal as we went.** Because they're tied together, right? Being overly self-critical and harsh with myself causes me to do things that aren't nice to myself, like eating more cookies…" *(Participant 6)*
- "[My goal moving forward is] to continue to be active… and healthy... But also **knowing that [being healthy] looks different for me than for other people**… Just you know, for some people without children, it's easy to uh… just go out and do what it is that you want to do. But with having a child, it's a lot more difficult, because they kind of go based on their time and their schedule, so…." *(Participant 4)*
- "And when you do things that… make you feel bad… Not sitting and ruminating about it. Like acknowledging it, and saying, 'Well, yeah… I feel crappy, I didn't take a walk at all yesterday. That wasn't what I wanted to do.' But instead of sitting around, beating yourself up and feeling bad about it… 'Okay, well it's the next day, so… Yesterday you didn't take a walk… That's okay.' Just findin**g a way to just… be okay with things that happen,** and that you do and don't do. And then moving forward." *(Participant 6)*
- "I needed just that… like that affirmation, that, you know? … '**It's okay if you didn't get to it that day. But start back up again tomorrow.'** Like, don't let it like stop you from continuing to you know, try to achieve your goals." *(Participant 5)*
- "My primary goal now is to… **be kind to myself** and manage my stress levels. So that I can actually focus more on… being healthy." *(Participant 3)*
- "**Be kind to your body. It doesn't want all the cookies**." *(Participant 6)*
- "Well, it's **a lot more comfortable being me** [after having completed the coaching sessions] … If I look at the fact that I've gained back the weight that I lost… I'm not especially angry at myself for it. Which is nice. When I started the program, I was pretty angry with myself for being overweight. Um… 'Cause that was… I was just really overly critical of myself for it. I wasn't very forgiving or patient, or… willing to acknowledge that there were other things that were complicated in my life right now that made it difficult to make my health the priority… That health piece is really important. And just… **I'm better able to look at the things that I have accomplished. Rather than just focusing on the things that I haven't."** *(Participant 6)*

Acceptance of Self Within New Life Roles

- "I feel like **I'm doing better** at being a mom. I feel like I'm doing a good job. Which… I didn't really feel like I was doing a good job before. I was. I just wasn't really accepting that, or being okay with it. That came through some coaching sessions… looking at being really hard on myself. And having to stop and reflect on what I was doing as a mom. And what I had accomplished. And so it wasn't anything really that [Coach's name] said. It was things

that [Coach's name] encouraged *me* to say. And kind of prompted out of me. It was like, 'oh yeah, I guess you're right. I guess I am doing pretty well with this.'" *(Participant 6)*

- "And also, you know, **learning a little bit more about myself** [was most helpful about the coaching sessions]. And being easier on myself too. That…Um, my life before having a child, and my life now having a child is very different." *(Participant 4)*
- "Like, I think for me it's just taking it **one step at a time**. And knowing that I'm not gonna run a marathon tomorrow …" *(Participant 4)*
- "[Now, having completed the coaching, I'm more r]elaxed. Yeah [forgiving with myself]. And forgiving with others. Like I couldn't expect my husband to go to work, come home, deal with a crazy baby, crazy wife (laughing) who had **unrealistic expectations of herself**, really. Like I never put them on him, but I put them on me. Which trickles down to him, right? … I felt like because I was at home, that everything on the… home front should be taken care of. Instead of realizing that… making sure the home … is taken care of is a shared responsibility. And I shouldn't put that on just me… But it's funny, because I totally did it on my own." *(Participant 1)*
- "And **making time for myself**. And then… letting go some of the control, I guess. Allowing my husband to sort of take over some duties. And… um, that was probably one of the biggest challenges. 'Cause I always feel like I have this need to, you know, be there, or if she was upset, I'd feel guilty leaving her. So, some of those feelings, we really worked on. And really, it's been helpful because, you know, I left her… Last week I had a training session or something, and I left her all day with dad. And we… everybody felt good about it." *(Participant 5)*
- "I've always been a **perfectionist**, and being a parent… you can't be a perfectionist. You just end up failing miserably if you set your goals really, really high. Because it is not… it's not a perfect exercise. Every day is up and down, and you're dealing with somebody who [poops] their pants. So really, you can't look for perfection. You just have to **take it in stride and not internalize that.** And just be okay with things. So… That's my big lesson. Be… be kind to yourself. 'Cause you're doing fine. Your kid's alive." *(Participant 6)*
- "So um… I feel like my life was pretty stressful, but **a lot of that pressure, I was putting on myself**. And I guess this kind of helped me to see that." *(Participant 1)*
- "[M]y friend who I'm gonna buddy-up with… if she was me, and I was going to look at how she's doing… I wouldn't say half the mean things to her that I have said to myself. I would never say those to her! Those are mean. She's my friend. So… why would I say them to myself? 'Cause that, that's just not nice. It's just sort of a self-sabotage thing… So, yeah. What came out of [coaching]… **Not changing how I parent at all. Just changing how I *look* at how I parent."** *(Participant 6)*

Relatedness

Detractors from relatedness for engaging in coaching sessions. Relatedness refers to humankind's need for feeling connected and belonging, which involves feeling loved and cared for, as well as loving and caring for others (Deci & Ryan, 2000). Participants outlined factors that could be classified as detractors from relatedness, all of which impacted their ability to

connect with their coach, and centred around *time constraints*. In particular, scheduling challenges and the unpredictability of maternal responsibilities were cited as the most common barriers to connecting with one's coach over the telephone. In terms of scheduling, many participants expressed the challenges they faced with taking time out of their busy day to schedule a 30-45-minute phone conversation. While participants stated that they enjoyed taking this time for themselves, there was a sense of having 'a lot going on' outside of their coaching session, which may have impacted their ability to engage meaningfully with their coach. Refer to Table 15 for a summary of the themes, subthemes, and illustrative quotes.

Table 15

Detractors from Participants' Relatedness for Engaging in Coaching Sessions – Time Constraints (Scheduling Challenges)

Scheduling Challenges
• "What I didn't like about [the coaching] …; it was challenging some days. Like, when I had like a **super busy day**. And like at the end of the day, where it's just like, I have a million things to do. But it's still nice to like take that time out." *(Participant 2)*
• "Okay, I have to call her, but I know that I need to set aside half an hour. Like half-hour, **45 minutes is a *hard*, it's a long time to set aside to talk to somebody** on the phone. So…Yeah. It was challenging, yeah." *(Participant 4)*
• "I think at first it was hard like… the **scheduling of the calls was super hard**… It was just because my husband would have to come home. And because she was still having breastfeeding difficulties, like even that hour on the phone or whatever that might've been…Um… I would have to breastfeed [during] some of our calls." *(Participant 1)*
• "It was just hard to schedule…the phone calls, and remembering to do them. Um, and then **setting aside that time on the phone**." *(Participant 4)*
• "Mmm… it was just **sometimes hard to like, to plan when we're gonna call**. Between like going for walks with him, and having to stay home… naps, and everything. But, I mean, we made it work." *(Participant 8)*

Secondly, participants discussed how the unpredictability of their maternal responsibilities (e.g., nap times and duration) impacted their ability to schedule and keep an appointment with their coach, resulting in many rescheduled coaching sessions to complete the entire coaching intervention. Refer to Table 16 for a summary of the themes, subthemes, and

illustrative quotes.

Table 16

Detractors from Participants' Relatedness for Engaging in Coaching Sessions – Time Constraints (Unpredictability of Maternal Responsibilities)

Unpredictability of Maternal Responsibilities
• "I just, sometimes, it was like, 'oh crap, I've got to be on the phone with [my coach] Wednesday morning for an hour'. Trying to get [my baby] down for a nap, and **coordinate the times**. So sometimes that's like a little bit of a challenge. But then after, you know, we'd have the call and stuff, you just, you felt so good after it. And… you know, usually, most of the time it was not a problem scheduling around it." *(Participant 5)*
• "I think [being a new mom] made it more difficult [to participate in the coaching sessions], for sure. Um… definitely. We planned it out so that it didn't affect the calls too much. But there were some days like where he was teething and stuff, and **he didn't go to bed on time**." *(Participant 2)*
• "And another [coaching session, **my baby] woke up after a nap screaming** … And I was the only one home. So we had to reschedule that one." *(Participant 3)*
• "Um, my **husband's work schedule got re-structured** [just before one of my coaching sessions]. So I didn't have childcare. I can't really fully commit myself to a coaching session with a child running around, so…We moved it to the following week." *(Participant 6)*
• "Because [baby's name]'s **nap time is not super reliable**, I guess. So sometimes it was kinda like stressful to know I have the call. Um… but we managed." *(Participant 7)*
• "The first [coaching session] was the hardest one. 'Cause **[my baby] didn't nap great**. And it was the meditation one. So she was kinda in the background crying a little bit. But we made it through." *(Participant 9)*

Supporters of relatedness for engaging in lifestyle changes. A number of factors facilitated participants' feeling connected to others including accountability and social support. *Accountability* entailed having accountability to one's coach, as well as significant others (i.e., spouse, friends, family), which facilitated participants' sense of belonging within the coaching relationship, and feelings of connectedness to others. A few participants noted that it was helpful to connect with their coach to vocalize their goals and have someone to check in on their progress each week; indicating that the telephone-based intervention was feasible and acceptable to this cohort of postpartum women. Refer to Table 17 for a summary of the themes, subthemes, and representative quotes.

Table 17

Supporters of Participants' Relatedness for Engaging in Lifestyle Changes – Accountability (To One's Coach)

To One's Coach
• "Um… I think [the most helpful thing about the study] was just **having someone that I had to be accountable to**. Yeah, talking to her every week, and I knew it was coming up. And I knew she gave me homework to do every week. I mean, it wasn't always around workouts or health and fitness-related, but… I always had something that I needed to show her at the end of the week. So that was a motivator, too." *(Participant 3)*
• "I think [the coaching sessions] just clarified a few things… that I know that I have to have **some sort of accountability**." *(Participant 9)*
• "Rather than thinking it in my head, 'This is what I want to do'… Like a goal for the week… but actually vocalizing it to [my coach], and saying 'This is what I want to do,' and then **following up the following week**. And her asking me, did you do it? And I was able to say yes or no…" *(Participant 9)*

Almost all participants expressed the importance of having accountability to others (e.g., friends, spouse, other moms) when engaging in lifestyle changes, and expressed that this connection helped them maintain their commitment to their goals. Refer to Table 18 for a summary of the themes, subthemes, and representative quotes.

Table 18

Supporters of Participants' Relatedness for Engaging in Lifestyle Changes – Accountability (To Significant Others)

To Significant Others
• "'Cause a couple of my girlfriends are [trying to engage in more health behaviours] too. So… **accountability with them**, my husband as well…" *(Participant 9)*
• "**I need accountability**. And you know what? I think the trainer is going to help with that, big time… Like halfway through yesterday, had I been working out on my own, I probably would've stopped and said, 'No, I'm done.' But no, she pushed me to keep going." *(Participant 3)*
• "Motivation and accountability [help me facilitate my goals moving forward] ... And my husband's pretty good at that. And so are my girlfriends. Wanting to get out and do stuff. … I have a hard time with motivation. But if it's something scheduled, I, I very rarely break plans. I fully commit… But if I'm left to my own scheduling, I'm not gonna do anything. So… my **girlfriends are good for the motivation and accountability** for stuff." *(Participant 9)*
• "Most of my girlfriends are pretty good like that. So just knowing that I have to have **some kind of accountability** for, you know, not eating a donut at 10 o'clock at night." *(Participant 9)*

• "I can be more confident [to be active] when I'm accountable to somebody else as well. So… Sometimes, you know, like joining in the activity, or doing something where I know I have to be accountable to others to show up and…And push myself … So then, you know, **you're sort of accountable to get there**, and be there, and do it." *(Participant 5)* • "And **having that accountability to my buddy** [another mom], right? To be like, well, you know… 'I was gonna eat the cookies, but then I knew I'd have to tell you I ate the cookies, so I didn't eat the cookies! Yay!' (laughing) Um… Or, you know, I wanted to be able to tell you that I did something today, so I took a walk. Um… 'Cause doing it for myself is one thing, and yes, there should be intrinsic benefits to it. But I think there's also something… for me, at least, to having external accountability. Yeah. Just… **Nobody wants to have to report back they did nothing, right**?" *(Participant 6)*

Social support was also identified by all participants as being helpful when engaging in coaching and lifestyle changes. Discussions were centered around receiving support from: other moms; family (e.g., integrating health into one's own and family identity, role modelling, baby as a motivator for healthy living); and one's coach (e.g., unbiased and nonjudgmental, support and encouragement, accommodating, delivery mode). A few participants expressed the importance of having social support from other moms, as opposed to friends (who were not moms), as it was helpful to receive empathy and non-judgment from someone who was experiencing the same life stage. Refer to Table 19 for a summary of the themes, subthemes, and representative quotes.

Table 19

Supporters of Participants' Relatedness for Engaging in Lifestyle Changes – Social Support (Empathy and Encouragement from Other Moms)

Empathy and Encouragement from Other Moms
• "Just **meeting the girls in the [mom and tot playgroup**] and stuff like that…they're very motivating for me to come out [and be active] … They're like, 'Okay, let's go for a walk.' And you know what? After that walk, I felt so much nicer. Just fresh air, you know, clear my mind. It's nice to be around people." *(Participant 8)* • "[M]y husband has been very helpful and supportive… But he's not quite, I think, the right support. Because he's not really going through it. Like he doesn't eat all the cookies. He doesn't feel like he needs to. So he doesn't really get it. He empathizes, which is great… But I think [connecting weekly with another mom friend is] gonna be a little bit better for me: **having somebody who is going through the exact same struggles I am right now**." *(Participant 6)*

- "Like just talking… you know, like even [about] their husbands. Just like maybe they need to help out just a little bit. And everyone agrees. (laughing) …So it's just nice to hear that I'm not the only one going through the same thing… We need to find um… mom friends… Because **my friends who don't have children don't understand**." *(Participant 8)*
- "I mean having [a mom friend] you can talk to about [lifestyle goals] and not judging you [helps me commit to health behaviours] … **Not judging me and just encouraging me** to, you know, it's not a big deal. Just go for a walk, or just get outside, or whatever." *(Participant 9)*
- "Um, well what I'm actually **going to try is a buddy system with a friend of mine who is also a new mom**, who is also struggling significantly with her weight. And um… Her son is just a few months older than mine. So… um we're looking to get together on Thursday to kinda share what our goals are… do like a little… some measurement factors, and figure out what we want to do… Then our plan is to be able to just text with each other daily, let us know how we're doing with, what we struggled with, what's getting better. Um… And then try and get together at least once a week for an activity… and once a week just for sharing lunch, and kinda talking over things." *(Participant 6)*

Family was identified by all participants as being important for facilitating connection and feelings of belonging; most participants discussed the importance of integrating health into one's own and family identity, role modelling for their baby, and their baby being a motivator for healthy living. Many participants similarly spoke to the importance of physical activity being a part of one's personal identity, and were hoping to instill similar values into their family's life (e.g., being able to engage in physical activity with their son or daughter in the future). Relatedly, a few participants expressed their desire to engage in lifestyle changes, as they wanted to set an example for their baby, and understood that their behaviours would likely impact their child's as they grow older. Refer to Table 20 for a summary of the themes, subthemes, and representative quotes.

Table 20

Supporters of Participants' Relatedness for Engaging in Lifestyle Changes – Social Support (Family Values)

Family Values
Integrating Health into Identity
• "So [**being active is] definitely already part of who she [the baby] is**. And she'll, you know, see us, like once the weather turns out nice, we'll be biking… 'Cause you can do the

bike thing with the chariot… And so I can bring her. So she's already going to be part of that lifestyle. And already has been part of that lifestyle… And that way she gets to explore too. Like outside. And we go to the tree farm. And you know, we do like that kind of stuff. So she's already looking at trees and looking at things. And she gets to explore and see things at a really young age. I think that's important too." *(Participant 1)*

- "**It's [physical activity] been part of my identity my whole life. And so… It will continue to be. It's already been part of [my baby's**…'C]ause she's already been running with me… And she comes to Aquatot, like the Aquabics fitness classes that we do together." *(Participant 1)*

Role Modeling

- "And I don't want her to fall into… Like I want to create healthy habits that she watches and sees. Because, you know, **we're her role models."** *(Participant 4)*
- "Definitely like having her, I think is my… like my biggest motivator. Before, like yes, okay, like sure I wanted to be healthy, or do healthy things… But having a child, you're **not just living for yourself anymore.** You're living for them too, so… And my habits will become her habits, you know?" *(Participant 4)*
- "And that's a big thing, is like **setting a good example**, and incorporating him into exercise, and being able to keep up with him." *(Participant 2)*
- "As much as, you know, they can be the challenge of getting you out… in the same way, for me, **I want to be a good role model…"** *(Participant 5)*

The Baby as a Motivator for Healthy Living

- "[My baby], and my family [are motivators for making lifestyle changes] … Like I think it's been so much a part of my life since I was a kid. Was being on sports teams or physically active somehow, right? *(Participant 1)*
- "… it's super **important to me to be active and healthy for my daughter**. And for my husband too, actually." *(Participant 4)*
- "I want to be able to be there for [my baby]. Like when he wants to start, you know, like playing outside, and… You know, **I want to have more energy. I want to be there**. I don't want to be one of those moms that like just sits in a chair and can't do anything." *(Participant 8)*
- "I want to be able to do stuff with [my baby]. You know? … I want to be able to **sustain energy to go all day playing with her**." *(Participant 9)*
- "So I, you know, want to get healthy, and be able to do these activities with her. I want her to, you know, see us bike riding and running, and getting out. And being outside. And being active. So that is probably my biggest motivator, in the same sense." *(Participant 5)*
- "… my new family [is my biggest motivator for making lifestyle changes]." *(Participant 7)*

When speaking about social support from one's coach, most participants discussed how working with an unbiased and non-judgmental individual was helpful when discussing lifestyle changes and life challenges, which facilitated a safe relationship wherein women could be honest

and comfortable within the coaching relationship. Participants also expressed that it was helpful to speak with a supportive and encouraging coach, which gave the women an avenue to discuss what was going on in their lives with someone who could guide them toward their goals. In terms of connecting with one's coach via telephone, almost all participants expressed how helpful it was that their coach was accommodating with scheduling and/or rescheduling coaching sessions, as well as flexible if some participants engaged in maternal responsibilities (e.g., childcare, breastfeeding) during phone calls. Given that first-time moms are quite busy with many responsibilities, a few participants expressed how helpful it was that the coaching sessions were held over the phone, and could be at home, which made it easier to schedule phone calls and connect. Refer to Table 21 for a summary of the themes, subthemes, and representative quotes.

Table 21

Supporters of Participants' Relatedness for Engaging in Lifestyle Changes – Social Support (A Safe and Trusting Coaching Relationship)

A Safe and Trusting Coaching Relationship
Unbiased and Non-judgmental • "Somebody to talk to about stuff like [going on in my life]. 'Cause it was kinda nice, like it was just like talking to a friend of mine. But you don't have to see them the next day, face-to-face. And… like, or **they don't judge you**. Not that my friends would judge me, but, you just know that they know something about you." *(Participant 9)* • "Like talking to my husband's fine, but **it's nice to have someone outside that isn't totally biased**, right?" *(Participant 7)* • "Uh… [the number one thing that I got out of the study was] probably just a bit of like peace of mind from like talking to someone. From like talking out things, and not putting it all on my husband when he gets home from work. And **talking to someone outside the situation**." *(Participant 7)* • "And knowing that [my coach is] not going to be mad at me or anything like that [if I didn't achieve my health-related goals], right? Just a very… **A person that's like impartial**." *(Participant 8)* • "[I]t was just really soothing, you know? It was really **nice to have someone listen to you, and just not judge you**." *(Participant 8)* • "Yeah, just somebody to talk to, **somebody to listen without judgment**. And without, yeah, without a silly follow-up question. It was, you know, just simple." *(Participant 9)*

Support and Encouragement

- "[What I enjoyed most about the coaching sessions was that I looked] forward to talking to her every week… And then just having like… **trusting her to, to help me through**." *(Participant 8)*
- "Um… But it was great because it's like I had **somebody who could guide me and support**. And help me set other goals that would get me to where I wanted to be." *(Participant 1)*
- "I enjoyed like just connecting with [my coach] um… and just, you know, **her support**." *(Participant 4)*
- "[The coaching] was all a very positive outlook… And **lots of encouragement**." *(Participant 5)*
- "**Encouragement, that, you know, you're doing a good job**. And, yeah. So I'm a pretty outgoing, social person. And [my coach] definitely recognized that. And we talked, you know, a lot about that. And so um… I think in terms of that part, it just helped me build on some of my strengths that I already had." *(Participant 5)*
- "It's like, oh, if I need help, like and [coach's name] was there… It was just… she was just there. And **it was nice just to talk through and set up goals for me**. And then if I don't like meet those goals the next week, she's just like, 'Oh, okay, where do you think we went wrong?' Like it was kinda nice talking to her." *(Participant 8)*
- "Probably just the… **having somebody to talk to**. Um… the consistency of that. And just being able to vent about certain things that's like happened throughout the week. Like I had a bunch of stuff with work… And you know, I'd just get it out. And then I don't have to complain about it to my husband because he hears it every day." *(Participant 9)*

Accommodating

- "[Coach's name] was **great about [me having to breastfeed during our calls**]. Like I just had my phone and like I had my headset in. So that I could go hands-free and feed her, and nurse at the same time.." *(Participant 1)*
- "[Coach's name] was great with working with [my unpredictable schedule], and…**super accommodating**. And even when we got sick. Like I said to her… 'I don't know if I can do this. I'm going to the doctor's office and we might have to go back to the hospital. Can we change it?' And she was like, 'Well how about we give you a day, and how about we do it on Saturday?' I was like, 'Oh, that would be great.' Yeah, she was really great." *(Participant 1)*
- "And **we had late calls, but you know, we made it work**… It was nice that we planned it for like at night, when he was supposed to be asleep. Because instead of it trying to be like, oh, during nap time… 'cause that's even harder to stick to. And like usually I have him to bed by a certain time, right?" *(Participant 2)*
- "[My coach] was **really flexible for like what time worked best for me**. So we were able to schedule like most of them for the same time." *(Participant 4)*
- "[My coach] was even willing… Like say sometimes, if I had forgotten… She **scheduled it like on a weekend for me**. Yeah, like she was really, really good." *(Participant 4)*
- "[My coach] was **pretty flexible**. We just made time in the morning." *(Participant 5)*
- "I was trying to like schedule it around [baby's name]'s naps. 'Cause I found it difficult to talk if he was like around. But [my coach] was pretty **open to rescheduling**." *(Participant 7)*

Delivery Mode

- "I had to do a little bit more planning because it is hard to talk on the phone for a minimum of 30 minutes without [my baby] falling or screaming or being hungry… But it was still positive, you know? [My coach] would just always laugh and say she could hear [my baby] in the background if she was talking to herself, or sleeping. I sat in my car one day and **did [the coaching session] uh in my car, because [my baby] was sleeping, and I didn't want to wake her up. But it worked!"** *(Participant 9)*
- "[My coach] had something **posted online**. Like her schedule, [which made it easier to schedule calls]." *(Participant 3)*
- "It was really awesome that the **sessions were by phone**. That made it really easy to actually set it up." *(Participant 6)*

Considerations for Future Coaching Studies

Participants identified many factors that are important to consider when developing future similar studies (i.e., coaching-based studies with postpartum women). While these data do not fit neatly within the SDT-based analysis, these data have been included to provide valuable information for next steps within the field of coaching. A few participants had suggestions for *participant recruitment* (e.g., recruiting in-person, clearer advertisement of the coaching intervention, recruiting participants from a more specific postpartum time period). Refer to Table 22 for a summary of the themes, subthemes, and illustrative quotes.

Table 22

Considerations for Future Coaching Studies – Participant Recruitment

Participant Recruitment
In-Person Recruitment
• "Even if you put it out to like the Best Start Hubs… [E]ven if you came out, or someone came out and talked about what it was about. Or… what, you know, **moms could gain from it**. I think that would be good. Because I only saw it on Facebook. And I wasn't sure what it was. But I think some people would look at it and just continue on. So even if, yeah, coming out to like a Best Start Hub, like um, like Babies' Day Out drop-in, or that kinda thing. I think would really help. Or… Our Kids Count has a really large Babies Day drop-in. So uh… I think that like if somebody came and actually talked about it, that like… more people might be more interested. Because sometimes unknown is scary for some people." *(Participant 4)*
• "[I can't think of anything else that would make it easier for new moms to participate] … 'cause I mean, you did, like, **you did come to playgroups. You did contact us**." *(Participant 8)*
• "I heard about it at two different places. So at my swimming class…And at [local playgroup]. So… I mean you guys did **a good effort in getting out and finding where the**

moms are." *(Participant 9)*

Clearer Advertisement of the Coaching Intervention

- "[E]ven **listing the type of life coach** [providing coaching sessions in the study would help increase the number of moms participating] … Like life coach is such a broad definition these days, right? … But knowing… [My coach] explained what their training was. And I actually sorta looked into… like, wow, this is quite an in-depth procedure… But I think knowing… having looked at what the training that these coaches have… it's really extensive. And you can tell they're very experienced and knowledgeable, and um… good at what they do over the phone… So [listing the type of life coaching] might be… That *might* help [with participant recruitment] … So that people can Google it." *(Participant 5)*
- "**I guess I didn't really know what I was getting into**. So I didn't know what a coaching session would look like or be like… Or how it would kind of work. I didn't realize that we weren't just going to talk about physical activity. I thought we would've just focused on physical activity…And not like… not what's going on with my life. And when she started asking about like what was going on with my life, I was like, what are you talking about? (laughing)" *(Participant 1)*

Recruiting Participants from a More Specific Postpartum Period

- "[My ability to engage in lifestyle changes] **might've been different had I started the study when she was 6 months old** versus when she was 8-10 weeks old when we started… Because had I started let's say at 6 months, the issues we were having breastfeeding wouldn't have been there…[W]e've now worked through most of our breastfeeding problems. So had I… started the study maybe at the 6-month marker… Uh, the goal of getting [back to my pre-pregnancy physical activity] probably would've happened." *(Participant 1)*
- "And then the other issue… it would be interesting to see the difference… had I started the study at like 5 months or 6 months [postpartum], versus starting it earlier. Because you're different. **The needs of your baby are different** [at different times in the postpartum period]." *(Participant 1)*
- "[After] the introduction of solids at 6 months… Everybody is kind of on the same playing field with regards to feeding. Breastfed babies… Formula-fed babies… Bottle-fed babies… Not exclusively breast babies. They are all kind of **on the same playing field once solids are introduced**. 'Cause like that… that changes things, right? That would be the only thing [to take into consideration when developing similar future studies]." *(Participant 1)*
- "Well, and it **depends where you are** in your postpartum period, too. Because we tried to, I tried to go to a baby boot camp class when [my baby] was 11 weeks old. And I just wasn't ready. And I was too tired, and there was too much going on, and hormones were still all over the place. So I think it depends. If you're looking at someone who's say 3 months postpartum versus somebody who's 7, 8, 9 months…. Yeah, it makes a big difference." *(Participant 3)*

Some participants also expressed that *advertising enrolment incentives* (e.g., childcare, perks for participation, being coached by a non-local individual over the phone) could facilitate

participation in the future. Refer to Table 23 for a summary of the themes, subthemes, and illustrative quotes.

Table 23

Considerations for Future Coaching Studies – Advertising Enrolment Incentives

Advertising Enrolment Incentives
Childcare • "Honestly, I don't really know [how you could have increased the number of moms participating]. 'Cause you guys offered lots, I felt. You know, you… When we were doing these [assessments], you had **childcare if you needed it**…" *(Participant 1)* • "I don't think [there was anything that would have made it easier for new moms to participate]. I think it was pretty easy. Um, like you guys said you would, you know, **somebody to watch after her**, if need be." *(Participant 9)* • "Maybe offering… Offering **childcare during the times that they needed a coaching session** [might help increase the number of moms participating]. Or they want to go to the gym or something. That might be helpful if they don't have family." *(Participant 3)* *Perks for Participation* • "Um… Well, the **free life coaching** is a huge, huge draw." *(Participant 6)* • "Like I know at like the playgroups, they do… those [local grocery store] cards… And they **give out like $10 gift cards** every class… And so I find a lot of the moms will go [to that playgroup] … because of [the gift cards], right?" *(Participant 2)* • "I think that [having a gift card to offer participants] makes a big difference. I mean, the fact that it's free in general, people go… I mean, it's not costing money, right? But then they're getting like **another incentive** as well. *(Participant 2)* *Being Coached Over the Phone* • "You know, at first I wasn't sure about the phone. But I think the phone actually kind of **added some anonymity**. So you actually weren't worried, and feeling um… judged. Like, as much as I was curious to know what the other person looked like on the other line, you knew that they were out of town, they wouldn't know you… Like it was… So that kind of benefitted being able to connect with them, I guess." *(Participant 5)* • "I think people might've been fearful to sign up, thinking it was somebody like here in town… So maybe if [recruitment materials] would've been more [detailed]…That might help more people to sign up. Knowing that just like, you know, this coaching session over the phone. And **it's not somebody that's like local**." *(Participant 5)* • "It felt like a really good balance of things. That it happened **by phone, at home**, was perfect." *(Participant 6)*

Quantitative Results

Visual Inspection

Physical activity. Physical activity behaviour was measured using the IPAQ, which provided a summary of the amount of physical activity participants engaged in using MET-minutes/week. As outlined previously, it is recommended that individuals accumulate between 500-1000 MET-minutes/week to attain health benefits (Office of Disease Prevention and Health Promotion, 2017). Visual inspection indicated that all participants demonstrated a general trend toward increasing physical activity from baseline to the post-intervention assessment. Refer to Figure 11 and Table 24 for physical activity data for all participants at each assessment time point.

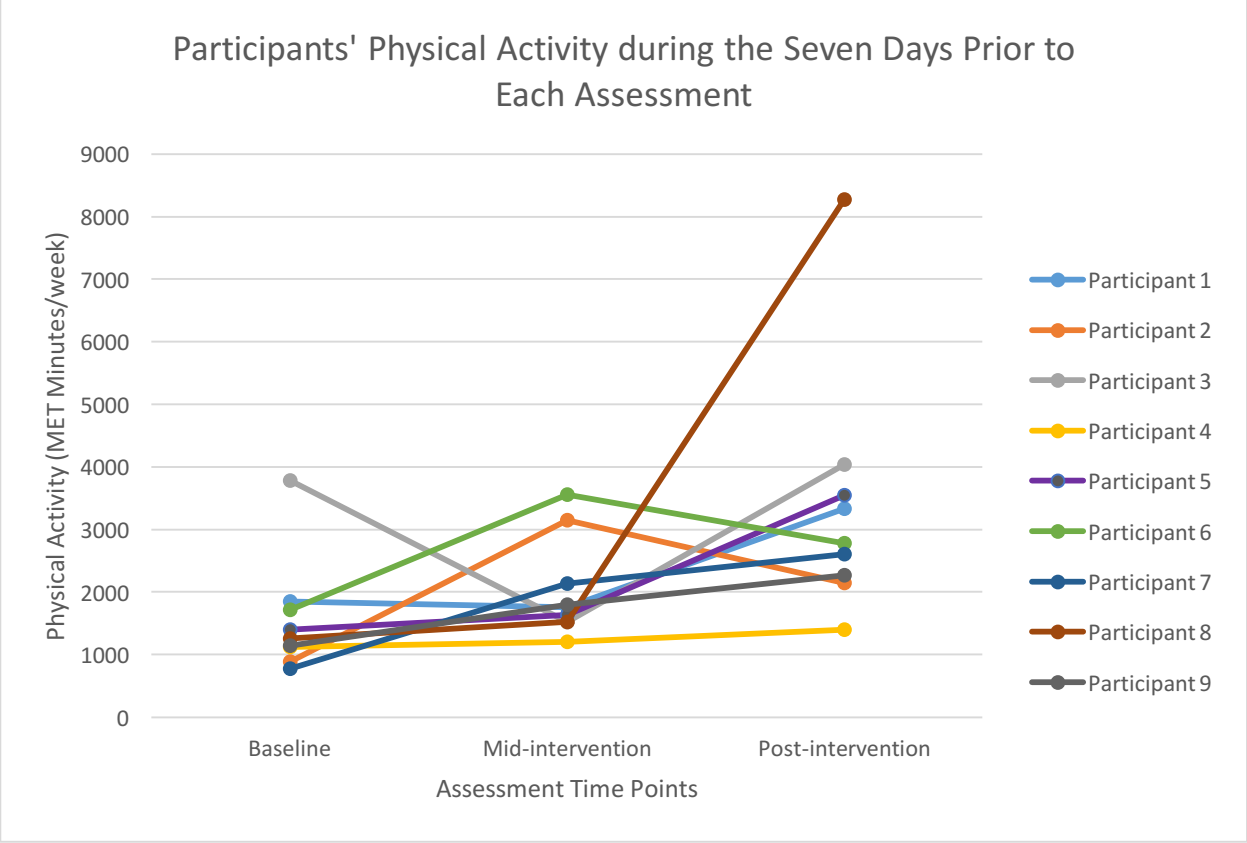

Figure 11. Participants' Physical Activity during the Seven Days Prior to Each Assessment. This figure provides the graphed data for physical activity for each participant during the seven days prior to each assessment.

Table 24

Participants' Physical Activity during the Seven Days Prior to Each Assessment

Participant Number	Baseline Physical Activity (MET-minutes/week)	Mid-intervention Physical Activity (MET-minutes/week)	Post-intervention Physical Activity (MET-minutes/week)
1	1854	1761	3330
2	884	3146	2144
3	3780	1525	4038
4	1125	1203	1398
5	1395	1640	3552
6	1716	3555	2778
7	774	2133	2604
8	1260	1518	8268
9	1143	1797	2271
Mean	1547.9	2030.9	3375.9

To summarize, physical activity increased overall for all participants from baseline to the end of the intervention, with a more pronounced increase being observed in participants one, two, five, six, seven, eight, and nine. While a couple of participants (i.e., participants one and three) demonstrated a decrease in physical activity at the mid-intervention assessment, they increased above baseline levels by the post-intervention assessment. Lastly, a couple of participants (participants two and six) drastically increased physical activity from baseline to the mid-intervention assessment, and then decreased physical activity levels by the post-intervention assessment, while still reporting activity levels that were greater than at baseline.

Waist circumference. Waist circumference was measured using a tape measure at the top of the iliac crest, which provided an indication of weight-related health risk (Heart and Stroke Foundation, 2015). Based on the Heart and Stroke Foundation's guidelines, women with a

waist circumference greater than 80 cm have an increased risk for chronic disease, and women with a waist circumference greater than 88 cm have a substantially increased chronic disease risk. Almost all participants demonstrated a general trend toward decreasing or maintaining waist circumference throughout the intervention. Refer to Figure 12 and Table 25 for waist circumference measures that were taken for each participant at each assessment session.

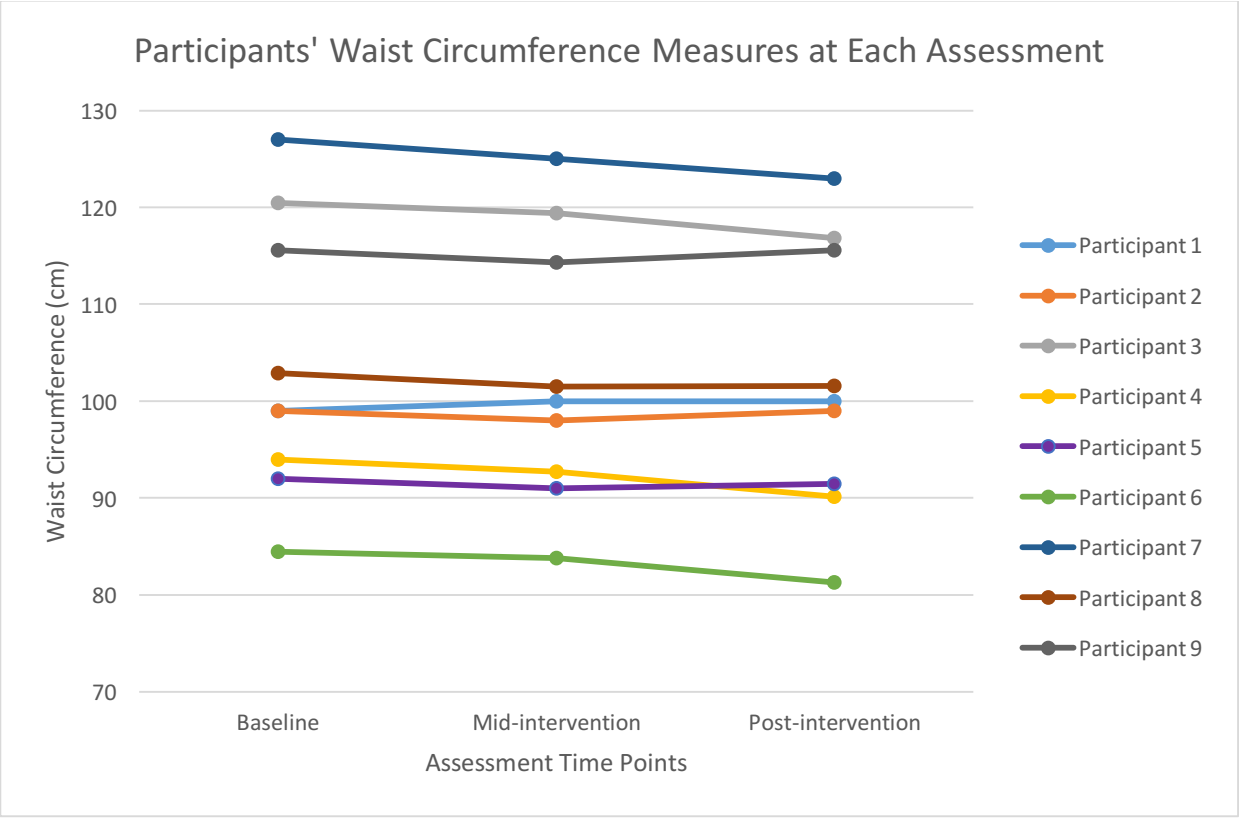

Figure 12. Participants' Waist Circumference Measures at Each Assessment. This figure provides the graphed data for each participants' waist circumference at each assessment.

Table 25

Participants' Waist Circumference Measures at Each Assessment

Participant Number	Baseline Waist Circumference (cm)	Mid-intervention Waist Circumference (cm)	Post-intervention Waist Circumference (cm)
1	99	100	100
2	99	98	99
3	120.5	119.5	117
4	94	93	90
5	92	91	91.5
6	84.5	84	81
7	127	125	123
8	103	101.5	101.5
9	116	114.5	115.5
Mean	104	103	102.1

In summary, almost all participants either maintained or decreased their waist circumference throughout the study period. The largest decreases in waist circumference were observed in participants three, four, six, and seven. Lastly, a few participants (i.e., participants two, five, eight, and nine) who decreased their waist circumference at the mid-intervention assessment had a non-linear reduction in waist circumference, wherein their waist circumference measure increased at the post-intervention assessment.

Percent fat mass. Participants' percent fat mass was measured using the Quantum IV bioelectrical impedance analysis equipment from RJL Systems, which provided an indication of overall body composition. Normative data indicate that women with a body fat percentage between 8-15% is categorized as being "athletic", 16-23% is considered "good", and a body fat percentage between 24-30% is considered "acceptable", while 31-36% is considered "overweight", and a body fat percentage greater than 37% is considered "obese" (Jeukendrup & Gleeson, 2010). In the present sample, decreases in percent fat mass would be considered desirable. Most participants either maintained their percent fat mass, or decreased slightly by the end of the intervention. Refer to Figure 13 and Table 26 for percent fat mass measures that were

taken for each participant at each assessment session.

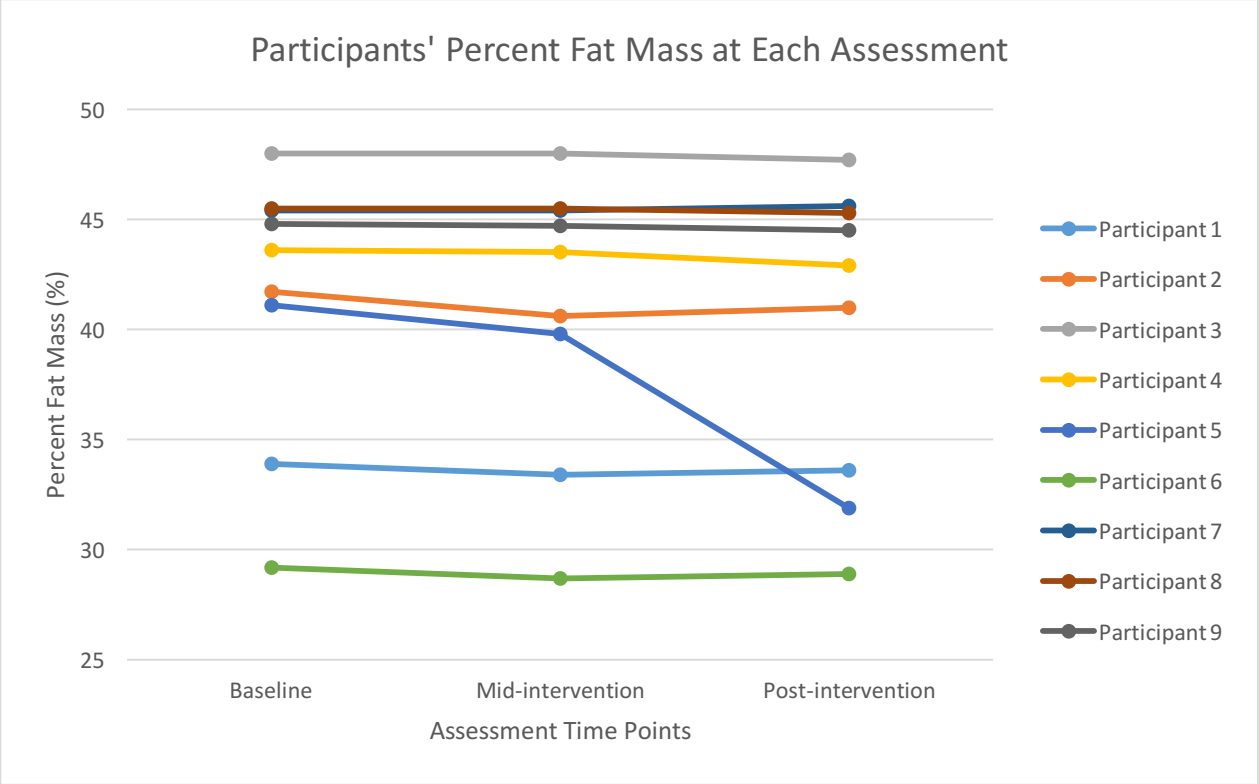

Figure 13. Participants' Percent Fat Mass at Each Assessment. This figure provides the graphed data for each participants' percent fat mass from the bioelectrical impedance analysis at each assessment.

Table 26

Participants' Percent Fat Mass at Each Assessment

Participant Number	Baseline Percent Fat Mass (%)	Mid-intervention Percent Fat Mass (%)	Post-intervention Percent Fat Mass (%)
1	33.9	33.4	33.6
2	41.7	40.6	41
3	48	48	47.7
4	43.6	43.5	42.9
5	41.1	39.8	31.9
6	29.2	28.7	28.9
7	45.4	45.4	45.6
8	45.5	45.5	45.3
9	44.8	44.7	44.5
Mean	41.5	41.1	40.2

To summarize, almost all participants either maintained or decreased their percent fat mass during the intervention. The largest decrease in percent fat mass was observed in participant five, with participants one, two, three, four, six, eight, and nine showing marginal decreases in percent fat mass. Lastly, participant seven had an increase in percent fat mass over the study period; however, it is important to note that this decrease was minimal (i.e., 0.2% difference).

Physical quality of life. Physical quality of life was determined through calculating the Physical Component Summary from the SF-8 Health Survey, which involved making a composite score from all survey items pertaining to physical health (e.g., general health perceptions, physical functioning, role limitations due to physical health problems, bodily pain). Physical quality of life scores were expressed as a percentage (from 0-100%), with higher scores reflecting a greater degree of quality of life (RAND Corporation, 2016). Almost all participants either maintained or increased their physical quality of life throughout the coaching intervention. Refer to Figure 14 and Table 27 for a summary of participant data pertaining to physical quality of life at each assessment session.

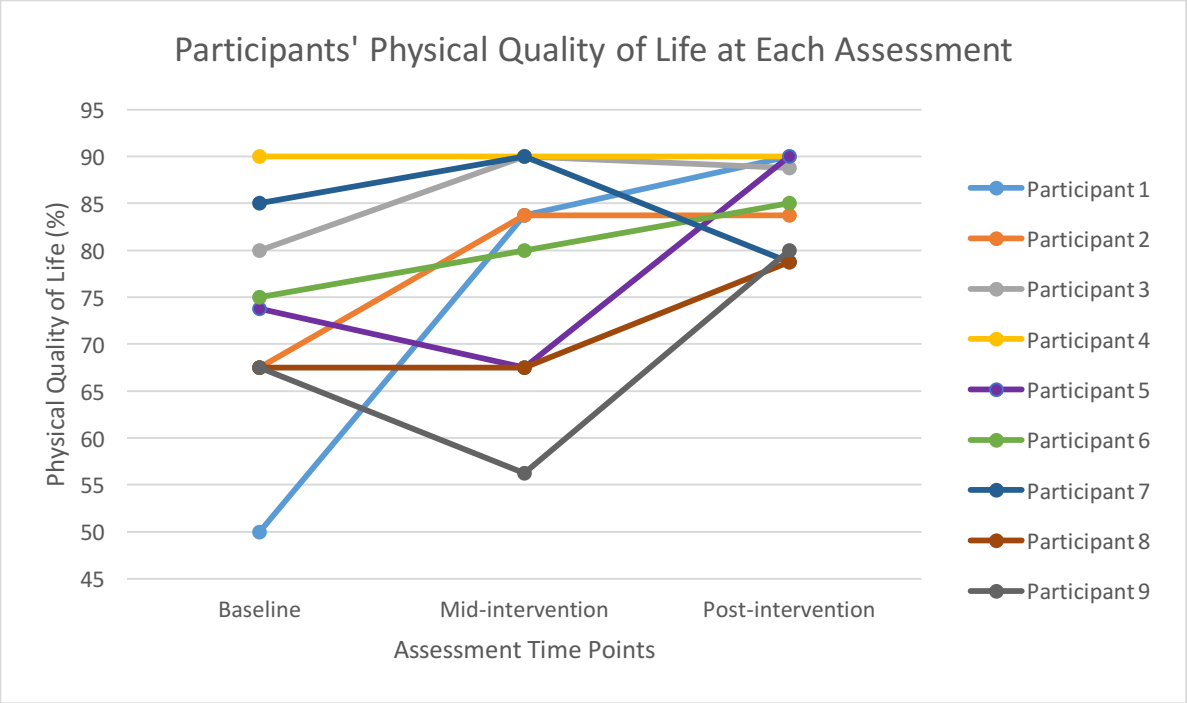

Figure 14. Participants' Physical Quality of Life at Each Assessment. This figure provides the graphed data for each participants' physical quality of life from the SF-8 Health Survey at each assessment.

Table 27

Participants' Physical Quality of Life at Each Assessment

Participant Number	Baseline Physical Quality of Life (%)	Mid-intervention Physical Quality of Life (%)	Post-intervention Physical Quality of Life (%)
1	50	83.75	90
2	67.5	83.75	83.75
3	80	90	88.75
4	90	90	90
5	73.75	67.5	90
6	75	80	85
7	85	90	78.75
8	67.5	67.5	78.75
9	67.5	56.25	80
Mean	72.9	78.75	85

In summary, most participants either had stable or increased physical quality of life values throughout the entire study. The most pronounced increases in physical quality of life were observed in participants one, two, five, six, eight, and nine. Of these, participants five and nine had decreased physical quality of life at the mid-intervention assessment, but had larger improvements at the final assessment session, above baseline levels. Lastly, participant seven was the only participant to have a decrease in physical quality of life from baseline to the end of the intervention.

Emotional quality of life. Emotional quality of life was determined through calculating the Mental Component Summary from the SF-8 Health Survey, which involved making a composite score from all survey items pertaining to mental and emotional health (e.g., vitality, social functioning, mental health, and role limitations due to emotional health challenges). The emotional quality of life scores were expressed as a percentage (from 0-100%), with higher scores reflecting a greater degree of quality of life (RAND Corporation, 2016). Most participants either maintained or increased their emotional quality of life throughout the coaching intervention. Refer to Figure 15 and Table 28 for a summary of participant data pertaining to emotional quality of life at each assessment session.

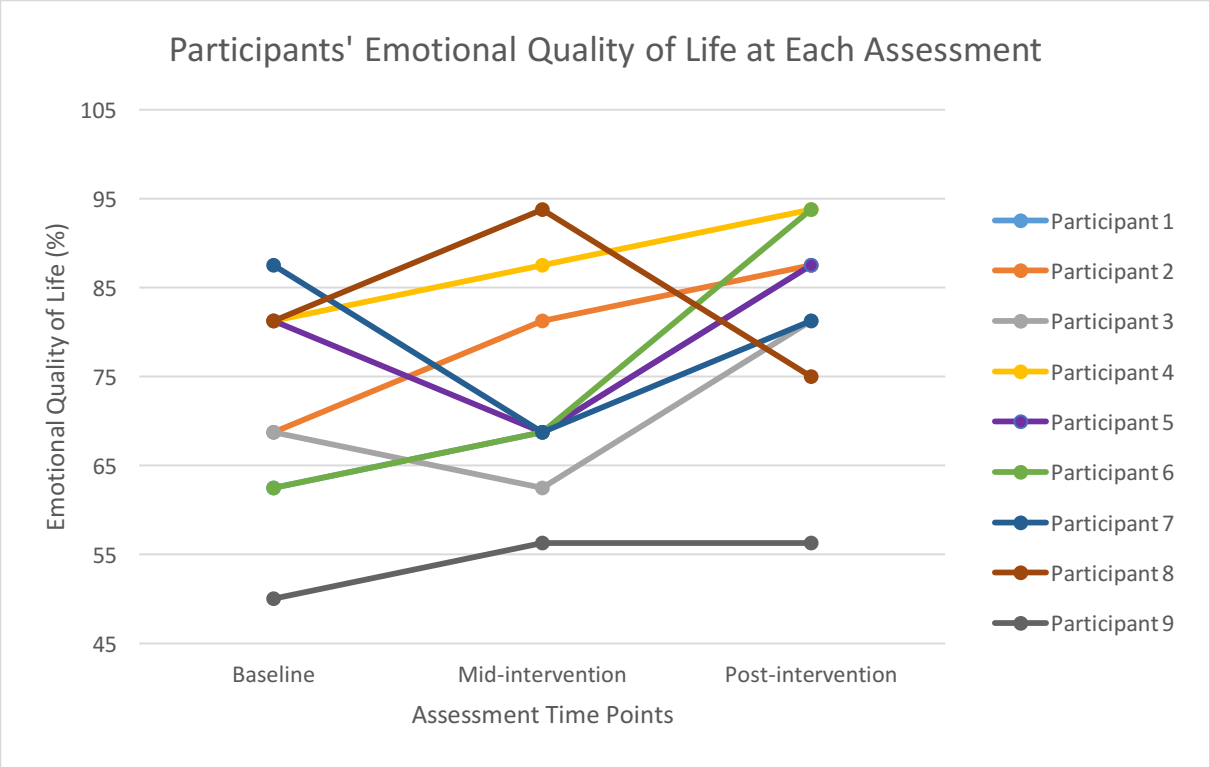

Figure 15. Participants' Emotional Quality of Life at Each Assessment. This figure provides the graphed data for each participants' emotional quality of life from the SF-8 Health Survey at each assessment.

Table 28

Participants' Emotional Quality of Life at Each Assessment

Participant Number	Baseline Physical Quality of Life (%)	Mid-intervention Physical Quality of Life (%)	Post-intervention Physical Quality of Life (%)
1	62.5	68.75	87.5
2	68.75	81.25	87.5
3	68.75	62.5	81.25
4	81.25	87.5	93.75
5	81.25	68.75	87.5
6	62.5	68.75	93.75
7	87.5	68.75	81.25
8	81.25	93.75	75
9	50	56.25	56.25
Mean	71.52	72.92	82.64

To summarize, most participants either maintained or improved their emotional physical quality of life throughout the coaching intervention. Individuals with the greatest improvements included participants one, two, three, four, and six. Participants three, five, and seven experienced decreased emotional quality of life at the mid-intervention assessment, before increasing at the final assessment. Lastly, participants seven and eight both experienced decreases in emotional quality of life throughout the intervention; however, each participant experienced an increase in either the first or second half of the intervention in comparison to previous values.

Relative autonomy index. The Relative Autonomy Index (RAI) is the composite score produced from the BREQ-3, which indicates an individual's degree of self-determination. The RAI is calculated by summing the weighted scores from each subscale of regulation (i.e., amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic regulation). Scores on the RAI could range from -24 to +24, with lower, negative scores indicating more controlled regulation, and higher, positive scores reflecting more autonomous and self-determined regulation (Ryan & Connell, 1989; Vallerand et al., 2008). Most participants' scores reflected improvements in the RAI, showing more self-determined motivation. Refer to Figure 16 and Table 29 for a visual representation of participants' RAI score at each assessment.

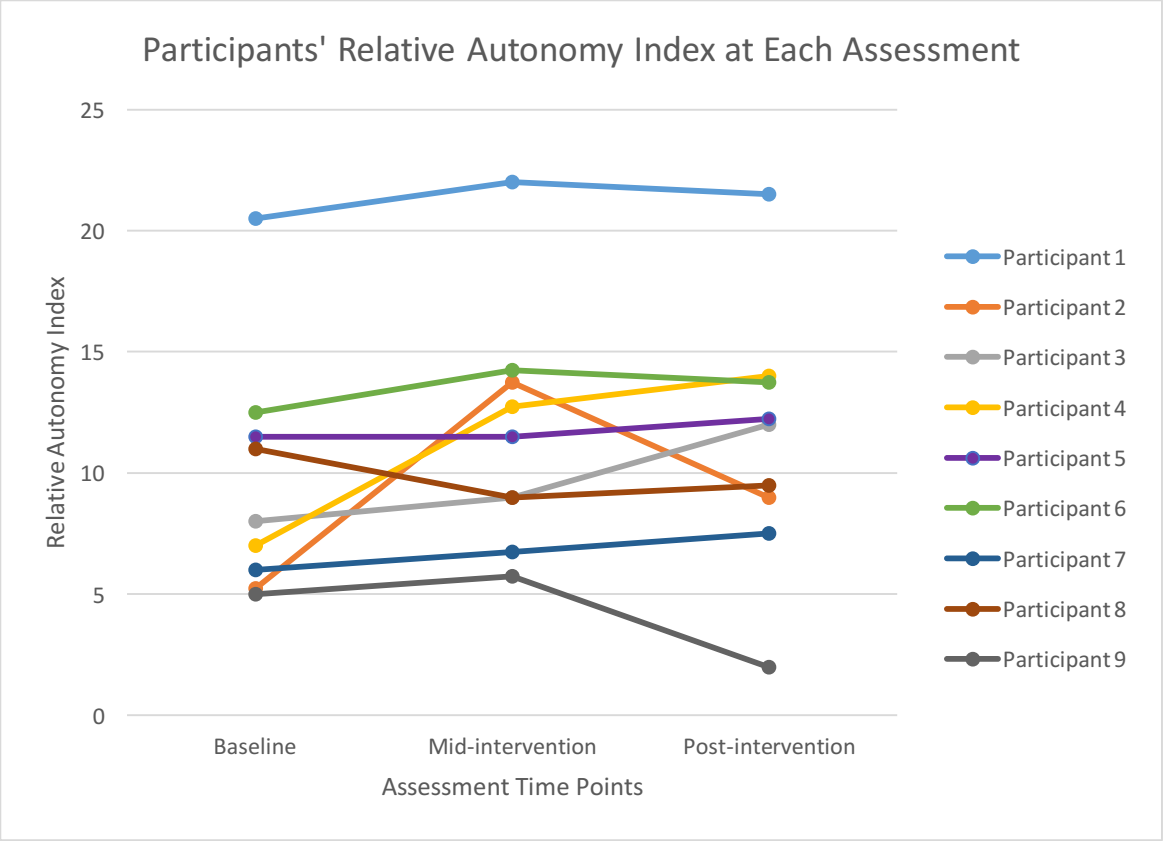

Figure 16. Participants' Relative Autonomy Index at Each Assessment. This figure provides the graphed data for each participants' Relative Autonomy Index from the BREQ-3 at each assessment.

Table 29

Participants' Relative Autonomy Index at Each Assessment

Participant Number	Baseline Relative Autonomy Index	Mid-intervention Relative Autonomy Index	Post-intervention Relative Autonomy Index
1	20.5	22	21.5
2	5.25	13.75	9
3	8	9	12
4	7	12.75	14
5	11.5	11.5	12.25
6	12.5	14.25	13.75
7	6	6.75	7.5
8	11	9	9.5
9	5	5.75	2
Mean	9.64	11.64	11.3

In summary, most participants either maintained or increased their RAI scores throughout the intervention. Participants with the greatest improvements in RAI scores included participants two, three, and four. Participants one, two, six, and nine all had increased RAI scores at the mid-intervention assessment prior to decreasing for the post-intervention assessment (although most participants maintained RAI scores above baseline). Lastly, participants eight and nine had decreased RAI scores from baseline to the end of the intervention, although both participants had an increased RAI score between either their mid-intervention or post-intervention assessment and a previous assessment.

Perceived competence. Perceived competence for engaging in physical activity was examined using the Perceived Competence Scale, and the composite score was calculated by taking the mean of responses to all four items on the questionnaire, with scores ranging from a low of 0, to a high score of 7 (indicating a greater degree of perceived competence for engaging in physical activity). The perceived competence scores reflect the degree to which participants felt competent at engaging in physical activity. Almost all participants demonstrated an increase in perceived competence throughout the study period. Refer to Figure 17 and Table 30 for a summary of participants' perceived competence scores across all time points.

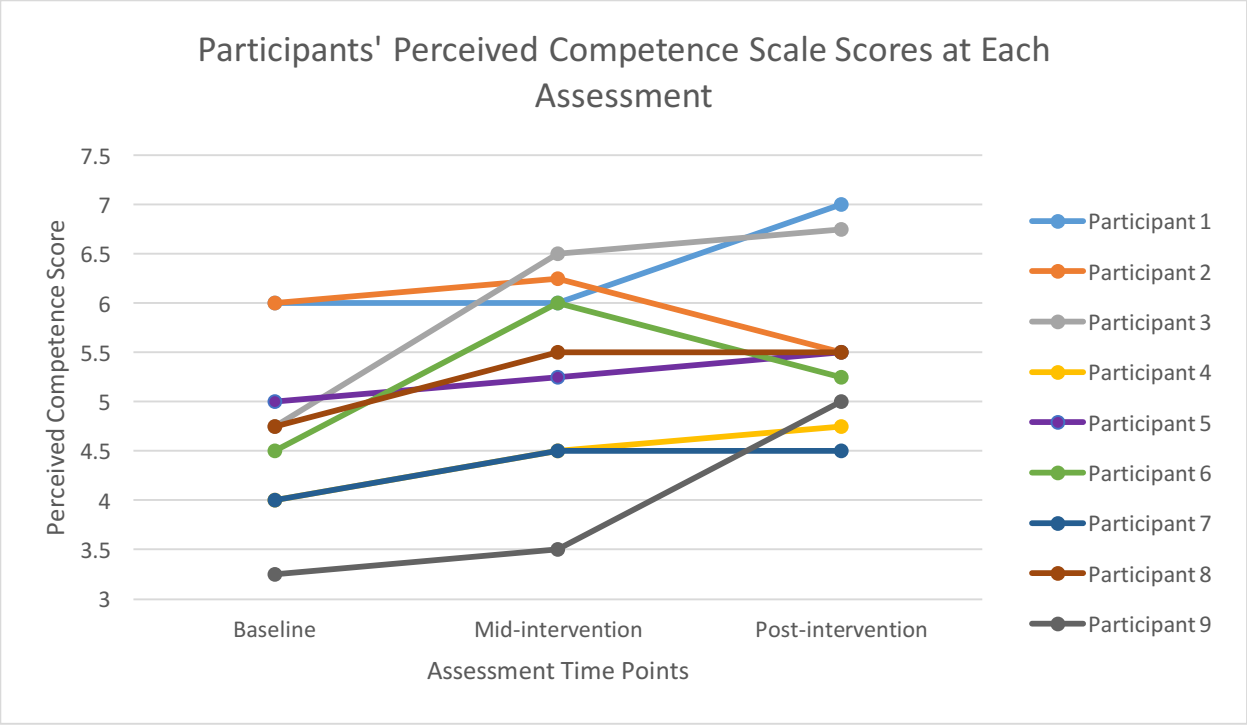

Figure 17. Participants' Perceived Competence Scale Scores at Each Assessment. This figure provides the graphed data for each participants' perceived competence score at each assessment.

Table 30

Participants' Perceived Competence at Each Assessment

Participant Number	Baseline Perceived Competence Score	Mid-intervention Perceived Competence Score	Post-intervention Perceived Competence Score
1	6	6	7
2	6	6.25	5.5
3	4.75	6.5	6.75
4	4	4.5	4.75
5	5	5.25	5.5
6	4.5	6	5.25
7	4	4.5	4.5
8	4.75	5.5	5.5
9	3.25	3.5	5
Mean	4.69	5.33	5.53

To summarize, improvements in perceived competence were observed among almost all participants. The greatest improvements occurred in participants one, three, and nine. Lastly,

participant two was the only individual to have a decreased perceived competence score at the end of the intervention.

Effect Size

Effect sizes were used to quantify the degree of change from pre- to post-intervention on all dependent variables (i.e., physical activity, body composition, quality of life, exercise motivation, perceived competence). Specifically, variables were evaluated to examine the clinical significance of the coaching intervention across all assessment time points through an analysis of effect size using eta squared, η^2 (Field, 2009). As outlined previously, when using eta squared (η^2), a small effect is considered 0.02, a medium effect is considered 0.13, and a large effect is considered 0.26 (Bakeman, 2005; Cohen, 1988).

Physical activity. Participants' scores from the IPAQ showed a large effect ($\eta^2 = 0.270$) in self-reported physical activity across all assessment time points. This effect size indicated an increase in participants' physical activity throughout engaging in the coaching intervention.

Body composition. Participants' waist circumference measures demonstrated no effect ($\eta^2 = 0.003$) across assessment time points. This indicated that the coaching intervention did not impact waist circumference measures. Participants' scores from the bioelectrical impedance analysis measures demonstrated no effect (i.e., $\eta^2 = 0.008$) in percent fat mass across all assessments. Similar to waist circumference, this effect size does not indicate that the coaching intervention impacted the percent fat mass measures.

Quality of life. Participants' scores on the physical components of the SF-8 Health Survey indicated a medium effect size ($\eta^2 = 0.209$) in physical quality of life throughout the intervention. This effect size demonstrated that the coaching intervention had a moderate effect on participants' physical quality of life. Participant scores on the mental health-related

components of the SF-8 Health Survey also indicated a medium effect size ($\eta^2 = 0.161$) in emotional quality of life throughout the intervention. This effect size indicated a moderate effect on participants' emotional quality of life.

Relative autonomy index. Participants' scores on the RAI of the BREQ-3 indicated a small effect size ($\eta^2 = 0.032$) in relative autonomy across all assessment time points. This effect size suggested a slight improvement in participants' autonomous motivation throughout the intervention.

Perceived competence. Participants' scores on the PCS indicated a medium effect size ($\eta^2 = 0.145$) in perceived competence for engaging in health behaviours throughout the intervention. This effect size demonstrated that the coaching intervention resulted in moderate improvements on participants' perceived competence for engaging in health behaviours.

Discussion

The purpose of this project was to use SDT to explore the health-related experiences of primiparous women participating in a MI-via-CALC intervention. Overall, the findings of the present pilot study with a pre-post uncontrolled design revealed that participants had positive experiences throughout the coaching intervention, particularly in terms of having enhanced self-compassion and an improved relationship with oneself. The quantitative results collected over time supported some of the qualitative findings (discussed throughout below), and revealed general trends toward improvement on almost all dependent measures (i.e., physical activity, quality of life, relative autonomy, and perceived competence). Cumulatively, the findings and results solidify further the utility of MI-via-CALC as an avenue to improve physical (i.e., physical activity, body composition) and psychological health (i.e., quality of life, exercise motivation, perceived competence for health behaviour changes). Moreover, this is the first MI-

via-CALC study focusing on the postpartum population, which makes the findings particularly valuable, since the postpartum period has been identified as a life stage with increased risk for inactivity and weight gain (Cramp & Bray, 2009). The 100% participant retention and compliance rates for the intervention are similarly noteworthy due to the previous challenges that have been cited with engaging the postpartum population in health behaviour change interventions (e.g., fatigue, lack of time, conflicting priorities; Cramp & Bray, 2011; Evenson et al., 2009), which may be indicative of the utility of MI-via-CALC for those transitioning into motherhood. Finally, by exploring the findings of this study through the perspective of SDT, this research provides unique and theoretically driven empirical evidence regarding the effectiveness of MI-via-CALC for satisfying the three basic psychological needs (i.e., autonomy, competence, and relatedness) to facilitate the initiation and maintenance of health behaviour changes. Further discussion can be found below regarding the findings and how participants experienced satisfaction of autonomy, competence, and relatedness, within the contexts of mothering, lifestyle changes, and their study-related experiences. Following this, a summary of participant recommendations for conducting future MI-via-CALC studies among postpartum women has been included.

Self-determination Theory and MI-via-CALC

Autonomy. Study findings appear to corroborate the case made for MI-via-CALC's theoretical underpinnings in SDT (Pearson, 2011). Within a related position paper, Pearson (2011) purports that MI-via-CALC can facilitate autonomy (i.e., having volitional control over choices; Deci & Ryan, 2000) by exploring a client's values and life purpose. Data analysis from the present study supported this notion, and also revealed that the coaching relationship can facilitate an autonomy-supportive environment (e.g., by exploring how participants can take

ownership for their choices, and attaching meaning to health-related goals; Pearson, 2011; Whitworth et al., 2007). Prior to exploring how MI-via-CALC can facilitate autonomy, it is important to discuss the detractors from autonomy that were identified during the post-intervention interviews to gain insight into the unique postpartum experience so that future interventions can be catered to the needs of this population.

Detractors from autonomy. Participants spoke about having a lack of time (i.e., due to conflicting priorities and an unpredictability of infant schedules) as a barrier to engaging in lifestyle changes, which likely impacted autonomy negatively; postpartum women have many responsibilities and demands which are outside of their volitional control. For example, many women discussed having conflicting priorities between maternal responsibilities, sleep, and lifestyle changes, especially given the unpredictability of infant schedules. Many participants also spoke about having to sacrifice activities that are important to them in service of caring for their baby, especially given that many of these childcare duties are out of their control (e.g., nap times, feeding times, etc.). These finding have been corroborated in many other studies (Albright et al., 2005; Evenson et al., 2009; Groth & David, 2008; Symons Downs & Hausenblas, 2004) wherein a lack of time was reported as being a barrier to physical activity during the postpartum period, especially due to childcare duties.

Other detractors from autonomy which impacted participants' ability to engage in lifestyle changes included challenges with breastfeeding and fatigue. When discussing challenges with breastfeeding, participants noted the extra time required to remain committed to breastfeeding, as well as feelings of frustration centered around the challenges they experienced with breastfeeding. While 33% of participants in this cohort spoke about breastfeeding challenges, in another study by Evenson et al. (2009), only 3% of participants identified

breastfeeding challenges as being a barrier to engaging in physical activity. This discrepancy suggests that postpartum women have different experiences with breastfeeding, further highlighting the complexities of this population.

Fatigue was identified as a detractor of autonomy and barrier to engaging in physical activity by almost all participants. This finding aligns with current literature which identifies fatigue as a major challenge during the postpartum period, and a barrier to engaging in physical activity (Cramp & Bray, 2011; Evenson et al., 2009; Lee, 1998). To summarize, several of the detractors from participants' autonomy were centered around the unique experiences and challenges faced during the postpartum period, which were out of participants' volitional control, and impacted their ability to engage in lifestyle changes. Given the important role that autonomy plays with regards to health behaviour change, it may be important to address these detractors alongside behaviour change efforts (e.g., via social support) in order to facilitate fulfillment of this psychological need to a greater degree. Among the previously outlined detractors, participants also discussed a few life challenges that arose throughout the study.

Participants expressed feelings of having limited or no control over some situations that made it difficult to engage in lifestyle changes. For example, most participants discussed illness (of oneself, family members, or baby) as being a primary life challenge impacting physical activity levels. This study finding is contrary to a study by Evenson et al. (2009), wherein only 5% of their cohort of postpartum women reported illness as a barrier to physical activity at three months postpartum. This may be indicative of the small sample size within the present study, which may not have been representative of the general postpartum population. Participants in the present study expressed feelings centred around not having control when discussing their experiences with illness throughout the study, which detracted from their autonomy for engaging

in lifestyle changes. Given the high prevalence of illness within this cohort, it may be important to explore ways for women to experience satisfaction of autonomy (e.g., by speaking with a supportive coach when addressing one's challenges with engaging in lifestyle changes), even when faced with barriers that are outside one's volitional control (e.g., illness).

Similar to the difficulties participants expressed relating to illness, most experienced challenges with postpartum recovery due to a high prevalence of Cesarean deliveries. Self-reported demographic data indicated that 55.6% of the sample had a Cesarean delivery, which may have detracted from participants' autonomy for engaging in lifestyle changes, given that most participants reported that the Cesarean delivery was unplanned, which may have impacted their postpartum recovery and ability to engage in physical activity. In comparison to 2015 provincial (Canadian Institute for Health Information, 2017) and regional (City of Thunder Bay, 2015) data wherein 28.4% and 25.7% of women had a Cesarean delivery, the prevalence among this study's sample is quite high. This rate may have impacted participants' willingness or ability to engage in physical activity during the postpartum period, as research has indicated that women who have Cesarean deliveries report higher levels of fatigue, and engage in less physical activity during the postpartum period than women who have a vaginal delivery; factors which are outside of one's control (Jeung-Im & Kyung-Jae, 2017). The quantitative physical activity results aligned with these findings, wherein a couple of participants had a decreased physical activity score at the second assessment.

It is important to note that many participants discussed the life challenges (e.g., illness, funerals, moving homes, unpredictable maternal responsibilities) that they experienced throughout the intervention, which may have detracted from their autonomy and impacted their ability to engage in physical activity. This aligns with other current research indicating that

postpartum women are often at an increased risk for inactivity due to time constraints, unexpected life challenges, and their new life role as a mother (Cramp & Bray, 2011; Evenson et al., 2009). To help facilitate autonomy among postpartum women facing detractors from autonomy, an approach that could be used by CPCCs involves incorporating balance coaching (outlined previously; Kimsey House et al., 2011) into the sessions, which may help participants explore different perspectives, to help them feel less "stuck," and initiate more opportunities for making lifestyle changes. Given that postpartum women have many factors outside of their control that impact their ability to engage in physical activity, it is important to explore the role that MI-via-CALC can play in facilitating participant autonomy.

Facilitators of autonomy. Participants discussed a number of post-intervention coaching-related outcomes that may have helped to facilitate their autonomy for engaging in lifestyle changes by encouraging them to be the initiator of their choices. MI-via-CALC has been purported to support autonomy (Pearson, 2011), an important consideration given this psychological need has been shown in other SDT-based studies to help initiate and maintain lifestyle changes (Edmunds et al., 2008; Fortier et al., 2012; Markland & Tobin, 2010; Silva et al., 2010). Exploring the links between MI-via-CALC and autonomy is essential with regards to the development of other SDT-based MI-via-CALC studies.

The World Health Organization has acknowledged the important role that autonomy plays in individuals' quality of life, wherein improvements in autonomy have been shown to improve quality of life (The World Health Organization Quality of Life Group, 1995). Participants discussed several coaching-related outcomes (e.g., attaching meaning to health-related goals, reframing situations) that facilitated a greater awareness of self, and ultimately helped participants feel that they were the initiators of their choices (i.e., supporting autonomy).

The quantitative results support the link between improved autonomy and quality of life, as reflected by participants' discussions relating to enhanced autonomy for engaging in lifestyle changes, as well as improved physical and emotional quality of life scores over time, with medium effect sizes being observed for both subscale (physical and emotional) scores. This result is similar to other Co-Active coaching interventions delivered among individuals with obesity, wherein improvements to physical and emotional quality of life have been observed (Newnham-Kanas et al., 2011b; Pearson et al., 2012). Relatedly, participants' Relative Autonomy Index scores demonstrated general trends toward improvements over time, further supporting research highlighting the simultaneous improvement of autonomy and quality of life (The World Health Organization Quality of Life Group, 1995). Additionally, the qualitative findings supported previous research (Pearson, 2011) indicating that MI-via-CALC could support clients' satisfaction of autonomy. Participants discussed several coaching tools and learning strategies that allowed them to *choose* to live in the present moment, own their choices, and attach meaning and values to health-related goals.

Owning their choices. A couple of participants discussed owning choices related to making lifestyle changes, with a focus on changing wording from "should" to "choose." One of the cornerstones of MI-via-CALC holds that coaches view clients as naturally creative, resourceful, and whole (Pearson, 2011; Whitworth et al., 2007). As outlined previously, this cornerstone involves viewing clients as capable of identifying answers that they are seeking, as they are the expert on their own life (Pearson, 2011; Whitworth et al., 2007). By being coached from this cornerstone, it is postulated that clients are more likely to develop a solution that is meaningful and efficacious for themselves, which is likely to improve behaviour maintenance (Whitworth et al., 2007). Further, some participants mentioned that the coaching sessions also

helped them own the choices that they were making by assisting them to take responsibility for their goals and actions. As previously outlined, one of the three key principles of Co-Active coaching, balance coaching, is used when clients feel "stuck" in a certain perspective, as it allows them to explore areas of their life from different perspectives (Whitworth et al., 2007). By allowing participants to explore diverse perspectives, they may have been empowered to make decisions based on their own abilities, and choose to say "yes" to some actions, and "no" to others (Kimsey-House et al., 2011; Pearson, 2011). By taking a sense of ownership in this way, participants display a sense of integration, which refers to the internalization of a behaviour by accepting full responsibility for and seeing value in it (Deci et al., 1994). With integrated regulation, individuals are likely to maintain behaviours in the long term (Koestner, Bernieri, & Zuckerman, 1992): an important consideration from a health promotion perspective. Additionally, research has shown that encouraging individuals to make choices can enhance self-initiation, which can encourage autonomy and long-term behaviour change (deCharms, 1968; Deci & Ryan, 2000).

Attaching meaning to health-related goals. By attaching meaning and values to a behaviour, engagement can be facilitated in the long term, even for behaviours which are not inherently enjoyable, such as increasing physical activity (Pearson, 2011; Ryan et al., 2008). Further, attaching personal meaning to a lifestyle behaviour could help clients make autonomous choices based on what will fulfill their goals in relation to their values and life purpose (Whitworth et al., 2007). This could ultimately facilitate self-determination of the behaviour and increase the likelihood that it will continue (Pearson, 2011; Whitworth et al., 2007).

Within the context of the present study, participants discussed how they were able to attach meaning and values to some of their goals centered around making lifestyle changes. This

indicates how participants were able to have enhanced clarity for the personally meaningful reasons for engaging in certain health-related behaviours. In line with SDT, it could be hypothesized that this individual would likely be able to maintain her engagement with this health behaviour, due to its' connection with her values. This finding was corroborated by one participant who discussed that it was easier for her to engage in lifestyle changes after she had identified how her goals aligned with her values, and that she was able to choose not to engage in behaviours that did not align with her values. This is an important finding given that research has highlighted that for individuals to move toward self-determination in regards to a certain behaviour, they must grasp the importance of the behaviour and integrate their values and motivations into the behaviour (Deci & Ryan, 2000). More specifically, research by Deci and Ryan (2000) identified that for internalization to occur, individuals must be provided with an opportunity to freely process these values and regulations, and modify or transform them when necessary. The findings of the present study indicate that the coaching process provides individuals with the opportunity to synthesize meaning in regards to attaching values to certain behaviours, indicating that it could facilitate one's self-determination.

Relatedly, a few participants discussed that through coaching they were able to identify goals and outcomes that aligned with a visualized future self. By aligning behaviours and lifestyle changes with a visualized future self, it can help make decisions become more fulfilling, ultimately improving adherence to those behaviours (Pearson, 2011; Whitworth et al., 2007). This finding parallels health psychology research indicating that implicit cognitive processes, such as imagery and visualization, are involved in performance of health behaviours such as physical activity (Dimmock & Banting, 2009). More specifically, research has shown that engaging in a pleasant imagery exercise focused on a health behaviour can lead to more positive

feelings toward that behaviour (Markland, Hall, Duncan, & Simatovic, 2015), with more self-determined motivation (Duncan, Hall, Wilson, & Rodgers, 2012; Giacobbi, Dreisbach, Thurlow, Anand, & Garcia, 2014) and higher self-efficacy (Duncan, Rodgers, Hall, & Wilson, 2011) for engaging in the behaviour. This could explain the mechanism behind how participants exploring a visualized future self in the present study could have had facilitated initiation and maintenance of meaningful lifestyle changes (i.e., by having more self-determined motivation for engaging in the behaviour).

Autonomy and a relationship shift. The qualitative findings centered around autonomy were not entirely supported by the quantitative results for the Relative Autonomy Index. Most participants either maintained the same or increased their relative autonomy index scores, with a small effect size being observed throughout the intervention. It was unexpected that there was not a larger effect size for the relative autonomy index (i.e., a measure of autonomous motivation and self-determination), given that during the post-intervention interviews, participants discussed a number of factors which would have facilitated self-determination (e.g., attaching meaning to health-related goals, owning choices, aligning goals with a future self, having social support from multiple areas in their life, being kind to oneself; Pearson, 2011). Further, previous research has indicated that postpartum women typically have high motivation for engaging in lifestyle changes while transitioning into motherhood (Devine et al., 2000). One reason that the exercise-related self-determination (i.e., relative autonomy index on the BREQ-3) scores were lower than expected could have been due to the participants' shift from focusing entirely on health behaviours (i.e., physical activity and weight loss) to overall wellbeing and other areas of their life where they may have been feeling "stuck." By focusing less on health behaviours such as exercise, participants may have been less self-determined (i.e., resulting in lower RAI scores)

toward those behaviours, but may have experienced other benefits instead (e.g., improved quality of life, more self-acceptance in other areas of their life).

Co-Active coaching recognizes the importance of individuals enhancing the relationship they have with themselves prior to making changes in other areas of their life (e.g., lifestyle changes; Irwin & Morrow, 2005). For example, participants from a Co-Active life coaching intervention discussed a shift in the relationship they had with themselves that involved greater self-acceptance, awareness, responsibility, and confidence; positive changes that the authors posited could have impacted health behaviour change (i.e., a decrease in calorie consumption; Pearson et al., 2013b). This aligns with the results of other health behaviour change research, wherein researchers have shown that self-compassion is related to self-acceptance and intrinsic motivation, and may facilitate the emotional safety that is required for exploring areas in one's life for growth (Magnus, Kowalski, & McHugh, 2009). Further, self-compassion has been posited to be particularly helpful when feelings of inadequacy or failure arise, as it allows individuals to view themselves in a positive view while acknowledging their shortcomings (Leary, Tate, Adams, Allen, & Hancock, 2007; Neff & Vonk, 2009).

Within the context of MI-via-CALC, exploring and encouraging a positive relationship with oneself could be accomplished through fulfillment coaching (i.e., a principle of Co-Active coaching), wherein individuals can discover, explore, and honour what is important to them (Irwin & Morrow, 2005). In the present study, one participant spoke about how she had struggled with letting go of control and allowing others to care for her infant, in service of making time for herself. This participant expressed how helpful it was for her to work on these feelings of apprehension for letting go of control, and the positive outcomes that arose (i.e., having more time for herself, and her husband connecting more with his baby). This highlights the importance

of addressing one's underlying feelings and emotions (e.g., apprehension for letting go of control) rather than a specific behaviour (e.g., making time for oneself), which is an important feature of coaching, and an antecedent to making health behaviour changes (Whitworth et al., 2007). This highlights the central role that Co-Active coaching can play in facilitating the exploration and flourishing of one's relationship with oneself in service of allowing for changes in other areas of their life. By enhancing this relationship with oneself, one's psychological need for autonomy could be satisfied. In addition to autonomy, SDT holds that another psychological need, competence, must be satisfied to facilitate intrinsic motivation for behaviours (Deci & Ryan, 2000).

Competence. Participants discussed several themes that centered around their perceived competence for engaging in lifestyle changes or future life transitions (e.g., returning to work after maternity leave). As previously outlined, competence can be defined as an individual's confidence in her ability to engage in a behaviour, and is reflective of humankind's need to pursue mastery (Deci & Ryan, 2000). Competence is especially important to explore, as research has shown that the more competent an individual feels toward a particular behaviour, the more likely he/she is to be intrinsically motivated, and to continue to engage in the behaviour in the future (Ryan & Deci, 2000). Participants discussed several detractors from and supporters of competence that they experienced throughout their coaching experience.

Detractors from competence. One of the most salient themes identified in the interviews centered around misconceptions of motherhood, with a focus on motherhood being foreign territory for first-time moms. One participant spoke about her experiences with returning to her pre-pregnancy weight, which was more of a struggle than what she had experienced at other times in her life. This detractor from competence reflects the fact that postpartum women are

experiencing the social, psychological, emotional, physiological, and behavioural transition into motherhood, a new and complex period, which may affect their ability to return to their pre-pregnancy weight, thereby impacting their overall health and wellbeing (Devine, Bove, & Olson, 2000). When the previously mentioned participant discussed the challenges she faced with attaining her weight-related goals, it was apparent that she did not feel confident in her ability to overcome the challenges and barriers that she was experiencing in terms of her health-related goals (Deci & Ryan, 2000; Patrick & Williams, 2012). In light of the important role that competence plays with regards to the initiation and maintenance of health behaviour change, it may be important to address these detractors alongside behaviour change efforts (e.g., via social support from other first-time mothers, or being able to view challenges from various perspectives) to support the fulfillment of this psychological need to a greater degree.

Most participants also discussed how comparing themselves or their babies to others negatively impacted their competence for parenting or engaging in lifestyle changes. One participant discussed how she had originally compared her postpartum recovery to a friend who was able to return to physical activity quickly after childbirth. Maternal comparisons have been observed in other studies (Bartholomew, Schoppe-Sullivan, Glassman, Kamp Dush, & Sullivan, 2012; Coyne, McDaniel, & Stockdale, 2017) integrating technology-based social comparisons. These studies found that maternal social comparisons have been associated with increased stress (Bartholomew et al., 2012), as well as lower levels of perceived social support and parental competence (Coyne et al., 2017). The findings of the present study appear to corroborate these results, wherein social comparisons resulted in negative health-related outcomes (e.g., increased stress, lower perceived competence). In addition to social comparisons detracting from participant competence, participants expressed frustrations surrounding challenges with

postpartum weight loss, which may have been related.

A few participants expressed at the post-intervention time point that they felt frustrated with their inability to lose weight, which detracted from their perceived competence. As outlined above, almost all participants either maintained or slightly improved their body composition profiles, with minimal effect sizes being observed for both waist circumference and percent fat mass measures. Although there were no drastic improvements in participants' body composition profiles, this was anticipated given the short duration (i.e., 8 weeks) of the intervention, especially among a population of predominantly breastfeeding women, who must be mindful of nutritional needs for themselves and their baby. Given that women typically gain weight throughout the nine months of pregnancy, it is expected that it can take anywhere from six months to one-year postpartum for women to approach their pre-pregnancy weight (Schauberger, Rooney, & Brimer, 1992). The limited improvements in body composition in the present study are comparable to other postpartum health behaviour change studies (Kinnunen et al., 2007; Kuhlman, Dietz, Galavotti, & England, 2008; Østbye et al., 2010), indicating that MI-via-CALC demonstrates similar efficacy to other health behaviour change interventions for eliciting body composition changes during the postpartum period. Further, the modest improvements in body composition may also be indicative of trends, highlighting the need for a longer duration study to explore the long-term impacts of MI-via-CALC on body composition. While detractors from competence centered predominantly around participants' misconceptions of motherhood, participants also discussed several coaching-related outcomes that supported their feelings of competence for engaging in lifestyle changes.

Supporters of competence. Competence can be facilitated when individuals are provided with pertinent tools and strategies to assist them in the future (Markland et al., 2005; Pearson,

2011; Ryan et al., 2008). In the case of the present study, participants identified a number of coaching tools and strategies that would help them feel more competent regarding mothering, life transitions (e.g., returning to work after maternity leave), and lifestyle changes in the future. For example, participants discussed many factors that supported competence (e.g., reframing situations, being more self-accepting; discussed in more detail shortly). The quantitative results aligned with the qualitative findings, as reflected by the general trends toward improvements in participants' perceived competence scores in almost all participants, with a medium effect size being observed across all assessments.

Reframing situations. Several participants discussed the positive impact that reframing situations had on their ability to engage in lifestyle changes. From the perspective of SDT, when coaches help clients to reframe situations, it could facilitate the client's need for competence by encouraging him/her to explore different perspectives within a non-judgmental and accepting environment (Patrick & Williams, 2012). This is a central principle of the Co-Active model, wherein balance coaching is used to allow clients to explore compartments of their lives from multiple perspectives (Whitworth et al., 2007). By exploring these different perspectives (typically on a topic where the client is feeling "stuck"), it allows clients the opportunity to choose the best option for them, ultimately enhancing self-efficacy for making a change (Whitworth et al., 2007).

Being kind to oneself. When discussing what participants learned from their coaching experience, the most common strategy included being kind to oneself, especially in terms of being self-accepting in the context of lifestyle changes and within new life roles. For example, one participant discussed how coaching impacted her perspectives on her parental competence. This self-compassion has been shown in previous research to play an important role in self-

acceptance, which has been linked with intrinsic motivation, as it provides individuals with the emotional safety that is required for exploring areas for growth in one's life (Magnus et al., 2009). Self-compassion has been identified as being particularly helpful when individuals experience feelings of failure, as it allows for acknowledging oneself in a positive manner (Magnus et al., 2009).

One principle of Co-Active coaching, process coaching, involves coaches helping clients to examine experiences in a deeper way by exploring emotions to ultimately transform those emotions into new resources and opportunities for moving forward (Kimsey-House et al., 2011): factors which link strongly to the notion of competence. As the findings of this study suggest, sometimes progress begins with exploring experiences and emotions, rather than skipping over them to achieve a certain action or goal (Kimsey House et al., 2011).

Lastly, another participant discussed that before the coaching intervention, she did not view herself as being a good parent; however, throughout her coaching experience, she began to acknowledge her strengths as a parent, and felt more competent. This finding is supported by SDT-based research delineating that in order for perceived competence to have a positive impact on intrinsic motivation, individuals must feel personally responsible for competent behaviours (Deci & Ryan, 2000). Within the context of the present study, it is important to recognize the role that the coaches played in encouraging participants to explore self-acceptance to facilitate their perceived competence and improve intrinsic motivation. One coaching tool that celebrates clients for who they are is called making acknowledgments (Kimsey House et al., 2011); by acknowledging clients, coaches can help clients see something that they may overlook (Kimsey-House et al., 2011). This acknowledgement can empower the client by giving them more access to that strength, which may facilitate their competence (Kimsey-House et al, 2011). Another

coaching tool that could be helpful for facilitating competence (e.g., by empowering the client to feel personally responsible for their competence) is asking powerful questions (Kimsey House et al., 2011). Powerful questions are meaningful, open-ended questions that invite introspection, often relate to a client's values, and can help clients experience improved clarity, insight, and action into a specific behaviour or situation. For example, in the present study, powerful questions may have played a role in promoting participants' capacity to "own" their competent behaviours by providing an opportunity to experience increased clarity surrounding their abilities. Beyond the importance of supporting autonomy and competence when assisting individuals with initiating and sustaining meaningful life change, research indicates that relatedness also plays a vital role in promoting an environment for self-determination to flourish (Deci & Ryan, 2000).

Relatedness. As outlined previously, relatedness has been associated with increased internalization of goals, as it can be facilitated by connections with others who value and encourage a specific behaviour (Ryan & Deci, 2000). Relatedness has been shown to be facilitated through supportive interpersonal relationships, which helps to promote a sense of connectedness and belonging (Deci & Ryan, 2000). Participants identified several detractors and supporters of relatedness when discussing their study experiences.

Detractors from relatedness. Participants in the present study discussed detractors from relatedness that centred around connecting with their coach and time constraints. In particular, participants identified scheduling challenges and the unpredictability of maternal responsibilities as making it more difficult to connect with their coach. As discussed in the *detractors from autonomy* section above, almost all participants cited their new responsibilities while transitioning into a new life stage as one of the biggest challenges for taking time for oneself,

which aligns with previous research (Albright et al., 2005; Evenson et al., 2009; Groth & David, 2008; Symons Downs & Hausenblas, 2004). Relatedly, a few participants discussed that accommodating an unpredictable infant schedule made it difficult to connect with their coach. While scheduling challenges and time constraints were a salient theme across all interviews, it is important to note that all participants spoke about being able to cope with these challenges in some way to facilitate being able to engage in coaching sessions (e.g., through ensuring one's spouse was at home to provide childcare), and ultimately allow for opportunities to connect with their coach. The above-noted challenges with connecting with one's coach detracted from relatedness due to the fact that participants expressed feeling disconnected from their coach. These challenges have not been cited in other MI-via-CALC studies, which may highlight the unique experiences of postpartum women. While detractors from relatedness centered around the challenges associated with connecting with their coach, participants also discussed several facilitators of relatedness, which enhanced their ability to engage in the coaching intervention and lifestyle changes.

Supporters of relatedness. Participants discussed a number of facilitators for promoting relatedness, including a sense of accountability to one's coach and others, as well as the important role that social support plays when seeking to make meaningful change.

Facilitating relatedness through the coaching relationship. In terms of having accountability to one's coach, one participant discussed the importance of knowing that her coach would follow up on specific items each week. Accountability is a coaching tool that is part of the Co-Active model (Whitworth et al., 2007), which has been connected with providing a need-supportive environment for clients (Pearson, 2011). This sense of accountability to one's coach supports individuals' need to feel close and understood by important others in their life

(Patrick & Williams, 2012). This finding aligns with another study exploring postpartum participants' perspectives on barriers and facilitators to lifestyle changes (Nicklas et al., 2011). In this study (Nicklas et al., 2011), participants expressed that they would have liked to have had accountability for healthy eating behaviours to either a group of peers or a physician associated with the study. Similarly, participants from a study focused on the development of a lifestyle modification program for postpartum women expressed that an ideal lifestyle change program would integrate accountability into the intervention (Jones et al., 2015). Together, these findings highlight the importance of accountability for engaging in lifestyle changes during the postpartum period, and how connecting with a coach could help satisfy one's need for relatedness in this regard.

When discussing what they enjoyed most about the coaching relationship, almost all participants stated that they enjoyed having social support from their coach. Self-determination theory states that intrinsic motivation is most likely to develop or strengthen within contexts of secure relatedness (Ryan & LaGuardia, 2000), highlighting the importance of the coaching relationship. While Ryan and Deci (2000) propose that there are contexts in which relatedness is less essential to intrinsic motivation than autonomy and competence (because individuals often engage in intrinsically motivated behaviours in isolation), other research has demonstrated that individuals have greater intrinsic motivation when engaged in a warm and caring relationship (Ryan & Grolnick, 1986), suggesting that a secure relationship can support intrinsic motivation while improving the likelihood and robustness of personal growth toward self-determination (Deci & Ryan, 2000). This notion aligns with the Co-Active model whereby the coach and client work together through a mutually designed alliance (discussed previously), in service of the client's needs, goals, and values (Kimsey House et al., 2011). Thus, it is important to have a

positive relationship to set the groundwork for competence and autonomy to grow (Deci & Ryan, 2000), highlighting the necessity of the coaching relationship when seeking to strengthen internalization or intrinsic motivation.

Within the context of SDT, relatedness has been shown to be facilitated by unconditional positive support, particularly when faced with failure to achieve a goal (Patrick & Williams, 2012). This was discussed by a few participants, especially centered around not achieving health-related goals that they had developed with their coach. This emphasizes the importance of having unconditional support within the coaching relationship, especially within the context of an individual not attaining goals. Given the important role that relatedness plays with regards to health behaviour change, it may be important to facilitate individuals' feelings of unconditional positive support, especially within the coaching relationship. Relatedly, participants identified that the support and encouragement they received from their coach facilitated their ability to engage in lifestyle changes, and strengthened the relationship and rapport that they had developed with their coach, ultimately enhancing fulfillment of relatedness. This is an important coaching-related outcome, as the Co-Active model promotes the use of championing (i.e., when coaches stand up for clients when they question their own capabilities; Whitworth et al., 2007), which has been shown to promote a need-supportive environment (Pearson, 2011). By integrating coaching tools (e.g., championing, acknowledgements) into sessions, coaches could support the fulfillment of clients' relatedness.

Within MI-via-CALC, the designed alliance has been identified as a means to facilitate relatedness between the coach and client (Pearson, 2011; Whitworth et al., 2007). As defined previously, the designed alliance involves the coach and client determining the setting and conditions that they would like to grow the coaching relationship, while also identifying

challenges that might impede the coaching process (Whitworth et al., 2007). While the designed alliance is revisited throughout the coaching relationship to suit the needs of the client, a few key components are emphasized throughout the process, including having a commitment to confidentiality, and having a safe and non-judgmental coaching environment (Pearson, 2011; Whitworth et al., 2007). The notion of having a non-judgmental and accepting coaching environment was identified by several participants as a facilitator to connecting with their coach. A previous study (Nicklas et al., 2011) that explored postpartum women's viewpoints on lifestyle change interventions found that women during this life stage often feel judged by their healthcare providers, and suggested that a more collaborative approach to lifestyle changes, wherein the practitioner is not viewed as a healthcare provider may be more beneficial in the postpartum population.

When exploring the coaching relationship from the perspective of SDT, it is imperative to highlight the vital role that having a trusting and secure relationship (e.g., with one's coach) plays in laying the necessary groundwork for satisfying and strengthening the psychological need of relatedness (Deci & Ryan, 2000). By providing a safe relationship for clients to discuss life challenges and experiences (e.g., in MI-via-CALC; Whitworth et al., 2007), initiation and maintenance of lifestyle changes is likely to be more robust due to increased internalized or intrinsic motivation (Deci & Ryan, 2000).

Facilitating relatedness through the support of family. Beyond the role of the coach, one of the most salient themes associated with relatedness was social support in regards to family values. More specifically, integrating health into one's family identity and role modelling were identified by almost all participants as being a meaningful motivator for engaging in lifestyle changes. This finding is similar to previous studies, which have identified that entering

motherhood is often accompanied by a transition into thinking of not only one's own health-related goals (Borgotta, Bulcroft, Montgomery, & Bulcroft, 1990), but also of the needs of one's child (Devine & Olson, 1992).

When exploring participants' quotes through the perspective of SDT's relatedness, it is evident that participants in this study understood that their behaviours could have an impact on their child's. Further, SDT holds that individuals typically internalize the values and behaviours of their social groups, and this tendency can be facilitated by feelings of relatedness to others (Deci & Ryan, 2000). Given that participants in this study discussed integrating health into their family identity, these health behaviours could be internalized further by their child, given that it is a value and behaviour held strongly by their social group (i.e., the mother; Deci & Ryan, 2000). This finding can be further substantiated by the fact that previous studies have shown that maternal physical activity can influence their offspring's physical activity engagement (Fogelholm et al., 1999; Gottlieb & Chen, 1985; Larson-Meyer, 2002, 2003; McMurray et al., 1993; Moore et al., 1991), which indicates that integrating health into a family's identity and role modelling health behaviours could have a positive impact on maternal and child health. Related to the significance of family values being a supporter of social support for postpartum women, it is also important to acknowledge the role that social support from one's spouse can play in one's ability to engage in lifestyle changes.

Demographic data pertaining to relationship status showed that 89% of participants were married, while 11% were in a common-law partnership. The prevalence of married women and women in common-law partnerships in the present study is much higher than Canadian averages (i.e., 19.1% of Canadian women were married, and 4.5% were in a common-law partnership in 2016; Statistics Canada, 2016). This is of particular interest since research has shown that

children of intact couple families (i.e., married or common-law partnerships) receive greater support for engaging in physical activity than children of single-parent homes (Quarmby & Dagkas, 2010). Therefore, in the present sample, wherein participants were all in intact couples, participants' children may have more support for engaging in physical activity as they grow older.

Summary

To summarize, the MI-via-CALC intervention appears to be an effective means for supporting the satisfaction of SDT's basic psychological needs (i.e., autonomy, competence, and relatedness) among primiparous women. The data suggest that participants experienced improvements in the relationship they have with themselves, and the quantitative results supported these findings whereby improvements were observed for the dependent variables. The positive results of this study suggest that more research on this topic is warranted.

When discussing their study-related experiences, participants identified numerous detractors from autonomy, competence, and relatedness which centered around their transition into motherhood. Taking into account the challenges that primiparous women face while entering this new life stage (e.g., lack of time, unpredictability of infant schedules, making comparisons to others), it is important to acknowledge these unique barriers, especially when developing future interventions aimed at facilitating lifestyle changes. Despite these detractors from the three psychological needs due to life circumstances, the MI-via-CALC intervention seemed to have a positive impact on participants' autonomy, competence, and relatedness. First, participants discussed several coaching-related outcomes (e.g., owning the choice, attaching meaning to health-related goals) that supported their need for autonomy. Second, participants identified coaching tools and strategies that they learned throughout the intervention (e.g., taking

on new positive perspectives on stressors, being kind to oneself), which they anticipated would be helpful for them as they move forward into other life transitions (e.g., returning to work after maternity leave). Lastly, participants outlined how helpful their coach was for providing a sense of accountability, and cultivating a safe and trusting relationship so that they could explore their life challenges and experiences. Lastly, all participants discussed the important role that their new family played in supporting their need for relatedness, especially in terms of being supported by one's spouse, role modelling, and integrating health into one's family identity. Cumulatively, these findings suggest that MI-via-CALC provides the tools and strategies necessary to facilitate SDTs psychological needs and improve the physical and psychological health of primiparous women.

Study Strengths and Limitations

Strengths

One of the strengths of this study is that it had a 100% participant retention rate, which may be indicative of the fact that all participants saw value in continuing with their coaching sessions. The perfect retention rate is higher than other lifestyle change studies for postpartum women, which may be due to the fact that women are typically more interested in making lifestyle changes during the postpartum period (van der Pligt et al., 2013; Wilkinson et al., 2015). Similar to a study aimed specifically at reducing postpartum weight retention (Wilkinson et al., 2015), it appears that engaging in the coaching sessions to facilitate lifestyle changes was of interest for participants, despite the many challenges that these particular women faced. While participants discussed several challenges to engaging in lifestyle changes throughout the program, a few participants spoke about how much they enjoyed being able to take time for themselves, and that after completing the coaching session, they felt more energized.

One factor that may have made it easier for participants to continue to engage in the intervention may have been that the coaching sessions were completed over the phone. This highlights another strength of this study; this is the first MI-via-CALC study delivered in a remote location and to a special population with unpredictable schedules. Delivering the MI-via-CALC intervention via the phone likely facilitated participation, as it allowed women to engage in the coaching sessions from their own home, at a time that worked well for them and their babies.

Further, research has shown that participant attrition from health behaviour change interventions is typically related to motivation (Silva et al., 2008). Given that MI-via-CALC has been shown to have theoretical underpinnings in motivational theories (Pearson, 2011), it could be postulated that MI-via-CALC interventions can help facilitate participants' motivation to continue to engage in the coaching sessions. This highlights another strength of the present study, as this is the first empirical MI-via-CALC study grounded in a SDT framework. Exploring the results and findings from this study through the lens of SDT provided an opportunity to corroborate the findings from a theoretical exploration of MI-via-CALC (Pearson, 2011).

Lastly, this is the first MI-via-CALC intervention delivered to the postpartum population, and the first MI-via-CALC study to explore the promotion of physical activity among postpartum women. By exploring this unique population's insights into their study-related experiences, future larger-scale MI-via-CALC studies can now be developed.

Limitations

One limitation of the present study is that despite efforts taken to book participant assessments at the same time of day, scheduling conflicts resulted in some participants having assessments at different times of day, which may have impacted hydration status and

subsequently the bioelectrical impedance analysis results (Kyle et al., 2004b). While efforts in future studies could be taken to reduce these circadian-related differences in hydration status, it is important to acknowledge that postpartum women have unpredictable schedules, so it is recommended that researchers are flexible in booking and rescheduling assessments, which may require conducting body composition assessments in a different manner (i.e., independent of hydration status).

Secondly, it is important to note that eta squared (η^2) has received criticism for being upwardly biased (i.e., by overestimating the population variance), particularly in the case of small sample sizes (Bakeman, 2005; Fisher, 1973). Given this criticism, it is important to interpret the results of the effect sizes cautiously since the sample size of the present study was quite small, while also acknowledging the fact that almost all quantitative data indicated a general trend toward improvements for most participants (which was corroborated by the qualitative findings). Future studies should seek to recruit a greater number of participants so that more robust statistical tests can examine the impact of MI-via-CALC further.

While having a small sample size resulted in modifications to data analysis (i.e., nine participants were recruited instead of 20), it is important to note that it provided an opportunity for the researchers to focus on the semi-structured interviews at the post-intervention assessment. These data will be particularly valuable when developing future coaching intervention studies among the postpartum population. For example, with postpartum women, it could be important to have CPCCs that are flexible and accommodating with unpredictable maternal schedules to facilitate participant engagement and completion of the intervention. To strengthen the interview findings further, it is recommended that future researchers conduct pre- and post-intervention interviews to allow for comparisons in participant perspectives at each time point.

A limitation pertaining to the study design is that there was no control group for the researchers to compare with the participants who completed the intervention, thereby limiting the researchers' ability to draw cause-and-effect type conclusions from the data (Joy, Penhoet, & Petitti, 2005). To strengthen the study design in the future, it is recommended that a randomized, waitlist control group is used, so that all interested participants would receive the MI-via-CALC intervention, with half serving as the study's control group (Coalition for Evidence-Based Policy, 2003; Horner et al., 2009). By implementing a randomized, waitlist controlled trial, threats to internal validity could be controlled for (Coalition for Evidence-Based Policy, 2003; Horner et al., 2009).

It is also important to acknowledge the limitations associated with using a self-report measure of physical activity (i.e., the IPAQ). Previous research has identified that self-report questionnaires may be impacted by external factors such as social desirability, the complexity of the questionnaire, and seasonal variation (e.g., in winter, individuals may report more physical activity than they actually engage in; Sylvia, Bernstein, Hubbard, Keating, & Anderson, 2015). To strengthen the measure of physical activity in future studies, other methods (e.g., utilizing accelerometers, heart rate monitors, or step pedometers) could be used to enhance the reliability and validity of the measure (Sylvia et al., 2015).

Another limitation of the present study was that the coaching sessions were not analyzed, so the researchers do not know exactly what was discussed during the sessions, or what coaching tools were utilized. Since all study coaches were CPCCs, and engaged in the same rigorous training program, it was anticipated that the coaching intervention would have been delivered consistently (Newnham-Kanas et al., 2008, 2010; The Coaches Training Institute, 2015). An earlier study conducted by Van Zandvoort et al. (2008) completed inductive content analysis on

a random selection of coaching session transcripts, which revealed that coaches' reflections on the clients' primary agenda echoed the coaching transcripts, wherein all participants focused on achieving an enhanced relationship with oneself, and improved self-acceptance. The analysis also revealed that the most frequently used coaching tool was asking powerful questions, which helped elicit introspection to serve as a basis for other coaching skills and techniques (Van Zandvoort et al., 2008; Whitworth et al, 2007). In the context of SDT-based coaching studies among postpartum women, an analysis similar to Van Zandvoort et al's (2008) study has not been conducted to date. This type of analysis could provide valuable information for identifying the coaching tools utilized to provide a mechanism for how MI-via-CALC could support the satisfaction of SDT's basic psychological needs specifically.

Further, transferability of the findings of this study are limited, given that the sample was highly educated, with a high employment rate, and high activity levels before pregnancy. As indicated in Figure 7, 33.5% of participants completed a college diploma, 44.5% completed a university degree, and 22% completed a master's degree. Regional data (i.e., City of Thunder Bay) indicate that 32% of women between the ages of 25 and 64 years have a college diploma, 24% have a university degree, and 9% have a master's degree or higher (Statistics Canada, 2015a). In the present study, it is important to acknowledge that women may have been more likely to engage in physical activity, as research has shown that women with a higher level of education typically engage in a greater amount of physical activity (Evenson et al., 2009). Given that the sample population has a comparatively higher level of education than the general public, it is important to acknowledge limitations in the transferability of the findings of this study to other populations of individuals with lower education levels.

As represented in Figure 8, all participants were employed and on a 52-week maternal

leave, with 89% working full-time, and 11% working part-time prior to childbirth. The 100% employment rate observed in the study is much higher than regional (i.e., City of Thunder Bay) statistics, wherein the employment rate is 56.4% (Statistics Canada, 2015a). Similar to the high education level, it is important to identify the high employment rate observed in this study as a limitation to transferability among populations of different demographics.

Demographic information provided from participants revealed that prior to pregnancy, women engaged in a mean of 277 minutes of physical activity per week. This value is higher than the recommended amount of weekly physical activity (i.e., 150 minutes/week; Canadian Society for Exercise Physiology, 2011). Physical activity accelerometer data for women between the ages of 20-39 years indicate that women in this age group typically engage in 24 minutes of moderate to vigorous physical activity each day, for a weekly total of 168 minutes per week, while women with overweight and obesity engage in less daily physical activity (i.e., 20 minutes/day, and 13 minutes/day, respectively; Colley et al., 2011). Overall, women in the present study engaged in a higher amount of physical activity prior to pregnancy than women within their age group from the general population. This value may be quite high in the sample, as women who would sign up for a life coaching intervention aimed at improving physical activity would likely have an interest in returning to physical activity during the postpartum period. This phenomenon is referred to as a sampling bias, as individuals who are already interested in physical activity are likely to engage in a physical activity-based study (Robbins, Pender, Ronis, Kazanis, & Pis, 2004). Further, it is important to note that one participant engaged in a significant amount of physical activity (i.e., 13 times/ week) prior to pregnancy, which increased the sample mean.

Considerations for Future Coaching Studies with Postpartum Women

Recruitment challenges experienced during this study (i.e., low participant enrollment) are consistent with other similar interventions (van der Pligt et al., 2013), which highlights the difficulties associated with engaging women in lifestyle changes for their own health benefit during a period of time that is typically focused on the health of their infant. As previously mentioned (refer to Table 7 for a summary of considerations for future coaching studies), participants in the present study provided suggestions for increasing participant recruitment in future coaching studies, including: having clearer advertisement of the study, advertising through multiple avenues, and advertising participation incentives. After taking into account participant feedback and the feasibility of implementing changes during a future study, one recommendation for improving participant recruitment includes providing a clearer advertisement of the study. This would involve being more explicit about the type of coaching on all recruitment materials in an effort to communicate to potential participants the rigorous training that CPCC study coaches have completed (by providing the type of coach, it would allow potential participants to research CALC themselves).

Further, a few participants indicated that they appreciated being told about the study through multiple avenues, particularly when hearing about it multiple times in-person (e.g., parent and tot playgroups, music classes, fitness classes, swimming classes). As outlined in Figure 8, 33.33% of participants were recruited in-person, and 44.44% of participants were recruited through online avenues, highlighting the value of taking a multi-faceted approach to participant recruitment, with a focus on online and in-person avenues. A previous study (Nicklas et al., 2011) and survey (Jones & Fox, 2009) identified that women between the ages of 20-35 engage in high levels of daily internet use, emphasizing the importance of utilizing online

avenues for recruitment. Given the complexities of the postpartum period, and how busy postpartum women are while transitioning into motherhood, it is important for researchers to meet participants where they are at, and make efforts to reach out to potential participants, rather than taking a more passive approach to participant recruitment (e.g., posters). Anecdotally, given the challenges with participant recruitment, it is recommended to begin participant recruitment further in advance to engage women during pregnancy (e.g., through posters/hand-outs, presentations), so that women can plan ahead for their involvement in the study during the postpartum period.

Feedback from participants obtained during the post-intervention interviews also highlighted the importance of advertising incentives for participation on all recruitment materials. For example, a few moms identified that advertising that childcare was being offered during the assessment sessions would have been valuable to include on recruitment materials, as childcare could be a concern for many new moms. One participant also suggested that offering to provide childcare during coaching sessions and self-initiated physical activity sessions would have been helpful. While this was not feasible in the present study, it may facilitate participant enrollment in future larger-scale studies. It was also recommended that recruitment materials provide a clear outline of the perks associated with the study (i.e., the free life coaching, phone card to limit expenses), which may facilitate recruiting participants from a variety of socioeconomic backgrounds.

A few participants discussed the importance of communicating to participants that all coaches are non-local, meaning that participants would not see their coach around town during or after the intervention. This element of anonymity seemed important to the participants in this study, which may have been due to the fact that the study took place in a mid-sized city within a

remote location, where the community can be close-knit. This recommendation highlights the utility of having coaching delivered over the phone, particularly in more rural and remote locations wherein participants may be concerned with confidentiality. This aligns with previous MI-via-CALC research that emphasizes how convenient phone coaching can be for participants, and that it can facilitate the accessibility of the intervention in smaller or more isolated areas (Goddard & Morrow, 2015; Pearson et al., 2013). Collectively, study data demonstrated that MI-via-CALC delivered over the phone can be particularly useful among postpartum women given that clients can be in the comfort of their own home while discussing personal challenges and experiences; a benefit of being coached via telephone that was acknowledged by participants during the post-intervention interviews (refer to Table 7).

Participants in the present study were from a large range in the postpartum period (i.e., 8-40 weeks postpartum), which may have impacted study experiences (i.e., participants' ability to engage in physical activity) given that women may have been experiencing different challenges at different times during the study. A few participants discussed the changing needs of their child at different ages, highlighting the importance of considering how different developmental stages could influence participant involvement in the intervention. For example, some participants expressed that once babies reach six months of age, a time where most begin eating solid foods, it would be much easier for women to engage in the coaching intervention and lifestyle changes. This finding was similar to a study by Evenson et al. (2009), which indicated that women in their cohort felt more efficacious for engaging in physical activity at 12 months rather than 3 months postpartum, as their babies were older, healthier, not breastfeeding, and more active. While this may be true, it is also important to acknowledge that women who are less than six months postpartum may feel more overwhelmed with their new responsibilities, which may provide this

group a unique opportunity to engage in MI-via-CALC to address areas where they may be feeling "stuck" or in need of support. Thus, it would be valuable for future research to explore whether there is an "ideal time" for primiparous women to engage in MI-via-CALC so that they may experience the benefits of coaching at a time that is feasible for them to commit time to coaching each week in service of promoting maternal health and wellbeing.

Lastly, given the complexities of the postpartum period and the challenges associated with transitioning into a new life role, it is important for future MI-via-CALC interventions among postpartum women to address participants' basic psychological needs (i.e., autonomy, competence, and relatedness) to ultimately facilitate self-determination and support the initiation and maintenance of lifestyle changes (Deci & Ryan, 2000; Pearson, 2011). Participant experiences from the present study, as supported by Pearson's (2011) theoretical exploration of MI-via-CALC, indicates that participants' autonomy could be supported by several strategies including: attaching values to health-related goals; visualizing a future self; and holding that clients are naturally creative, resourceful, and whole. Future studies could also integrate several strategies (e.g., reframing situations through balance coaching, process coaching to explore emotions and experiences, and acknowledgements) to fulfill individuals' need for competence. Finally, to support postpartum women's psychological need for relatedness, future MI-via-CALC studies could ensure that a number of strategies (e.g., developing a designed alliance; accountability; coaches being non-judgmental and offering unconditional positive support) are integrated into the intervention. By integrating, or further exploring the effectiveness of implementing these strategies into future empirically-based MI-via-CALC studies, it could confirm the mechanisms of how MI-via-CALC can support satisfaction of the three basic psychological needs and facilitate self-determination (Pearson, 2011).

Conclusion

Overweight and obesity impacts approximately 50% of Canadian women of childbearing age (Statistics Canada, 2015b), with pregnancy and the postpartum period being identified as vulnerable times for excess weight gain and retention, particularly in primiparous women (Gore, et al., 2003; Biesmans et al., 2013; Skouteris et al., 2012; Taveras et al., 2011; van der Pligt et al., 2013). Motivational Interviewing via Co-Active Life Coaching (Whitworth et al., 2007) has shown considerable promise as an intervention for evoking health improvements (Mantler et al., 2014; Newnham-Kanas et al., 2008, 2011b; Pearson et al., 2012, 2013b; van Zandvoort et al., 2008, 2009), which is consistent with the findings of the present study.

This study provided unique insights into participants' study-related experiences from the perspective of SDT (Deci & Ryan, 2000, 2002; Ryan & Deci, 2000), and new empirical evidence with regards to the relationship between the need-supportive environment and MI-via-CALC (Pearson, 2011). Participant discussions of factors that detracted from or supported each of SDT's psychological needs centered around the unique experiences that participants had in the contexts of mothering, lifestyle changes, and their study-related experiences. This highlighted the need for future research to be conducted to further explore the complexities of lifestyle changes during the postpartum period.

To further explore the utility of MI-via-CALC as a means for lifestyle change among postpartum period, it would be beneficial to implement a similar method in a larger-scale and longer-duration study, in an effort to explore the impact of MI-via-CALC over time. Since the intervention delivery (i.e., by telephone) was identified by participants as being helpful for postpartum women (i.e., so that women can engage in the intervention from the comfort of their own homes), it would be interesting to explore the efficacy of a telephone-based MI-via-CALC

intervention among women in more rural and remote locations, wherein participants may not have adequate access to healthcare opportunities aimed at improving health behaviours.

While this study did not have a large enough sample size to make generalizations, most participants in this cohort expressed sentiments indicating improvements to their physical and emotional quality of life (e.g., being kind to oneself, being in the present moment, new positive perspectives on stressors), and a shift from being more focused on outcomes (e.g., increasing physical activity, weight loss) to focusing on the process (e.g., attaching meaning to health-related goals, owning choices, aligning goals with a visualized self). Quantitative results supported the qualitative findings, with general trends toward improvements being observed across all dependent variables except the body composition measures. Given the positive findings from the present study, combined with the 100% participant retention rate, and the fact that the postpartum population can be difficult to engage in lifestyle change interventions due to competing demands, MI-via-CALC could be an efficacious method for encouraging lifestyle changes in postpartum women and, consequently, their children.

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Appendix A: Research Ethics Board Approval Notice

Research Ethics Board
t: (807) 343-8283
research@lakeheadu.ca

December 15, 2016

Principal Investigator: Dr. Erin Pearson
Student: J. Harvey
Faculty of Health and Behavioural Sciences
School of Kinesiology
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1

Dear Dr. Erin Pearson and Ms. Jacqueline Harvey:

Re: REB Project #: 100 16-17 / Romeo File No: 1465521
Granting Agency: LU – Regional Research Funds
Agency Reference #: N/A

On behalf of the Research Ethics Board, I am pleased to grant ethical approval to your research project titled, "MI-via-CALC as an Intervention for Improving Physical and Psychological Health Indices in Primiparous Women".

Ethics approval is valid until December 15, 2017. Please submit a Request for Renewal to the Office of Research Services via the Romeo Research Portal by November 15, 2017 if your research involving human participants will continue for longer than one year. A Final Report must be submitted promptly upon completion of the project. Access the Romeo Research Portal by logging into myInfo at:

https://erpwp2.lakeheadu.ca/

During the course of the study, any modifications to the protocol or forms must not be initiated without prior written approval from the REB. You must promptly notify the REB of any adverse events that may occur.

Best wishes for a successful research project.

Sincerely,

Dr. Lori Chambers
Chair, Research Ethics Board

/tm

Appendix B: Participant Eligibility Form

Participant Eligibility Form

Date of Contact: _____

Participant Identification Number: _____

Age: _____

Method of Contact: ☐ Email ☐ Telephone ☐ In Person

Do you speak and write English proficiently? ☐ Yes ☐ No

Are you a first-time mother? ☐ Yes ☐ No

What is the date of your child's birth? _____

Where do you live currently? _____

Are you greater than six weeks since child delivery? ☐ Yes ☐ No

Are you less than nine months since child delivery? ☐ Yes ☐ No

How tall are you? _____ feet _____ inches OR _____ m/cm
Date of Measurement: _____

How much do you weigh? _____ lbs OR _____ kg
Date of Measurement: _____

Would you consider yourself healthy overall? ☐ Yes ☐ No

Have you received medical clearance for resuming your regular daily activities? ☐ Yes ☐ No

Have you been diagnosed with any physical or psychological health conditions?
☐ Yes ☐ No

Is there anything that you are aware of, either physically or mentally that would impair you from engaging in regular physical activity? If so, what is it?

_____

_____

_____

Do you participate in moderate-to-vigorous intensity (i.e., requiring a moderate or large amount of effort with an accelerated heart rate and rapid breathing) physical activity (e.g., brisk walking, dancing, running, gardening, fast cycling, etc.) for less than 150 minutes weekly?
☐ Yes ☐ No

Do you have an interest in increasing your physical activity levels? ☐ Yes ☐ No

Do you have any time preferences for phone coaching sessions? ☐ Yes ☐ No

If yes, what days and times?

_____

_____

_____

For researcher use only:

BMI: _____ kg/m^2

Eligible to participate in the study: ☐ Yes ☐ No

Date for Initial Assessment: _____ Time: _____

Appendix C: Demographic Information Survey

Demographic Information Survey

Participant ID Number: _____

Today's Date: _____

Email Address: _____

Age: _____

Weight: _____lbs

Height: _____ feet _____ inches OR _____ cm

Ethnicity: _____

Relationship Status: _____

Age at Menarche: _____

Child's Date of Birth: _____

Number of Weeks Postpartum today: _____

Type of Delivery (Circle One): Vaginal Cesarean

Are you currently breastfeeding? (Circle one) Yes No

Highest Level of Education Attained: _____

Employment Status: _____

Occupation: _____

If you are on maternity leave, please provide the total length as well as your return to work plan (if applicable).

1. Describe your physical activity habits within the year prior to *pregnancy*:

   a) Frequency (times per week): _____

   b) Duration (amount of time spent being active): _____

   c) Intensity of Physical Activity:
      I. Vigorous-intensity (e.g., heavy lifting, running, aerobics, stair climbing, fast swimming, etc.)
      II. Moderate-intensity (e.g., regular swimming, jogging, doubles tennis, etc.)
      III. Light-intensity (e.g., walking)
      IV. Other (Specify below):

   d) Type of Activity:

   e) Additional information about physical activity habits within the year prior to pregnancy:

2. Describe the level of physical activity you engage in at work:
   a) Sedentary (e.g., desk job)
   b) Light Physical Activity (e.g., standing and walking)
   c) Moderate Physical Activity (e.g., fast walking, carrying, etc.)
   d) Vigorous Physical Activity (e.g., manual labour, heavy lifting, etc.)
   e) Not Applicable (e.g., not currently working)

3. Describe the information you have received (if any) on weight gain expectations during pregnancy and recommendations for weight loss.

_____

_____

_____

_____

4. Who did this information come from? (e.g., doctor, midwife, etc.)

_____

5. How much weight did you *expect* to gain over the entire course of your pregnancy (from the start of your pregnancy to childbirth)?

   _____ lbs

6. How much weight *did* you gain over the entire course of your pregnancy (what was the difference in your pre-pregnancy weight and your weight at childbirth)?

   _____ lbs

7. Did you or your child experience any complications at birth? If so, how has this impacted your ability to participate in physical activity (if at all)?

_____

_____

_____

_____

8. Are you currently under a physician's care for any condition? If yes, which condition?

_____

_____

_____

_____

_____

_____

_____

_____

9. Have you ever been diagnosed with a health condition such as postpartum depression or an anxiety disorder (e.g., post-traumatic stress disorder)? If so, which condition?

_____

_____

_____

_____

_____

_____

Appendix D: Participant Recruitment Poster

Lakehead University | School of Kinesiology

First-time moms

ARE YOU LOOKING TO BE MORE ACTIVE?

Researchers from Lakehead University are looking at how a weekly life coaching program might enhance your health.

YOU MAY BE ELIGIBLE IF...

- You are 18 years or older
- You delivered your baby during or after May 2016
- You have received medical clearance to resume daily activities

WHAT WILL YOU BE ASKED TO DO?

- Participate in 8 weekly **HOME-BASED** phone calls with a certified life coach to talk about what's important to you
- Attend 3 sessions where you will complete questionnaires about your health and have your body composition measured (childcare will be provided)

HOW MIGHT THIS BENEFIT YOU?

- Take dedicated time for yourself
- Discuss goals & strategies for making changes that are important to you

INTERESTED? FOR MORE DETAILS CONTACT:

Jacqueline Harvey
jharvey3@lakeheadu.ca
807-343-8481

Jacqueline Harvey
jharvey3@lakeheadu.ca
807-343-8481
Jacqueline Harvey
jharvey3@lakeheadu.ca
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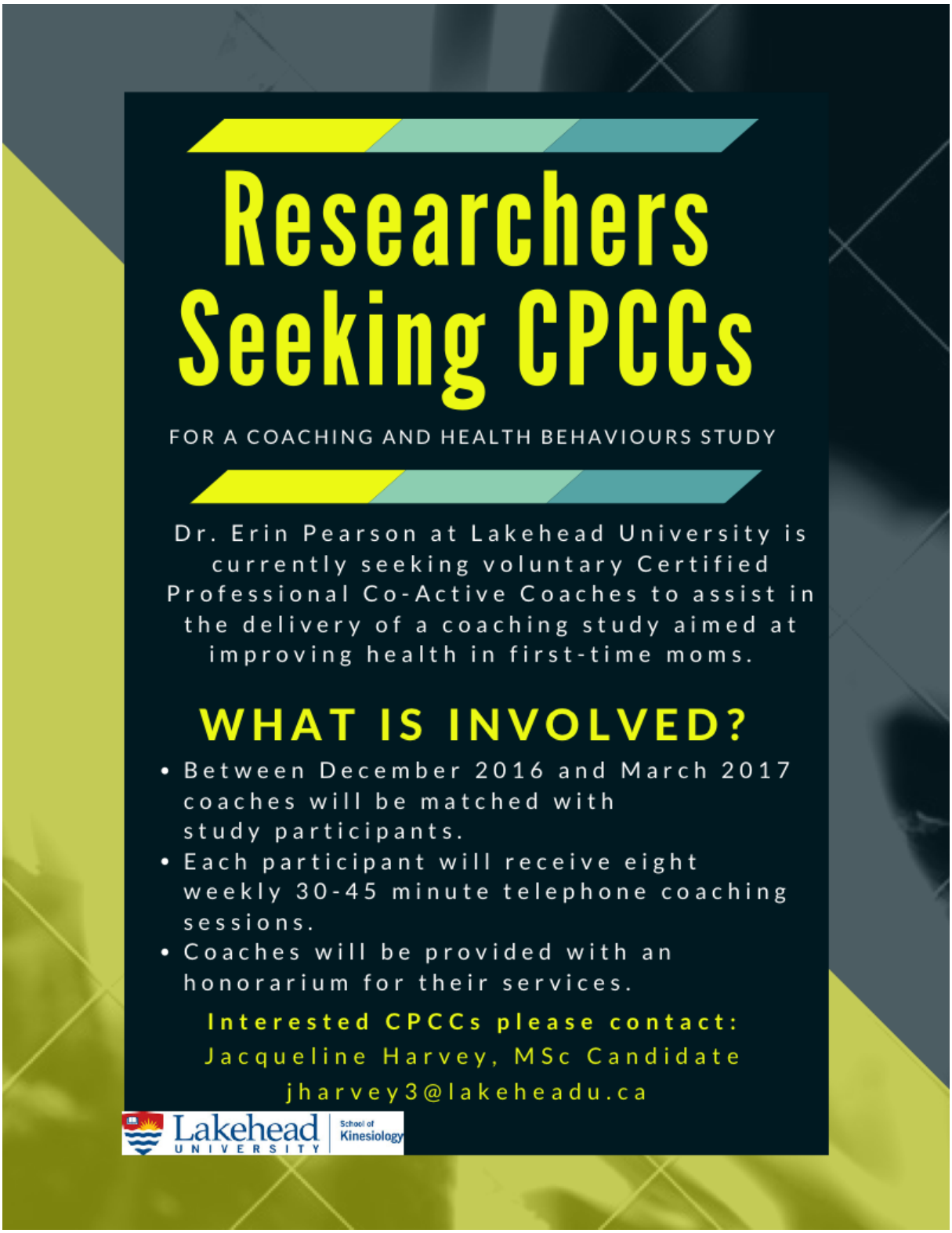
807-343-8481

Appendix E: CPCC Recruitment Poster



Appendix F: CPCC Recruitment Letter

Lakehead UNIVERSITY | School of Kinesiology

November 18, 2016

My name is Jacqueline Harvey, and I am a MSc candidate at Lakehead University, working with Dr. Erin Pearson, who is a Certified Professional Co-Active Coach (CPCC) and professor at the university. I am contacting you to see if you would be interested in serving as a coach in our upcoming research project that will examine the impact of Co-Active Coaching on physical activity engagement, body composition, and psychological indices of health among first-time mothers during the first year of motherhood.

In recent years, there has been an increase in research on using Co-Active Coaching as a method for facilitating lifestyle modifications for health challenges including obesity, physical inactivity, stress, dental hygiene, and smoking cessation. Results from these studies have been promising. Given the demonstrated effectiveness of Co-Active Coaching for bringing about health behaviour change, we are interested in exploring this intervention among other populations. The postpartum population, in particular, could benefit from Co-Active Coaching as many individuals experience a plethora of physical and psychological health challenges during the first year of motherhood, and many women have expressed having increased motivation for improving their health status during the postpartum period. Thus, applying this approach in a population of first-time mothers could prove successful with regards to improving health.

Our study design involves recruiting about 20 participants who will require 8, weekly 30-45-minute telephone coaching sessions, between approximately December 2016 and March 2017. You could choose to be involved by taking on multiple participants concurrently. It would be ideal that each volunteer coach would accept between 2-5 participants; however, we are open to alternate suggestions as some individuals may already have close to a full coaching practice while others may be looking to build their client base. In addition, while we appreciate how busy life can become, it is really important to us that coaches wanting to be in the study are able to follow through on the commitment that is made upon enrolment.

You may be wondering what is in this for you? Primarily, you would be making a significant contribution toward eliciting positive health behaviour changes in a population who is experiencing a major life transition, and may be more interested in engaging in health behaviours than during other periods. Thus, you would be supporting postpartum women in making changes to their health behaviours, while simultaneously providing research evidence for the effectiveness of coaching. Coaching for this study would also allow you the opportunity to expand your coaching repertoire to a demographic that may have been previously unfamiliar to you. For your coaching practice in particular, it is possible that participants may want to continue on with coaching (on a fee-for-coaching basis) *after the study is completed.*

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Your involvement in this study is voluntary. Given the number of participants and the duration of the study, we do not have the resources to provide a full payment for your services. However, all coaches will be offered an honorarium as a stipend for services rendered and a gesture of appreciation for your valuable time. We know that we are asking a lot of the coaches in the profession, and would like to express how grateful we would be for you volunteering your time and expertise toward the study.

As the student researcher, my involvement in the coaching process will be limited to a brief phone call or meeting with you to clarify our expectations and to answer any questions you might have. I will be responsible for assigning all participants to a coach, and participants will be responsible for initiating contact with you to set up all appointments. During the 8-week intervention, I would require immediate notification if a participant misses a coaching session, and would expect that alternate arrangements be made to make up the missed session. You and the participant will be given a tracking sheet to keep track of when coaching sessions are scheduled, if they are rescheduled, and the reason for rescheduling (if applicable). After the second coaching session, I will be calling all participants to check in, to see how things are going. If, at this time, the coach-client fit seems less than ideal, she may be switched to a different coach for the remaining sessions. Other than these elements, I will have no involvement in the coaching sessions. Further, aligning with the Co-Active model, the topic of coaching sessions is entirely up to the participant. While it is not a requirement, it is anticipated that the coaching topics will be related, in part, to health behaviour change or physical activity, given the participants' volitional enrolment in a study intended to address these variables.

If you are interested in becoming a study coach, or would like more information, please contact me at anytime. Further, please share this opportunity with colleagues you think may be interested in being involved.

I look forward to hearing from you. Thank you,

Jacqueline Harvey, MSc Candidate
Student Researcher
School of Kinesiology, Lakehead University
jharvey3@lakeheadu.ca

Erin Pearson, PhD
Assistant Professor and Student Supervisor
School of Kinesiology, Lakehead University
erin.pearson@lakeheadu.ca
807-343-8481

Appendix G: Participant Letter of Information and Informed Consent Form

Lakehead UNIVERSITY | School of Kinesiology

MI-via-CALC as an Intervention for Improving Physical and Psychological Health in First-Time Mothers

Revised Letter of Information

Dear Potential Participant,

You are invited to participate in a study being conducted by Jacqueline Harvey, Master's Candidate, working under the supervision of Dr. Erin Pearson, Assistant Professor, both of the School of Kinesiology at Lakehead University. The primary purpose of this project is to examine the impact of an 8-week Motivational Coaching (herein referred to as "MI-via-CALC") intervention on physical activity, body composition, and psychological health in first-time mothers during the first year of motherhood. You are being invited to participate because you are a first-time mother living in Northwestern Ontario, with an interest in becoming more physically active.

Procedures

Approximately 20 participants will be enrolled in the study. In order to participate in the study, you need to:

- be a first-time mother
- live in Northwestern Ontario
- be greater than six weeks, but less than nine months since child delivery
- be overweight, and looking to make a change
- be 18 years of age or older
- have received medical clearance for resuming regular daily activities
- speak and read English fluently
- self-identify as getting less than 150 minutes of moderate-to-vigorous physical activity weekly over the last six months, with an interest in increasing your physical activity levels
- have *not* been diagnosed with any physical or psychological health condition that could impact your ability to engage in physical activity

You may be eligible to participate if you meet the criteria outlined above. As a participant, you will be invited to attend a baseline assessment session at the Lakehead University C. J. Sanders Fieldhouse where you will be asked to: a) complete a brief demographic survey asking about your background (e.g., your child's date of birth, number of weeks postpartum, etc.); b) complete a series of questionnaires that will ask you about your physical activity behaviours, health-related quality of life, motivation, how skilled you believe yourself to be at engaging in physical activity; c) have your body composition assessed through a waist circumference measure and a Bioelectrical Impedance Analysis. Bioelectrical Impedance Analysis is a fast (i.e., taking approximately 5 minutes for setup and the scan), accurate, non-invasive, and safe method for measuring components of body composition. Since the scan can be affected by your hydration levels, you will be asked to refrain from engaging in certain behaviours (e.g., going in a sauna) within eight hours of your assessment sessions. The scan will involve the student researcher placing adhesive electrodes on your hand and foot, and you will be asked to lie still while the analyzer is turned on (to allow for an accurate reading). When the measurement values stabilize, the student researcher will record the values (which provide a measure of fat free mass and total body water), and will then gently remove and discard the electrodes; and d) complete the pre-intervention semi-structured questionnaire to explore your experiences. During all assessment sessions, the study researcher and a research assistant will be available to answer any questions you may have, and also provide childcare.

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After completing the baseline assessment, you will be given a brief description of MI-via-CALC and the contact information for your assigned Certified Professional Co-Active Coach, and asked to contact your coach within one week to set up the first coaching session. Certified Professional Co-Active Coaches are individuals who have completed rigorous training through a program that is accredited by the International Coaching Federation. Each coaching session will last between 30-45 minutes and will be conducted over the telephone from a location of your choosing. You will also be asked to track the date of each coaching session using the form provided, as well as the date and reason for rescheduling coaching sessions (if applicable). It is important to note that this is the only information surrounding the coaching relationship that you will be permitted to share with us. Following your first four weekly MI-via-CALC sessions, you will be asked to return to the C. J. Sanders Fieldhouse for the mid-intervention assessment, which will involve completing all study questionnaires and the body composition measures again. You will then complete your final four weekly MI-via-CALC sessions, and will be asked to return for the last assessment, which will involve completing all study questionnaires and body composition measures, and engaging in a 20-30-minute semi-structured interview that will be audio-recorded with your consent for research purposes. The interview will be used to explore your study experiences (e.g., challenges, facilitators, etc.) and provide recommendations for future research. It is anticipated that the baseline and final assessment sessions will each take approximately 50-65 minutes, and that the mid-intervention assessment session will take approximately 35-50 minutes to complete.

Voluntary Participation

Your participation in the study is completely voluntary. As such, you may refuse to participate, refuse to answer any questions, or withdraw at any time during the study, with no penalty. It is important to note that you cannot withdraw your data from the study after the master list identifying data is destroyed (i.e., upon completion of the study).

Compensation

While we cannot offer monetary compensation for your time, your valued contributions will be noted (anonymously) on all resultant publications, reports, and presentations pertaining to the study. Given that the coaches could be from anywhere in North America, participants will be given a phone card to cover any costs associated with long-distance calling.

Confidentiality and Storage of the Data

Your participation in this study is completely confidential. However, given that one of the study questionnaires focuses on postnatal depression, it is important to note that if the researcher were to receive a strong affirmative answer to a question about harming oneself, the researcher could divulge that answer to someone (e.g., your doctor) without first getting your consent. As a participant, you will be required to sign an informed consent indicating your understanding of the study requirements. The information from the questionnaires and interview will only be for the use of the researchers listed. The completed questionnaires will be stored in a locked cabinet, inside a locked office during the study, and for 5 years after the end of the study. A master list will be maintained linking your name as a participant to an identifying number, and saved on a password protected computer. Upon completion of the study, this list will be destroyed. By participating in this research, you agree that your anonymous results may be used for scientific purposes, including publication in scientific and health specific journals, and academic presentations. The results of the study will be reported without identifying you personally, thus maintaining your confidentiality.

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Potential Risks and Harms
There are no foreseeable risks or harms to you as a participant. As a participant, you do not have to answer any questions you do not want to, and can withdraw at any time without penalty. However, it is possible that you may experience feelings of discomfort when speaking about the postpartum experience both during and after the intervention. Due to this, you will be provided with an information sheet on how to identify signs and symptoms of stress, and if you feel that you would like to share your feelings with individuals outside of the study environment, there are resources available in Thunder Bay:

- Ontario Mental Health Helpline: 1-866-531-2600
- Your family physician
- A walk-in clinic or the Emergency Department
- One of many local resources:
  - Thunder Bay Counselling Centre
    544 Winnipeg Ave. Thunder Bay, ON
    Telephone: 807-684-1880
  - Thunder Bay Canadian Mental Health Association Crisis Response Services
    Telephone: 807-346-8282
    District/ Toll-Free: 1-888-269-3100
  - Mood Disorders Association of Ontario: Thunder Bay Peer Support Group
    217 Algoma Street South, Thunder Bay, ON
    Telephone: 1-800-405-8235

Potential Benefits
You will be provided with the opportunity to engage in MI-via-CALC, which has been associated with improvements in health behaviours. As a result, you may experience some of the benefits associated with lifestyle changes such as increasing physical activity (e.g., decreased postpartum weight retention, improved cardiovascular and muscular fitness, improved psychological health and mood, reduced risk for chronic disease, and developing potentially lifelong physical activity habits). MI-via-CALC interventions have been shown to elicit improvements in psychological and emotional health (e.g., increased self-esteem, self-acceptance, positive mood states, and positive self-talk).

Feedback from the Study
You may request the general findings of this research after the study is complete. If you have any concerns, please feel free to contact the researchers below. This letter is for you to keep.

Rights of Subjects
This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

Lakehead UNIVERSITY | School of Kinesiology

Sincerely,

Jacqueline Harvey, MSc Candidate
Student Researcher
School of Kinesiology, Lakehead University
jharvey3@lakeheadu.ca
807-343-8481

Erin Pearson, PhD
Assistant Professor and Student Supervisor
School of Kinesiology, Lakehead University
erin.pearson@lakeheadu.ca
807-343-8481

Common Signs of a Stress Reaction

Physical	Emotional	Cognitive	Behavioural
nausea	fear	confusion	withdrawal
vomiting	guilt	nightmares	restlessness
dizziness	panic	hypervigilance	loss of appetite
weakness	anxiety	poor concentration	insomnia
palpitations	irritability	forgetfulness	increased appetite
sweating	grief	disorientation	increased sleep
difficulty breathing	anger	intrusive images	changes in activity
chest pain	loss of control	suspiciousness	increased substance use

What might help?

Do things that make you feel good such as:	If you need help, you can contact/visit:
➢ Physical exercise alternated with rest ➢ Relaxation exercises ➢ Listening to music ➢ Eating well balanced, nourishing meals ➢ Keeping busy: structure your time ➢ Sharing your feelings with other ➢ Keeping a journal ➢ Talking to friends and family ➢ Reaching out and spending time with others	➢ Ontario Mental Health Helpline: 1-866-531-2600 ➢ Your family physician ➢ A walk-in clinic or Emergency Department ➢ One of many local resources: o Thunder Bay Counselling Centre 544 Winnipeg Ave. Thunder Bay, ON Telephone: 807-684-1880 o Thunder Bay Canadian Mental Health Association Crisis Response Services Telephone: 807-346-8282 District/ Toll-Free: 1-888-269-3100 o Mood Disorders Association of Ontario: Thunder Bay Peer Support Group 217 Algoma Street South, Thunder Bay, ON Telephone: 1-800-405-8235

Lakehead UNIVERSITY | School of Kinesiology

MI-via-CALC as an Intervention for Improving Physical and Psychological Health in First-Time Mothers

Revised Informed Consent

I, _____ have read and understand the Letter of Information, have had the nature of the study and all revisions (i.e., the interview) explained to me, and I agree to participate.

In doing so, I understand:

- the procedures involved and what will be required of me
- the potential risks and benefits associated with the study, and what those are
- that my involvement is voluntary
- that I can refuse to answer any questions or withdraw at anytime without penalty
- that the data will be stored securely at Lakehead University for a minimum of five years, following completion of the project
- that the research findings will be available to me (via the researchers) upon request following completion of the study
- that I will remain anonymous in any publication/presentation of the research findings
- that if I indicate on one of the study questionnaires that I may harm myself, the researcher could share this information with someone (e.g., my doctor) without first getting my consent

Would you like to be sent a summary of the general findings of the research upon completion? ☐ Yes ☐ No

If yes, please include your email address: _____

All questions have been answered to my satisfaction.

Print name: _____ Date: _____

Signature: _____

Name of Researcher: _____ Date: _____

Signature: _____

Appendix H: CPCC Letter of Information and Informed Consent Form

Lakehead UNIVERSITY | School of Kinesiology

Co-Active Coaching as an Intervention for Improving Physical and Psychological Health in First-Time Mothers

Certified Professional Co-Active Coach's Letter of Information

Thank you for volunteering your time and expertise to our postpartum coaching-based study. You have been invited to participate as one of the study Co-Active coaches because you have completed the certification program through The Coaches Training Institute to become a Certified Professional Co-Active Coach, and are living in North America. We are looking forward to having you involved. Prior to beginning the study, we would like to provide you with additional details on the research protocols that will be used.

The primary purpose of this project is to examine the impact of an 8-week Co-Active Coaching intervention on physical activity, body composition, and psychological health in first-time mothers during the first year of motherhood. Participants will be eligible to participate if they are a first-time mother living in Northwestern Ontario, with an interest in becoming more physically active. Participants must also: have given birth to their child vaginally; be currently breastfeeding their infant; be within the first year of motherhood; have a Body Mass Index greater than or equal to 25 kg/m^2; be 18 years of age or older; have received medical clearance for resuming regular daily activities; self identify as being inactive; and *not* have been diagnosed with a health condition that could impact their ability to engage in physical activity.

Study Timeline and Procedure

It is anticipated that participants will be recruited between December 2016 and April 2017. Once individuals are deemed eligible to participate, they will attend a baseline assessment where they will meet with the student researcher to have the study explained to them in detail, provide Informed Consent, and complete several measures (i.e., questionnaires related to physical activity, health-related quality of life, motivation, perceived competence, and psychological health; body composition measures, and the Pre-Intervention Semi-Structured Questionnaire). Following this, participants will be matched based upon their time preferences for coaching sessions and coach availability, and provided with the coach's contact information (i.e., email address and phone number). Coaches will also be notified by the student researcher at the time of the match, and provided with the participant's information (i.e., name). Each participant will be responsible for initiating contact with her assigned coach.

The Coach/ Client Relationship

The primary purpose of this study is to examine the impact of Co-Active Coaching on physical activity engagement and health-related variables (e.g., body composition and psychological indices of health) among first-time mothers during the first year of motherhood. From a research perspective, it is important that a standard protocol is utilized for coaching all participants. As such, we ask that you be mindful of the following while facilitating your coaching sessions:

- While you may have completed supplementary training that is not "Co-Active," we would ask that you stick to your Co-Active toolbox so that we can attribute our findings to this particular method of coaching upon study completion.
- Coaching sessions often vary in duration. However, for the purposes of this study, we would ask that you keep each session between 30-45 minutes in length. This will help ensure consistent intervention delivery across all participants.
- As previously mentioned, participants will be assigned to coaches based upon their time preferences and coach availability. We are aware that this is not how a coaching relationship is typically created in practice, and understand that this could result in having a less than ideal coach/client fit. If this is the case, we would ask that you contact the student researcher within the first 1-2 sessions so that the participants can be offered an opportunity to switch to another coach. Each client will be permitted to have one switch. It is anticipated

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that switching coaches will be seen as a last resort, and we will leave this decision to the discretion of each coach.

- All participants will be provided with a calling card for the purposes of the study, and will be asked to initiate contact with their coach each week. To ensure consistency, it is important that all calls occur via telephone or through the audio function on Skype (however, not the video function).
- It is possible that you have personally been impacted by physical activity engagement, challenges with body composition, or psychological health sequelae. Given the objective nature of this research, it is imperative that coaches self-manage previous experience and insights.

Checking-in, Questions, and Comments

In order to maintain accurate research methods (e.g., participant attendance, coach/client fit, etc.), the student researcher will contact you after your initial intake meeting with each participant to check-in and answer any questions you might have. If you should have any questions or concerns during your involvement in the study, please contact us via email or telephone at any time (contact information is included below). Further, we welcome and encourage your feedback on this experience. Please feel free to make personal notes throughout your study experiences so that we might discuss your experiences upon the study's completion.

Resources and Referrals

Similar to any coaching session, you may find that your client needs assistance beyond that provided through Co-Active coaching. If you feel that a referral should be made to psychological services, please let the student researcher know as soon as possible (i.e., after the first or second session). The decision as to whether the client can receive these other treatments concurrently will be left to the professional discretion of the research team in consultation with the designated coach.

While the experience of harm or distress is not anticipated as a side effect of study involvement, upon enrolment, each participant will be provided with the information below, as well as with an Information Sheet on the signs and symptoms of stress, and some resources for obtaining assistance if needed (refer to the sheet attached to the back of this package). Please feel free to remind your client of these resources if necessary.

There are no foreseeable risks or harms to you as a participant. As a participant, you do not have to answer any questions you do not want to, and can withdraw at any time without penalty. However, it is possible that you may experience feelings of discomfort when speaking about personal experiences during coaching sessions, and you will be asked to complete a questionnaire focused on postnatal depression. Due to this, you will be provided with an information sheet on how to identify signs and symptoms of stress, and if you feel that you would like to share your feelings with individuals outside of the study environment, there are resources available in Thunder Bay. Further, individuals who receive a questionnaire score indicating possible depression will be encouraged to seek out help from their healthcare provider. It is also important to note that while these scores can give an indication of depression, this tool is only a screening tool, and a clinical diagnosis must be made by a trained healthcare physician.

Confidentiality

In alignment with the Co-Active Coaching Model and the ethical research protocol outlined, it is very important that participant confidentiality is maintained at all times.

After the Study

All coaches will have the opportunity (upon signing the Informed Consent Form, and at any time thereafter by contacting the study researchers) to indicate that they would like to receive a general summary of the research findings, upon the study completion. For each participant, week 8 will be the final session. It is possible that some clients may wish to continue with their coaching for payment from this point on; however, it is important that these subsequent coaching sessions do not occur until after the final assessment has taken place (which should be within one week of

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the final coaching session). If you and the participant decide to continue after the study ends, please let the student researcher know so that this information can be included in the study records.

Contact Information

If you have any questions or concerns about the research, please feel free to contact us:

Jacqueline Harvey, MSc Candidate
Student Researcher
School of Kinesiology, Lakehead University
jharvey3@lakeheadu.ca

Erin Pearson, PhD
Assistant Professor and Student Supervisor
School of Kinesiology, Lakehead University
erin.pearson@lakeheadu.ca
807-343-8481

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Co-Active Coaching as an Intervention for Improving Physical and Psychological Health in First-Time Mothers

Coach's Informed Consent

I, _____ have read and understand the Letter of Information, have had the nature of the study explained to me, and I agree to participate. In the case that I am deemed eligible to be a Certified Professional Co-Active Coach for this study (i.e., completed the certification program through the Coaches Training Institute and currently living in North America), I commit to coaching a minimum of _____ clients and understand that my participation will occur on a volunteer basis. As a Certified Professional Co-Active Coach, I will provide my professional services in accordance with the International Coaching Federation's ethical guidelines:(http://coachfederation.org/about/ethics.aspx?ItemNumber=850&_ga=1.216950097.656436768.1479174034&RDtoken=16933&userID=)

All questions have been answered to my satisfaction.

Would you like to be sent a summary of the general findings of the research upon completion? ☐ Yes ☐ No

If yes, please include your email address: _____

Do you have any time preferences for phone coaching sessions? ☐ Yes ☐ No

If yes, what days and times?

_____

All questions have been answered to my satisfaction.

Print name: _____ Date: _____

CPCC Certification Date (mm/dd/yy): _____ Organization (e.g., CTI): _____

Signature: _____

Name of Researcher: _____ Date: _____

Signature: _____

Please fax this signed consent form to (807) 343-8944 c/o Dr. Erin Pearson, or attach via email and send to Jacqueline Harvey at jharvey3@lakeheadu.ca

Appendix I: Post-Intervention Semi-Structured Interview Guide

MI-via-CALC as an Intervention for Improving Physical and Psychological Health in First-Time Mothers

Post-Intervention Interview Guide

Participant Context*

1. How many coaching sessions did you complete?
2. Of these completed sessions, how many of them did you have to reschedule and why?
3. What made it easy to connect with your coach?
4. What made it difficult to connect with your coach?
    a. What could the researchers have done to improve this?
    b. What might you have done differently (if anything)?
    c. What else could have been done to improve this?

Health Behaviours*

5. What was your original goal upon joining the study?
    a. How did it change (if at all)?
6. Now, having completed the study, what is your primary goal moving forward?
    a. What (if any) is your plan for reaching this goal?
7. At present, what would you say is the single <u>greatest challenge</u> you are facing with respect to making lifestyle changes (e.g., participating in physical activity)?
    a. Other changes you wanted to make?
8. At present, what would you say is your single <u>greatest motivator</u> with respect to making healthy changes for yourself (or otherwise)?
9. What do you need to help facilitate your needs/ goals/ desires moving forward?
10. What are you willing to do to help achieve this?
11. How confident do you feel in your ability to engage in health behaviours?
    a. What would make you more/less confident?

Study Experiences & Future Recommendations*

12. What have you learned from your coaching experience?
    a. What did you enjoy about coaching? Not enjoy?
13. What did you find most helpful about the study?
    a. What was so helpful about this?
14. What did you find least helpful about the study?
    a. What was unhelpful about this?
15. What is it like being you?
    a. How has this changed since you started the program (if at all)?
    b. How has the way you view yourself changed since beginning the study, if at all?
16. What life challenges or other situations took place during the study that could have impacted your experience**?**
    a. E.g., health behaviours; coaching relationship; ability/confidence to make changes
17. Please complete the sentence. The number one thing that I got out of the study was…

   a. What do you think is the key benefit that you have experienced as a result of participating in the coaching sessions? (e.g., physical activity, overall health and well-being, motivation for exercise, etc.)
   b. What negative outcomes did you experience as a result of being involved in the study (if any)?

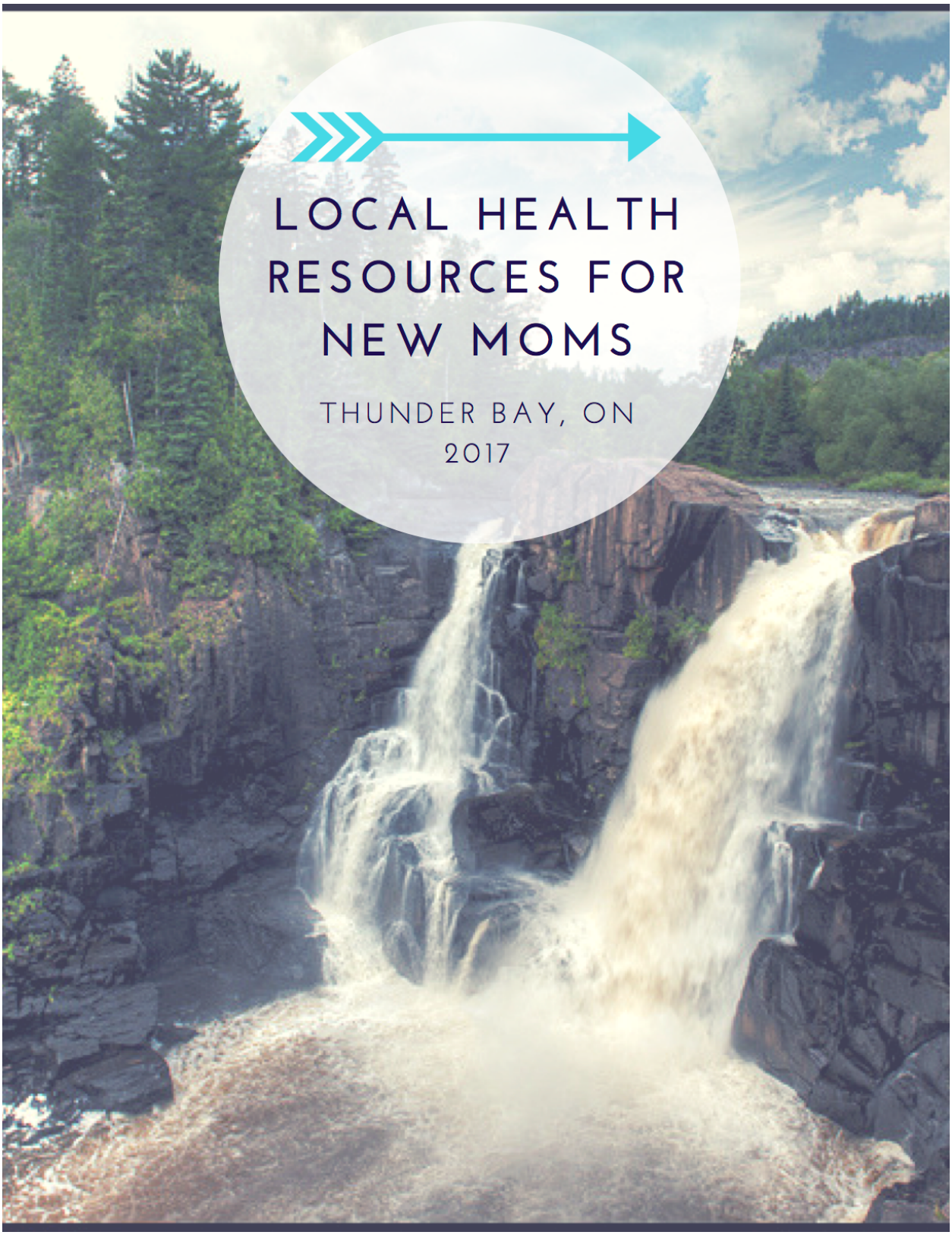
18. How do you see what you have learned impacting you in the next year?
19. How did being a new mom impact your study experiences (i.e., your ability to engage in physical activity, participate in the phone coaching sessions, attend assessments, etc.)?
20. What advice do you have for us regarding the development of similar future studies?
    a. How could we increase the number of moms taking part in the study?

Additional Comments*

21. Is there anything that we haven't talked about yet, that you'd like to add?

***Member-check after each section: Provide an oral summary of the discussion, and then ask if this is an accurate summary of everything talked about so far.**

Appendix J: Local Health Resources for New Moms



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WALK-IN CLINICS & FAMILY HEALTH

Hello there

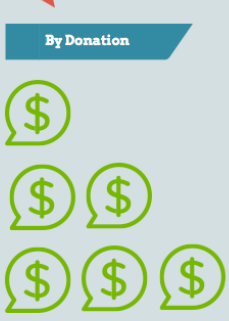
Congratulations on completing the study and your coaching sessions! We hope that you were able to take some time for yourself and explore areas in your life where you may have been feeling "stuck" while identifying ways of solving challenges and working toward new goals. We know that many new moms experience challenges with engaging in health behaviours, so to help facilitate this moving forward, we have assembled a local health-based resource for you.

As many of you know, participating in healthy behaviours during the postpartum period in particular can be beneficial for the health of you *and* your little one! Research shows that women who engage in health behaviours (e.g., healthy eating, physical activity) during the postpartum period typically engage in these behaviours during subsequent pregnancies, ultimately improving the health of themselves and their future children.

We know that many health-related activities can be quite costly, so we've also included a legend below that gives you an indication of the cost of each activity. This will hopefully make it easier for you to determine the activities that you could participate in. Hint: many of the activities are free! Enjoy the resource!

No Cost!

By Donation

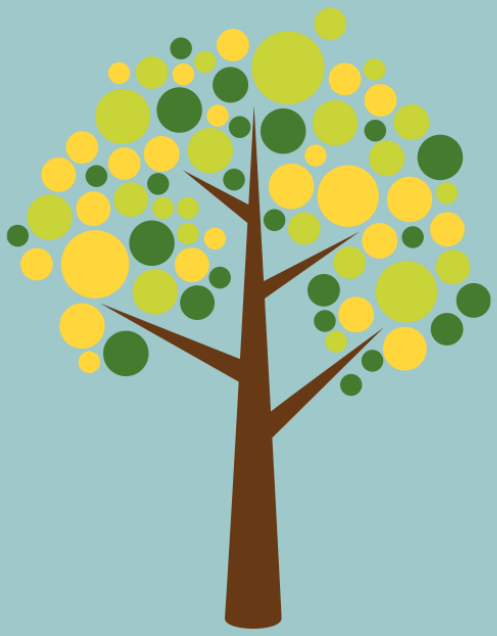


$0 - $50

$51 - $100

$101 +

Recreation & Leisure: Nature-based Activities



Connect the Dots

By Donation

Connect the Dots is a nature-based play centre offering educational drop-in play and programs for children aged 0-10 years.

Program specific for new moms and their infants:

- Sprouting Seeds Baby Program
  - **Who:** Parents and children ages 0-4 years
  - **What:** Outdoor activity followed by sensory play
  - **When:** Mondays at 10 am
  - **Where:** 2nd floor of the Baggage Arts Building at the Waterfront
  - **How much:** By donation

Phone: 807-620-2753
Address:
2200 Sleeping Giant Parkway
Prince Arthur's Landing
Thunder Bay, ON
Website: http://www.connectthedotstbay.com

The Big Boreal Adventure

FREE!

The Big Boreal Adventure is an accessible, nature-based scavenger hunt. Use the free guidebook and adventure map to discover and explore natural places in Thunder Bay!

Pick up your free copy of the guidebook and map at one of our local libraries or other distribution sites (find a list on the website below)

Phone: 807-344-2283
Address:
211 Clarke St.
Thunder Bay, ON
Website: http://www.bigborealadventure.ca

Recreation & Leisure: Music & Dance

Susan's Kindermusik of Thunder Bay

$ $ $

Kindermusik is a gently structured music and movement curriculum that allows children to learn and develop at their own pace. The cost of the program varies from $125-175 (depending on the length), however subsidized rates are available for parents who apply to the PRO Kids Thunder Bay initiative ("Positive Recreational Opportunities for Kids"). See page 9 for more information on the PRO Kids subsidized rates. Among other programs, the parent & toddler groups include:

- Kindermusik Village (Infants - 17 months)
- Our Time Toddler/Family Class (18 months - 3.5 years)

Phone: 807-345-4552
Address:
Lakehead Baptist Church
1314 Oliver Road
Thunder Bay, ON
Website: http://www.susans.ca

Dance Basics Dance School

$ $ $

Dance Basics offers three programs for moms and their little ones:

- Zumbini (0-6 years - Cost: $165/ 8-week session)
- Mom and Baby Yoga (3-14 months with parent - Cost: $120/ 8-week session)
- Salsa Babies Dance Class (6 weeks - 18 months with parent - Cost: $120/ 8-week session)

Refer to the Dance Basics website for an updated schedule.

Phone: 807-627-2625
Address:
106 North Street
Thunder Bay, ON
Facebook Page: Dance Basics
Website: http://www.4dancebasics.com

Recreation & Leisure: Exercise

Parent & Tot Swimming Classes & Aquabics

Parent & Tot Swimming Classes are offered at multiple locations & times throughout Thunder Bay. Keep in mind that you have the option of signing up for a 6-10 week session of lessons, or you can choose to do drop-in classes. Call each pool for an updated listing of their swim class & Aquabics times, as well as more details on their session/ drop-in prices.

Phone: 807-577-2538
Address:
Sir Winston Churchill Pool
130 Churchill Drive West
Thunder Bay, ON

Phone: 807-684-3311
Address:
Canada Games Complex
420 Winnipeg Avenue
Thunder Bay, ON

Phone: 807-345-5143
Address:
Volunteer Pool
180 Martha Street
Thunder Bay, ON

Body Mind Centre

The Body Mind Centre offers a weekly 80 minute Mom & Baby Yoga class. This class allows moms and babies to practice exercise, breathing, and meditation to produce a clear, bright mind and a strong, capable body.

Cost: $13/ 1 class, or $88/ 8 weekly classes
*Memberships are also available

Phone: 807-344-1628
Address:
#8 - 105 Villa Street
Thunder Bay, ON
Website: http://www.bodymindcentre.com

THE BODYMIND CENTRE
VITALITY . SPIRIT . MOTION

Recreation & Leisure: Parent & Tot Groups

Parent & tot groups provide parents and toddlers with the opportunity to learn and socialize in an informal setting. These drop-in groups typically last 1-2 hours, are free or low-cost (with some even providing free giveaways), and are run weekly. These sessions provide a stimulating environment for child learning, while giving parents the chance to socialize.

Communities Together for Children - Best Start Hubs

FREE!

Communities Together for Children is committed to providing education, centralized resources, and supports to assist in increasing the capacity of our community to help our children get their "Best Start" in life. Through leadership and the development of strong community partnerships, we will better be able to facilitate the development of caring, competent, healthy children. Best Start Hubs and Satellites offer children and their families a place to meet, to learn, and to grow together. Through the *free* Best Start programs, parents, caregivers, and children have the opportunity to participate in a variety of activities to interact together, learn information on child growth and development, experience parent peer support and parenting information, and socialize with peers.

Website:
http://www.ctctbay.org/programs/locations.htm

Best Start McIntyre Hub & Satellites

- Best Start McIntyre Hub (Our Lady of Charity School, 370 County Boulevard, 807-344-6498)
- Best Start Five Mile Public School Satellite (Five Mile Public School, 2025 Dawson Road, 807-344-6498)

Best Start Rural Hub

- Best Start Rural Hub (4509 Oliver Road, Murillo, Ontario, 807-935-3009)

Best Start Northwood Hub & Satellites

- Best Start Northwood Hub (Sherbrooke School, 110 Sherbrooke Street, 807-624-2379)
- Best Start McKenzie Public School Satellite (1625 Lakeshore Drive, 807-983-2355)
- Best Start Upsala Public School Satellite (5006 Hwy #17, Upsala, Ontario, 807-986-1409)
- Meilleur départ (Centre Grandir en francais, École catholique Franco-supérieur, 220 Elgin Street, 807-684-1953)

Best Start Red River Hub

- Best Start Red River Hub (Algonquin Public School, 160 Algonquin Avenue, 807-577-7456)

Thunder Bay Public Library

FREE!

The Thunder Bay Public Library (TBPL) offers a variety of literacy-based programs for individuals of all ages. Specific for parents and their little ones, the TBPL offers:

Baby Time - Drop-in literacy-based story time at different TBPL locations (call or refer to the website for time & location details) for babies 0-24 months combining stories, songs, lap rhymes, and play! Babies learn the sounds and rhythm of language, which helps to instil an early love of reading and encourage socialization with other babies!
Read. Sing. Play. - Children and their family or caregivers can enjoy a drop-in literacy-based story time combining stories, songs, and rhymes with activities and time for play!

Phone: 807-345-8275
Website: http://www.tbpl.ca/article/whats-up-at-the-library-252.asp

Recreation & Leisure: Parent & Tot Groups

Our Kids Count - Infant Rhymes & Rainbows

FREE!

Our Kids Count offers parents and infants the opportunity to participate in a fun interactive circle time learning new rhymes and songs, choose topics for discussion centred around infant care and development, and to socialize with peers. Nutritious snacks are provided!

Time: Thursday afternoons from 1-3 pm
Address:
Westfort Family Resource Centre
1315 Crawford Street
Thunder Bay, ON
Phone: 807-623-0292 ext. 220
Website: http://www.ourkidscount.ca/programs/parenting-support/infant-rhymes-rainbows/

Anishnawbe Mushkiki Healthy Beginnings Class

FREE!

Anishnawbe Mushkiki runs a weekly Healthy Beginnings class for pregnant women and new mothers. The class involves a free healthy lunch, an education session, updates about community events, and time for socialization. The classes are held on Mondays from 12:30 - 2:30 pm at either Unit 16 on Blucher Crescent, or at Unit 87 in the Limbrick Resource Centre. Refer to the Facebook page for the updated schedule.

Phone: 807-623-0383 ext. 233
Facebook: Anishnawbe Mushkiki

Beendigen Inc. Pre- and Post-natal Program

FREE!

Beendigen is committed to improving the nutritional health of Indigenous expectant mothers and those with babies up to six months of age who live off-reserve. Cultural awareness and teachings are included in all components of the program. The program is held weekly and provides mothers with a healthy lunch and the opportunity to learn more about pre- and post-natal care, nutrition, healthy lifestyles, and breastfeeding. Call Beendigen to confirm the time and location of the program.

Phone: 807-628-0624
Website: http://www.beendigen.com/index.php

Facebook Groups for Moms

- Breastfeeding Coalition
- Le Leche League Thunder Bay
- Running Moms in Thunder Bay
- Thunder Bay Mom-to-Mom Breastfeeding Support
- Thunder Bay Moms Group
- Thunder Bay moms, toddlers & young kids!
- Thunder Bay First Time Moms
- Thunder Bay Moms in Need
- Thunder Bay Parents Buy and Sell for Young Girls Stuff Only!
- Thunder Bay Parents Swap n' Sell
- Thunder Bay Parent's Social Group
- Thunder Bay Parents

Resources & Assistance for New Parents

Precious Bundles

FREE!

Precious Bundles is a community oriented non-profit organization in Thunder Bay, Ontario that recycles quality second-hand children's clothing, toys, books, and baby items. These items are distributed to local families in need free of charge once weekly. By lessening the expenses for low-income families, Precious Bundles hopes to give many children a brighter future.

Phone: 807-251-7142
Website: http://www.preciousbundles.org/index.html

Baby Box University

FREE!

Baby Box University is an educational service provided by The Baby Box Co. in coordination with committed medical professionals, maternal health advocates, and child development specialists for the purposes of reducing infant mortality and empowering parents. This initiative provides expecting and new parents with universal access to educational resources and a support system. Baby Box University includes short form videos, articles, an "ask an expert" feature, e-books, and more.

The Baby Box tradition has been credited with helping Finland achieve one of the lowest infant mortality rates in the world. While the Baby Box provided to you (after signing up through the website) is valuable, the most beneficial aspects of the program are the education, healthcare, and community components.

Website: http://www.babyboxuniversity.com/

PRO Kids Thunder Bay

FREE!

Positive Recreational Opportunities for Kids (PRO Kids) is dedicated to making recreational activities accessible to economically disadvantaged children and youth. Parents/ caregivers must apply by selecting a community-based program of interest to the child using *The Key* (Thunder Bay's Guide to Community Programs), or on the Partners List posted on the website (below), completing the Application Form, then submitting it to the City of Thunder Bay Recreation and Culture Division. Successful applicants will receive subsidized rates for participation in one activity each season, and applications are processed on a first-come first-serve basis.

Phone: 807-625-3212
Contact: Laura Daniele (Coordinator)
Email: ldaniele@thunderbay.ca
Address:
City of Thunder Bay Recreation and Culture Division
Victoriaville Civic Centre
111 Syndicate Avenue South
Thunder Bay, ON
Website: http://www.thunderbay.ca/Living/Children_and_Youth/P_R_O__Kids/Apply.htm

P.R.O. Kids
Positive Recreation Opportunities for Kids

09

Community Organizations Relating to Family Health & Wellness

Our Kids Count

FREE!

Our Kids Count offers a variety of programming through 2 locations for parents to register for skill building and/or educational programs, while their children are cared for by trained Early Childhood Education workers.

Programs include:

- Community Kitchens
- Triple P Parenting
- Interactive children's playgroups
- Budgeting workshops
- Home Visiting
- Pre/postnatal educational sessions

Administration Office & McKenzie Family Resource Centre
Phone: 807-623-0292
Address:
704 McKenzie Street
Thunder Bay, ON
Website:
http://www.ourkidscount.ca

Children's Centre Thunder Bay

FREE!

Children's Centre Thunder Bay provides collaborative treatment and support for children and youth aged 0-18 years, who are experiencing behavioural, emotional, developmental or social difficulties.

Programs include:

- Brief Parent Counselling Services
- Circle of Security
- Intensive Child and Family Intervention
- Parenting Education
- Infant Hearing Program
- Autism Assessments & the Autism Intervention Program
- Infant & Child Development Program

Phone: 807-343-5000
Address:
283 Lisgar Street
Thunder Bay, ON
Website: http://www.childrenscentre.ca/en

Community Organizations Relating to Family Health & Wellness

George Jeffrey Children's Centre

FREE!

The George Jeffrey Children's Centre is a paediatric outpatient facility that offers programs and services aimed at meeting the physical, developmental, and social needs of children living in Northwestern Ontario.

Services include:

- Augmentative Communication
- Occupational Therapy
- Physiotherapy
- Recreation and Leisure Facilitation
- Rural Services (District of Thunder Bay)
- Seating and Mobility
- Speech-Language Pathology
- Social Work

Phone: 807-623-4381
Address:
200 Brock Street East
Thunder Bay, ON
Website: http://www.georgejeffrey.com

Thunder Bay District Health Unit

FREE!

The Thunder Bay District Health Unit offers a variety of programs and services for families and babies during the pre- and postnatal periods. The Health Unit partners with many community organizations to implement services throughout the city (e.g., Babies' Day Out programs through the Best Start Hubs), and is available to provide you with education on a variety of health-related topics.

In particular, the Health Unit offers the Healthy Babies, Healthy Children program, a home visiting program for pregnant women and parents with children under the age of 6 years. A public health nurse and family home visitor work closely to meet your needs during visits in your home, or at a location that you feel comfortable. Staff can provide advice and support about pregnancy, the postpartum period, and parenting over the phone or in-person. When needed, they can also refer you to other community resources. Please call to sign up for the program.

Phone: 807-625-5900
Address:
999 Balmoral Street
Thunder Bay, ON
Website: http://www.tbdhu.com/health-topics/parenting

Thunder Bay District Health Unit

Breastfeeding Supports

Thunder Bay Regional Health Sciences Centre Maternity Centre

FREE!

Maternity Centre Lactation Consultant

The lactation consultant at the Maternity Centre is available to assist women up to 8 weeks postpartum with education and assistance with breastfeeding. Postpartum women can receive assistance with concerns, or support even if breastfeeding is going well. For appointment bookings, please call 807-684-6228.

Bosom Buddies

Bosom Buddies is a support group for women who are breastfeeding. Women meet at the Maternity Centre with a lactation consultant and share stories and challenges. Drop in Mondays between 2 and 3 pm.

Thunder Bay District Health Unit

FREE!

Breastfeeding Clinic

The Thunder Bay District Health Unit has a breastfeeding clinic that offers one-on-one appointments with a lactation consultant. Clinic appointments are available on Mondays, Tuesdays, and Thursdays, by request. To book an appointment, please call 807-625-5916.

Breastfeeding Friends

The Thunder Bay District Health Unit offers a free drop-in mother-to-mother breastfeeding support program for moms and babies of all ages. A Lactation Consultant is available for consultation as needed. This group meets at the Sherbooke Best Start Hub on Tuesdays from 1-3 pm.

Le Leche League Thunder Bay

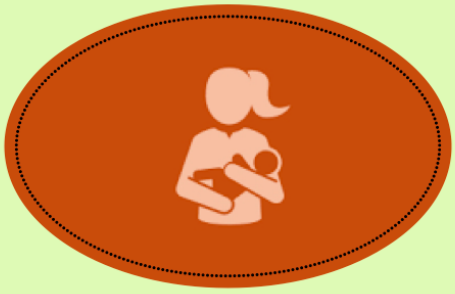
FREE!

Le Leche League Thunder Bay meets every Friday for playgroup at the Algonquin Best Start Hub (160 Algonquin Avenue South), and hosts the Best for Babies Breastfeeding class on the 3rd Wednesday of every Month from 7-9 pm in the Community Midwives of Thunder Bay office (610 Hewitson Street). Contact Nancy Hoeve at 807-251-8707 or hoevesmith@hotmail.com to sign up or get more information.

Thunder Bay Breastfeeding Coalition

FREE!

The Thunder Bay Breastfeeding Coalition typically meets every second Wednesday. Refer to the Thunder Bay District Health Unit website (www.tbdhu.com) for more information or "Like" "Thunder Bay Breastfeeding Coalition" on Facebook for updates.



Walk-In Clinics & Family Health

Walk-In Clinics

- Algoma Place Health Centre (807-345-5020)
- Dilico Anishnabek Family Care, FWFN Site (807-626-5200)
- Dilico Anishnabek Family Care, Archibald Site (807-623-8511)
- Rexall's Pharmacy Northwest Medical Clinic (807-623-7101)
- Red River Medical Clinic (no phone number)
- Ridgeway Clinic (807-622-0601)
- Joseph Esquega Health Clinic (807-623-4444)
- Westfort Village Health Centre (807-473-9666)
- White Cedar Health Care Centre (807-475-4357)
- Academy Medical Pharmacy (807-344-4540)
- Elevate Medical Pharmacy (807-767-7002)
- Good Doctors Walk-In Clinic (807-700-0395)
- Northwest Community Health Centre, Urgent Care Clinic (807-622-8235)

Family Health Teams

- Aurora Family Health Centre Walk-In Clinic (807-285-1894)
- Superior Family Health Organization (807-344-8475)
- Lakehead Nurse Practitioner Led Clinic (807-475-9595)
- Fort William Family Health Organization (807-626-1234)
- Port Arthur Health Centre (807-346-1000)
- Spence Clinic (807-626-1111)
- Harbourview Medical Centre (807-346-1240)
- Anishnawbe Mushkiki Medical Clinic (807-623-0383)
- Golf Links Community Clinic (807-622-3995)

Midwives & Doulas

- Community Midwives of Thunder Bay (807-622-2229)
- Maternity Care Midwives (807-344-2229)
- Lindsey Holmstrom (Doula - email: lindseyholmstrom@gmail.com)
- The Doula Shop (807-345-1842)

THANKS FOR READING.

ENJOY THE RESOURCE!

2017

Created by

Jacqueline Harvey

HBK, MSc Candidate

Supervisor: Dr. Erin Pearson
Assistant Professor

Lakehead University | School of Kinesiology

Appendix K: International Physical Activity Questionnaire

INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the **last 7 days**. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the **vigorous** and **moderate** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal.

PART 1: JOB-RELATED PHYSICAL ACTIVITY

The first section is about your work. This includes paid jobs, farming, volunteer work, course work, and any other unpaid work that you did outside your home. Do not include unpaid work you might do around your home, like housework, yard work, general maintenance, and caring for your family. These are asked in Part 3.

1. Do you currently have a job or do any unpaid work outside your home?

   ☐ Yes

   ☐ No → ***Skip to PART 2: TRANSPORTATION***

The next questions are about all the physical activity you did in the **last 7 days** as part of your paid or unpaid work. This does not include traveling to and from work.

2. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, heavy construction, or climbing up stairs **as part of your work**? Think about only those physical activities that you did for at least 10 minutes at a time.

   _____ **days per week**

   ☐ No vigorous job-related physical activity → ***Skip to question 4***

3. How much time did you usually spend on one of those days doing **vigorous** physical activities as part of your work?

   _____ **hours per day**
   _____ **minutes per day**

4. Again, think about only those physical activities that you did for at least 10 minutes at a time. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads **as part of your work**? Please do not include walking.

   _____ **days per week**

   ☐ No moderate job-related physical activity → ***Skip to question 6***

5. How much time did you usually spend on one of those days doing **moderate** physical activities as part of your work?

_____ **hours per day**
_____ **minutes per day**

6. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time **as part of your work**? Please do not count any walking you did to travel to or from work.

_____ **days per week**

☐ No job-related walking → ***Skip to PART 2: TRANSPORTATION***

7. How much time did you usually spend on one of those days **walking** as part of your work?

_____ **hours per day**
_____ **minutes per day**

PART 2: TRANSPORTATION PHYSICAL ACTIVITY

These questions are about how you traveled from place to place, including to places like work, stores, movies, and so on.

8. During the **last 7 days**, on how many days did you **travel in a motor vehicle** like a train, bus, car, or tram?

_____ **days per week**

☐ No traveling in a motor vehicle → ***Skip to question 10***

9. How much time did you usually spend on one of those days **traveling** in a train, bus, car, tram, or other kind of motor vehicle?

_____ **hours per day**
_____ **minutes per day**

Now think only about the **bicycling** and **walking** you might have done to travel to and from work, to do errands, or to go from place to place.

10. During the **last 7 days**, on how many days did you **bicycle** for at least 10 minutes at a time to go **from place to place**?

_____ **days per week**

☐ No bicycling from place to place → ***Skip to question 12***

11. How much time did you usually spend on one of those days to **bicycle** from place to place?

_____ **hours per day**
_____ **minutes per day**

12. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time to go **from place to place**?

_____ **days per week**

☐ No walking from place to place → ***Skip to PART 3: HOUSEWORK, HOUSE MAINTENANCE, AND CARING FOR FAMILY***

13. How much time did you usually spend on one of those days **walking** from place to place?

_____ **hours per day**
_____ **minutes per day**

PART 3: HOUSEWORK, HOUSE MAINTENANCE, AND CARING FOR FAMILY

This section is about some of the physical activities you might have done in the **last 7 days** in and around your home, like housework, gardening, yard work, general maintenance work, and caring for your family.

14. Think about only those physical activities that you did for at least 10 minutes at a time. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, chopping wood, shoveling snow, or digging **in the garden or yard**?

_____ **days per week**

☐ No vigorous activity in garden or yard → ***Skip to question 16***

15. How much time did you usually spend on one of those days doing **vigorous** physical activities in the garden or yard?

_____ **hours per day**
_____ **minutes per day**

16. Again, think about only those physical activities that you did for at least 10 minutes at a time. During the **last 7 days**, on how many days did you do **moderate** activities like carrying light loads, sweeping, washing windows, and raking **in the garden or yard**?

_____ **days per week**

☐ No moderate activity in garden or yard → ***Skip to question 18***

17. How much time did you usually spend on one of those days doing **moderate** physical activities in the garden or yard?

_____ **hours per day**
_____ **minutes per day**

18. Once again, think about only those physical activities that you did for at least 10 minutes at a time. During the **last 7 days**, on how many days did you do **moderate** activities like carrying light loads, washing windows, scrubbing floors and sweeping **inside your home**?

_____ **days per week**

☐ No moderate activity inside home → ***Skip to PART 4: RECREATION, SPORT AND LEISURE-TIME PHYSICAL ACTIVITY***

19. How much time did you usually spend on one of those days doing **moderate** physical activities inside your home?

_____ **hours per day**
_____ **minutes per day**

PART 4: RECREATION, SPORT, AND LEISURE-TIME PHYSICAL ACTIVITY

This section is about all the physical activities that you did in the **last 7 days** solely for recreation, sport, exercise or leisure. Please do not include any activities you have already mentioned.

20. Not counting any walking you have already mentioned, during the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time **in your leisure time**?

_____ **days per week**

☐ No walking in leisure time → ***Skip to question 22***

21. How much time did you usually spend on one of those days **walking** in your leisure time?

_____ **hours per day**
_____ **minutes per day**

22. Think about only those physical activities that you did for at least 10 minutes at a time. During the **last 7 days**, on how many days did you do **vigorous** physical activities like aerobics, running, fast bicycling, or fast swimming **in your leisure time**?

_____ **days per week**

☐ No vigorous activity in leisure time → ***Skip to question 24***

23. How much time did you usually spend on one of those days doing **vigorous** physical activities in your leisure time?

_____ **hours per day**
_____ **minutes per day**

24. Again, think about only those physical activities that you did for at least 10 minutes at a time. During the **last 7 days**, on how many days did you do **moderate** physical activities like bicycling at a regular pace, swimming at a regular pace, and doubles tennis **in your leisure time**?

_____ **days per week**

☐ No moderate activity in leisure time → ***Skip to PART 5: TIME SPENT SITTING***

25. How much time did you usually spend on one of those days doing **moderate** physical activities in your leisure time?
_____ **hours per day**
_____ **minutes per day**

PART 5: TIME SPENT SITTING

The last questions are about the time you spend sitting while at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading or sitting or lying down to watch television. Do not include any time spent sitting in a motor vehicle that you have already told me about.

26. During the **last 7 days**, how much time did you usually spend **sitting** on a **weekday**?

_____ **hours per day**
_____ **minutes per day**

27. During the **last 7 days**, how much time did you usually spend **sitting** on a **weekend day**?

_____ **hours per day**
_____ **minutes per day**

This is the end of the questionnaire, thank you for participating.

Appendix L: Short-form 8-item Health Survey

SF-8™ Health Survey

This survey asks for your views about your health. This information will help you keep track of how you feel and how well you are able to do your usual activities.
Answer every question by selecting the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.
For each of the following questions, please mark an [x] in the one box that best describes your answer.

1. Overall, how would you rate your health during the **past 4 weeks**?

   Excellent Very Good Good Fair Poor Very Poor

2. During the **past 4 weeks**, how much did physical health problems limit your physical activities (such as walking or climbing stairs)?

   Not at all Very little Somewhat Quite a lot Could not do physical activities

3. During the **past 4 weeks**, how much difficulty did you have doing your daily work, both at home and away from home, because of your physical health?

   Not at all Very little Somewhat Quite a lot Could not do daily work

4. How much bodily pain have you had during the **past 4 weeks?**

   None Very mild Mild Moderate Severe Very severe

5. During the **past 4 weeks**, how much energy did you have?

   Very much Quite a lot Some A little None

6. During the **past 4 weeks**, how much did your physical health or emotional problems limit your usual social activities with family or friends?

   Not at all Very little Somewhat Quite a lot Could not do social activities

7. During the **past 4 weeks**, how much have you been bothered by **emotional problems** (such as feeling anxious, depressed or irritable)?

   Not at all Slightly Moderately Quite a lot Extremely

8. During the **past 4 weeks**, how much did personal or emotional problems keep you from doing your usual work, school or other daily activities?

   Not at all Very little Somewhat Quite a lot Could not do daily activities

Thank you for completing these questions.

Appendix M: Behavioural Regulation in Exercise Questionnaire – 3

EXERCISE REGULATIONS QUESTIONNAIRE (BREQ-3)

Age: _____ **years** **Sex: male female (please circle)**

WHY DO YOU ENGAGE IN EXERCISE?

We are interested in the reasons underlying peoples' decisions to engage or not engage in physical exercise. Using the scale below, please indicate to what extent each of the following items is true for you. Please note that there are no right or wrong answers and no trick questions. We simply want to know how you personally feel about exercise. Your responses will be held in confidence and only used for our research purposes.

		Not true for me		Sometimes true for me		Very true for me
1	It's important to me to exercise regularly	0	1	2	3	4
2	I don't see why I should have to exercise	0	1	2	3	4
3	I exercise because it's fun	0	1	2	3	4
4	I feel guilty when I don't exercise	0	1	2	3	4
5	I exercise because it is consistent with my life goals	0	1	2	3	4
6	I exercise because other people say I should	0	1	2	3	4
7	I value the benefits of exercise	0	1	2	3	4
8	I can't see why I should bother exercising	0	1	2	3	4
9	I enjoy my exercise sessions	0	1	2	3	4
10	I feel ashamed when I miss an exercise session	0	1	2	3	4
11	I consider exercise part of my identity	0	1	2	3	4
12	I take part in exercise because my friends/family/partner say I should	0	1	2	3	4
13	I think it is important to make the effort to exercise regularly	0	1	2	3	4
14	I don't see the point in exercising	0	1	2	3	4
15	I find exercise a pleasurable activity	0	1	2	3	4
16	I feel like a failure when I haven't exercised in a while	0	1	2	3	4
17	I consider exercise a fundamental part of who I am	0	1	2	3	4
18	I exercise because others will not be pleased with me if I don't	0	1	2	3	4
19	I get restless if I don't exercise regularly	0	1	2	3	4
20	I think exercising is a waste of time	0	1	2	3	4

		Not true for me		Sometimes true for me		Very true for me
21	I get pleasure and satisfaction from participating in exercise	0	1	2	3	4
22	I would feel bad about myself if I was not making time to exercise	0	1	2	3	4
23	I consider exercise consistent with my values	0	1	2	3	4
24	I feel under pressure from my friends/family to exercise	0	1	2	3	4

Thank you for taking part in our research

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October 2014

Appendix N: Perceived Competence Scale

Perceived Competence for Engaging in Physical Activity

Please respond to each of the following items in terms of how true it is for you with respect to your experiences in the Motivational Coaching intervention. Use the scale:

1	2	3	4	5	6	7
not at all true			somewhat true			very true

1. I feel confident in my ability to engage in physical activity. _____
2. I am capable of being physically active. _____
3. I am able to achieve my physical activity goals. _____
4. I feel able to meet the challenge of following through on my physical activity goals. _____

Appendix O: Participant Measures Tracking Sheet

MI-via-CALC as an Intervention for Improving Physical and Psychological Health in First-Time Mothers

ID#:_____

Questionnaires at each assessment

Pre-Intervention Assessment Date & Time: _____

Height: _____ BMI:_____

Weight: _____ Waist Circumference: _____

% Body Fat: _____

% Fat-Free Mass: _____

Resistance: _____

Reactance: _____

Mid-Intervention Assessment Date & Time: _____

Weight: _____ BMI:_____

% Body Fat: _____ Waist Circumference: _____

% Fat-Free Mass: _____

Resistance: _____

Reactance: _____

Post-Intervention Assessment Date & Time: _____

Weight: _____ BMI:_____

% Body Fat: _____ Waist Circumference: _____

% Fat-Free Mass: _____

Resistance: _____

Reactance: _____

Appendix P: CPCC Contact Information Sheet

Lakehead UNIVERSITY | School of Kinesiology

Certified Professional Co-Active Coach Information

Welcome to the study Now that you have completed your baseline assessment (i.e., questionnaires, and body composition analysis), you are ready to begin your motivational coaching sessions.

You have been assigned to work with _____. Please call or email this individual before _____ to arrange your first session. Once you have arranged this appointment, please notify Jacqueline with the date via email or telephone.

Coach's Name: _____
Email: _____
Telephone: _____

Student Researcher: Jacqueline Harvey
Email: jharvey3@lakeheadu.ca
Telephone: 807S343S8481

Appendix Q: Coaching Session Tracking Sheets

Coaching Session Tracking Sheets

Coach Name: _____

Participant Identification Number: _____

Coaching Session	Date of Coaching Session	Date of Rescheduled Session (if any)	Reason for Rescheduling (if applicable)
1			
2			
3			
4			
5			
6			
7			
8			