

**EXAMINING PERCEPTIONS AND EXPERIENCES OF PHYSICAL ACTIVITY,  
BODY IMAGE AND PHYSICAL SELF-CONCEPT IN AT-RISK ADOLESCENT GIRLS**

by

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## ABSTRACT

Body image dissatisfaction is highly prevalent among at-risk adolescent girls (i.e., those exposed to sexual exploitation, poor family support); yet, there are no specific considerations relating to body image, self-concept and physical activity (PA) for this sub-population. PA participation in adolescent girls is vital for overall health and wellbeing, and contributes to a positive body image and physical self-concept. This study examined the feasibility and potential effectiveness of an integrated PA and psychosocial program aimed at improving the body image and physical self-concept of at-risk adolescent girls. A pre-experimental, mix-methods design was utilised to collect data from at-risk adolescent girls (N=24) between the ages of 11-17 years, via survey research (n=22) and semi-structured interviews (n=16). PA perception and enjoyment were measured using the Physical Activity Enjoyment Scale, and perceptions of physical self-concept and body image were measured using the Physical Self-Description Questionnaire. In addition, PA behaviours, experiences and preferences, as well as perceptions and awareness around body image and the sociocultural environment, were explored through the semi-structured interviews. Paired t-tests indicated significant changes, from baseline to post-intervention, in components of physical self-concept, specifically coordination ( $p=0.05$ ), PA ( $p=0.01$ ), strength ( $p=0.03$ ), and endurance ( $p=0.01$ ). Using thematic analysis, three themes emerged from the interview data, including: 1) *Physical activity in the eyes of adolescent girls* with results indicating that adolescent girls have an understanding of PA, different types of PA, and the associated enablers and barriers to participation for girls of this age; 2) *Friendships and small group participation* were highlighted as important for PA participation,

specifically engaging in PA with peers, in a girls-only setting, increased enjoyment and was important for promoting support; and 3) *Being healthy to be happy* described health according to adolescent girls, which involved awareness of body image and the sociocultural environment. When designing programs for this population, input regarding activity choice, and the involvement of a supportive adult are key. An integrated PA and psychosocial intervention shows promise as a strategy for reaching and engaging at-risk adolescent girls, particularly when it is delivered in the supportive, small group environment.

## **PREFACE**

Ethical approval for this project was obtained from the University of British Columbia Okanagan's Behavioural Research Ethics Board (H15-01213).

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## **GLOSSARY**

*Adolescence:* the period in human growth and development that occurs after childhood and before adulthood, from ages 11-17 years. It represents one of the critical transitions in the life span characterised by a tremendous pace in growth and change. Biological processes drive many aspects of this growth and development with the onset of puberty marking the beginning of adolescence (World Health Organization, 2016).

*At-risk:* the presence of negative antecedent conditions which create vulnerabilities, combined with the presence of specific negative behaviour or experiences that are more likely to lead, in time, to problem behaviours that will have more serious long-term consequences (Resnick & Burt 1996). A general term for young people in trouble (Tidwell & Garrett, 1994).

*Body image:* the picture we have in our minds of the size, shape, and form of our bodies; and our feelings concerning these characteristics and our constituent body parts (Slade, 1994).

*Body image dissatisfaction:* negative evaluations of body size, shape, muscularity/muscle tone, and weight (Cash & Szymanski, 1995).

*Enjoyment:* a positive affective state that reflects feelings such as pleasure, liking, and fun (Motl, Dishman, Saunders, Dowda, Felton, & Pate, 2001).

*Health:* a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity (WHO, 2016).

*Health-related quality of life (HRQoL):* physical and mental health perceptions and their correlates – including health risks and conditions, functional status, social support, and socioeconomic status (Centres for Disease Control and Prevention, 2016).

*Physical activity (PA)*: any bodily movement produced by skeletal muscle that requires energy expenditure (Caspersen, Powel, & Christenson, 1985; WHO, 2016).

*Self-concept*: the perception(s) one has of oneself in terms of personal attributes (King, 1997).

*Self-efficacy*: people's beliefs in their capabilities to produce desired effects by their own actions (Bandura, 1977).

*Self-esteem*: the evaluation which the individual makes and customarily maintains with regards to him/herself (King, 1997).

*Self-perception*: broad self-referent psychological statements, often impetus to health-compromising behaviours (e.g., dieting, excessive PA) (Crocker et al., 2003).

*Wellbeing*: the presence of positive emotions and moods, the absence of negative emotions, satisfaction with life, fulfillment and positive functioning; judging life positively and positive functioning (CDC, 2016).

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## **CHAPTER 1 INTRODUCTION**

### **1.1 Layout of thesis**

This thesis is divided into six chapters. Chapter one provides an overview of the project and introduces the purpose for the present research. Chapter two provides a review of existing literature, focused on adolescent girls, body image dissatisfaction, and the role physical activity (PA) may play in decreasing body image dissatisfaction, and increasing physical self-concept and positive self-esteem in at-risk adolescent girls. Chapter three outlines the methodology of the study, providing a description of the design, study population, 9-week intervention program and procedures. Chapter four and five comprehensively presents and discusses the results of the project. The sixth and final chapter provides a summary of the findings, outlines the strengths and limitations, and highlights future directions for research.

### **1.2 Overview**

Adolescence is a period of physical, social, and emotional change. Alongside increased vulnerability and adjustment, the transition to adolescence presents many opportunities for health, growth and development (Murray, Byrne, & Rieger, 2011; Sawyer et al., 2012). The vast physical changes contribute to heightened awareness of the body, specifically in developing girls, where increased importance is placed on physical appearance and body image. Body image dissatisfaction or negative feelings toward ones body, is exceptionally common among adolescent girls. It is estimated that over 90% of adolescent girls experience body image dissatisfaction to some extent, with the prevalence being greater, and the negative feelings (i.e., emotional instability,

altered self-perception and confusion) worse, among at-risk girls (Stice & Whitenon, 2002; Bearman, Martinex, Stice, & Presnell, 2006; Preti, Incani, Camboni, Petretto, & Masala, 2006; van den Berg, Mond, Eisenberg, Ackard, & Neumark-Sztainer, 2010). Those defined as 'at-risk' often include girls exposed to disadvantaged lifestyle factors, such as low socioeconomic status (SES), those with a history of abuse or sexual exploitation, and those with limited family and social support (van den Berg et al., 2010).

Body image dissatisfaction tends to increase during adolescence resulting in poor body image emotions and low self-esteem among young girls. Adolescent girls often face unique challenges around development due to more prominent changes in their physical appearance, such as weight gain, and thus experience more negative feelings surrounding body image (Sawyer et al., 2012). Body image is directly related to self-esteem; dissatisfaction with appearance not only stems from poor self-esteem, but also contributes to further psychological issues (i.e., depression, disordered eating). Research has indicated that some of these factors may be ameliorated by engaging in sport and PA (Casey et al., 2014; Schmalz, Deane, Birch, & Davison, 2007; Schneider, Dunton, & Cooper, 2008; Mak, Cerin, McManus, Lai, Day, & Ho, 2016).

PA has been shown to provide physical, mental and social health benefits such as: cardiovascular fitness, healthy weight management, bone and joint health, lower blood pressure, as well as reduced stress and anxiety, improved self-esteem and health related quality of life (Casey et al., 2014; Grieser, Saksvig, Felton, Catellier, & Webber, 2014; Lubans et al., 2010; Trost, Pate, Ward, Saunders, & Riner, 1999; Schmalz et al., 2007; Schneider et al., 2008). Specific to adolescents, PA also encourages girls to value

their body, by increasing awareness of the functional aspects of the female body (Abbott & Barber, 2011; Davison, Weder, Trost, Baker, & Birch, 2007). Participation in PA, through exploring sport and recreation activities (e.g., team sport, dance, yoga), encourages girls to form an instrumental relationship with their bodies and discover the body's capabilities, which in turn can help adolescent girls develop a positive body image (Abbott & Barber, 2011). Despite the physical, mental, social and emotional benefits associated with PA, participation rates remain low for adolescent girls, a trend that is more evident in at-risk adolescent girls (Gibbone, Perez, & Virgilio, 2014).

Research has highlighted a number of barriers that impact PA participation rates specific to this population, including time constraint, lack of support and socio-environmental factors (Trost et al., 1999; Janssen & LeBlanc, 2010). Access to gender-specific physical activities or programs for girls, as well as losing interest or lacking competence also contribute to declining participation rates (Slater & Tiggemann 2010; Trost et al., 1999). The most reported barriers to PA participation among adolescent girls are low self-esteem and self-efficacy. Girls require supportive and encouraging surroundings to gain confidence and develop competence and self-efficacy to help raise their self-esteem (Sebire, Haase, Montgomery, McNeill, & Jago, 2014). In order to increase PA participation and evoke positive PA experiences for these girls, interventions that address these barriers and encourage positive body image within a supportive environment are needed. Research repeatedly indicates that PA interventions targeting adolescent girls should aim to improve body image by emphasizing the functional aspects of the female body in an environment that provides support and encourages social interaction (Abbott & Barber 2011; Clark, Spence, & Holt,

2011; Crocker, Sabiston, Kowlaski, McDonough, & Kowalski 2006; Sebire et al., 2014).

The school setting proves to be an ideal setting for PA interventions as young individuals spend the majority of the day at school and there are necessary facilities to engage in PA in a safe and supportive environment (Lubans et al., 2010; Naylor & McKay, 2009). Therefore, a school-based multicomponent intervention, targeting exclusively adolescent girls, and tailoring it to the needs of a specific population (e.g., at-risk adolescents girls) may have potential for producing behaviour change.

### **1.3 The current study**

The purpose of this study was to examine the feasibility of an integrated PA and psychosocial program aimed at improving body image for at-risk adolescent girls, as well as to evaluate the girls' perceptions concerning PA experiences, preferences and self-concept.

Specific objectives of this study include:

- 1) Implement a 9-week integrated (PA and psychosocial components) program aimed at improving body image, self-concept and PA in at-risk, underserved adolescent girls in the Okanagan Region.
- 2) Assess participant perceptions concerning PA behaviours, experiences and preferences and evaluate program feasibility in terms of practicality, acceptability, and satisfaction.
- 3) Provide an estimate of effectiveness concerning changes in perceived body image, physical self-concept and PA experiences over the 9-week intervention program.

#### **1.4 Significance and contribution to research literature**

This project is notable as the target sample of at-risk, underserved adolescent girls is an understudied segment of the Canadian population. There is also a gap in the literature around the specific considerations for this demographic relating to body image, self-concept and PA. This low-cost integrated program (PA and psychosocial components) may offer a framework for community outreach activities for specific sub-samples of at-risk adolescent girls (e.g., low SES, Aboriginal). Moreover, this program could help to improve the physical, mental, social, and emotional wellbeing of adolescent girls.

## **CHAPTER 2 REVIEW OF LITERATURE**

### **2.1 Adolescent girls**

Adolescence is a critical developmental period in which individuals experience many physical, emotional and social changes. It is a life phase with opportunities for health, growth and development, and is the period where future patterns of adult health are established (Sawyer et al., 2012). For girls, the transition to adolescence, involving simultaneous and uncontrollable events, is an important time for self-perception development and presents various opportunities for growth (Murray et al., 2011). Considerable physical changes, such as breast development, pubic, armpit and leg hair growth, menarche and growth spurts are experienced during adolescence, which contribute to heightened awareness of the body (Lawler & Nixon, 2011; Steinberg, 2005). Additionally, an increase in cognitive development presents growth in capacity for abstract thought and intellectual interest, as well as an increased capacity for setting goals. During this time, adolescents begin to discover and accept new social roles and the associated independence, and develop a greater capacity for emotional regulation and the emergence of feelings of love and passion (French, 2012; Sawyer et al., 2012). In essence, young individuals begin to think about life (Sawyer et al., 2012). Though adolescence is a period of positive changes, it is also a complex time for young individuals as this monumental transition from the previous stage of life presents many challenges (French, 2012; Bailey, 2012; Sawyer et al., 2012; Steinberg, 2005). For example, with increased independence often comes an increase in emotional instability often resulting in physical, mental, and social health concerns. More commonly, girls

often experience negative feelings towards puberty due to drastic changes in physical appearance, including breast development and weight gain.

### **2.1.1 Challenges at adolescence**

Adolescence is a period of increased vulnerability and adjustment, and many health-related behaviours are adopted at this time (Sawyer et al., 2012; Steinberg, 2005). The developing brain causes the behavioural and cognitive systems to mature at different rates, causing heightened vulnerability because of gaps between emotion, cognition, and behaviour (Steinberg, 2005). Social and emotional development during adolescence often present more challenges than cognitive development, as there are numerous external influences. For instance, peers are influential in development of individual personality traits, physical characteristics and behavioural tendencies; young people tend to resemble their friends in appearance as well as attitudes and behaviours. Peers greatly influence feelings of being normal, the raised desire for independence, and the likelihood of testing rules and limits (Sawyer et al., 2012). It is reported that peers and peer support can either inhibit or encourage risky and unhealthy behaviours, which affect psychological wellbeing (Hutchinson & Rapee, 2007; French, 2012). Health behaviours established during adolescence are interrelated; those negative health-related behaviours, such as smoking and drug and alcohol use, obesity, and physical inactivity usually start in adolescence as a result of individuals' surroundings and lifestyle choices (Werch, Moore, DiClemente, Bledsoe, & Jobli, 2005). For instance, substance abuse behaviour is often a result of low self-esteem, depression, lack of self-control, poor parental and peer relationships, and a negative lifestyle (Collingwood, Sunderlin, Reynolds, & Kohl, 2000). Collingwood and colleagues (2000) report

providing alternative lifestyle activities as a successful preventative and treatment method to defer negative risk factors. Structured exercise or PA participation has been described as a positive lifestyle habit, leading to increased physical and mental wellbeing (Carson et al., 2014; Casey et al., 2014). Often, substance abuse and other unhealthy behaviours occur during leisure time, and PA can serve as a healthy substitute (Kirkcaldy, Shepard, & Siefen, 2002; Werch et al., 2005). For example, the *First Choice* physical fitness program was designed to use PA to teach self-esteem, self-discipline and skills by providing young individuals an alternative lifestyle rather than substance abuse. The participants were exposed to various fitness skills and exercise training practices with results showing favourable effects on substance abuse risk factors and use patterns (Collingwood et al., 2000).

Adolescence presents new opportunities, but also exposes individuals to the unknown. The pressures and expectations to make decisions and commence taking charge of the future can cause adolescents to struggle with finding a sense of identity (Bailey, 2012; Sawyer et al., 2012). This stage of life can cause confusion among all adolescents. Moreover, the many physical changes in appearance and body shape can cause adolescents to feel awkward about themselves, often leading to altered self-perceptions and negative feelings about their body (Abbott & Barber, 2011; Crocker et al., 2003; Davison et al., 2007). For instance, Crocker and colleagues (2003) examined physical self-perceptions as a predictor of change in PA, dietary restraint, and social physique anxiety compared to body mass index (BMI), and found that there are several apparent relationships. Self-perceptions, independent of BMI, are related to changes in dietary restraint, PA and social physique anxiety in Canadian adolescent girls (Crocker

et al., 2003). Approaches to ameliorate perceptions of body appearance or self-consciousness are key in changing PA (Crocker et al., 2003; Davison et al., 2007). Distorted self-perceptions and negative feelings towards one's body are further exacerbated in adolescent girls, making body image the most prevalent problem among this population.

## **2.2 Body image and adolescent girls**

Adolescent girls face unique challenges or pressures surrounding sexuality and physical development (Bailey, 2012; Sawyer et al., 2012). Body image is defined as a multidimensional construct involving subjective evaluations of the body (Crocker et al., 2006; Murray et al., 2011). The evaluation of body attractiveness and body size, and the behavioural investments individuals make for desired appearance generate body satisfaction (Abbott & Barber, 2011; Burgess, Grogan, & Burwitz, 2005; Pesa, Syre, & Jones, 2000). Body satisfaction is guided by the portrayal of the ideal body image. This ideal body image, exhibited by the media, is creating an unattainable standard of beauty in which females will continue to desire and pursue. Driven by Western ideals, society today promotes female beauty or the "perfect body image" as being thin or having a low body weight; young girls seek this body ideal, as it is considered a key dimension of physical attractiveness (Lawler & Nixon, 2011; Murray et al., 2011).

Societal factors, predominantly the mass media, communicate the cultural ideal of beauty and body shape, influencing adolescent girls' views and feelings towards body appearance, often resulting in body image dissatisfaction. The repeated exposure to media images of unrealistically thin, beautiful females is significantly impacting body image perceptions of young girls (Eyal & Ten'eni-Harari, 2013; Lawler & Nixon, 2011;

Shroff & Thompson, 2006). Research findings repeatedly indicate media exposure as a risk factor for body image disturbance among adolescent girls (Eyal & Ten'eni-Harari, 2013; Shroff & Thompson, 2006; Kelly, Wall, Eisenberg, Story, & Neumark-Sztainer, 2005). Eyal and Ten'eni-Harari (2013) examined the impact of social comparison to favourite characters in Western television shows, which typically show a smaller and thinner body. Particularly in young women, exposure to this makes thinness the ultimate desired body shape, which in turn leads to increased body dissatisfaction, depression, and low self-esteem (Eyal & Ten'eni-Harari, 2013; Shroff & Thompson, 2006; Kelly et al., 2005). Contemporary media involves an array of social media sites, such as Facebook, Twitter, Tumblr, Instagram and Pinterest, which primarily revolve around the key feature of interactivity (Perloff, 2014). These social media sites allow for rapid creating and sharing of user-generated messages, available at all times, and accessible anywhere on any mobile device. Unlike mass media, social media sites cater to groups of like-minded individuals and allow for social comparison virtually among peers (Perloff, 2014). There is emphasis placed on the impact of the sociocultural environment producing further body image dissatisfaction following puberty, as weight gain or increased body fat is conflicting with the cultural ideal of thinness (Pesa et al., 2000; Stice & Whitenton, 2002; Eyal & Ten'eni-Harari, 2013). The many forms of body discontent experienced by adolescent girls may develop through the constant reinforcement of cultural appearance ideals. Girls turn to social media to validate self-concepts or compare themselves to beauty ideals, which often prompts body dissatisfaction (Perloff, 2014). These subsequent negative feelings are even more predominant among at-risk or underserved girls, who lack positive support or guidance

with respect to this matter (van den Berg et al., 2010; Kitzman-Ulrich, Wilson, Van Horn, & Layman, 2010).

### **2.2.1 Body image in at-risk adolescent girls**

Body image dissatisfaction, or negative feelings toward one's body, is exceptionally common among adolescent girls. It is estimated that over 90% of adolescent girls experience body image dissatisfaction to some extent, with the prevalence being greater, and the negative feelings experienced worse, among at-risk girls (Stice & Whitenon, 2002; Bearman et al., 2006; Preti et al., 2006; van den Berg et al., 2010). Those defined as 'at-risk' often include girls exposed to disadvantaged lifestyle factors, such as low SES, those with a history of abuse or sexual exploitation, and those with limited family and social support (van den Berg et al., 2010). At-risk adolescents commonly engage in "high-risk behaviours" or behaviours that negatively impact their psychological and physical health such as: drug and alcohol abuse, unsafe sex, teenage pregnancy and parenting, school underachievement or failure and dropout, delinquency, crime and violence (Blumer & Werner-Wilson, 2010; Werch et al., 2005). Violence victimization or experiences of physical and sexual abuse not only present risk of physical injury and emotional harm, but also regularly bring about other problem behaviours (Secor-Turner, Garwick, Sieving, & Seppelt, 2014). According to a study conducted by Secor-Turner and colleagues (2014), violence exists within different areas of adolescent girls' lives including family (i.e., child maltreatment, harsh and inconsistent disciplinary practices, physical punishment), peers (i.e., substance abuse leading to increase violent and criminal actions), and in the community (i.e., neighbourhoods with high levels of poverty and crime). It was reported that violence at

home with families is the most common, making increasing rates of violence among adolescent girls a significant public health issue. Consequently, Secor-Turner and colleagues (2014) implemented a youth development intervention to reduce risk behaviours of this disadvantaged demographic. The *Prime Time* intervention consisted of one-on-one case management and peer leadership programming to address risk and protective factors by focusing on social skills and positive family, school, and community involvement (Secor-Turner et al., 2014). The intervention showed success in providing the basic support that is non-existent in these girls' lives. Due to the vulnerability of these girls, the opportunity for appropriate education and interventions can largely affect these girls' futures (Bailey, 2012; Secor-Turner et al., 2014). Including opportunities to engage in physical practices, such as sport and PA, could further enhance many of these programs.

The social determinants that negatively contribute to adolescent health are structural (i.e., poverty and sex inequality) and proximal (i.e., intrafamilial violence, parental mental disorder, substance misuse) (Sawyer et al., 2012). Socioeconomic resources like parent education and income, living with married parents and parents who are healthy and engage in healthy behaviours, influence and improve adolescent's healthy behaviours (French, 2012). Low SES or poverty has a negative impact on adolescents, being significantly associated with unhealthy environments and producing poor health and mental health outcomes (Armstrong & Boothroyd, 2008). Additionally, low SES commonly accompanies the increased likelihood of teenage pregnancy, substance involvement and other negative occurrences like sexual abuse or violence (Armstrong & Boothroyd, 2008). Consequently, females who have been sexually abused

report more body dissatisfaction and self-consciousness, often resulting in poor body image and overall less satisfaction with themselves (Prete et al., 2006). Van den Berg and colleagues (2010) looked at the link between body image dissatisfaction and self-esteem in adolescents comparing several variables including SES; results indicated girls of low SES experienced higher body image dissatisfaction and lower self-esteem scores compared to other SES groups. Body image is an important factor in adolescent wellbeing; negative feelings about the body are a source of negative emotions and attitudes towards oneself, resulting in negative effects on psychological health (Abbott & Barber, 2011; Murray et al., 2011; Pesa et al., 2000). Evidence shows that interventions or programs to enhance physical and mental health are needed. More importantly, these interventions must attend to the needs of this population by addressing the specific barriers (i.e., low SES, poor support, unhealthy environments) that they are often faced with.

### **2.3 Impact of body image on self-esteem**

Body image encompasses an individual's perceptions, feelings and attitudes about their body, and is linked to self-esteem, interpersonal confidence, eating and exercise behaviours, and emotional stability (Burgess et al., 2005). Physical self-esteem and physical self-perceptions are important psychological constructs in adolescents overall self-esteem (Lindwall, Asci, & Crocker, 2014; Spence, McGannon, & Poon, 2005). Body image dissatisfaction and poor self-esteem early in life have been found to be a significant risk factor for various health outcomes later in life such as: the use of unhealthy weight-control behaviours, eating pathology, and general psychological distress (Lawler & Nixon, 2011; van den Berg et al., 2010; Crocker et al., 2006; Huang,

Norman, Zabinski, Calfas, & Patrick, 2007; Burgess et al., 2005; Stice & Whitenton, 2002). Stice and Whitenton (2002) examined a set of various risk factors promoting increases in body dissatisfaction in a large sample of adolescent girls (N=496; age 11-15 years). The mixed race/ethnicity sample completed various questionnaires, a psychiatric interview and height and weight measurements at baseline and at one-year follow-up. Factors that were measured included: perceived sociocultural pressure to be thin, weight-related teasing, thin-ideal internalization, social support, and body dissatisfaction (Stice & Whitenton, 2002). Results indicated that adiposity (body fat), sociocultural pressure (pressure to be thin), individual differences in body mass (thin-ideal internalization), and deficits in social support to be major contributors to increases in body dissatisfaction among adolescent girls (Stice & Whitenton., 2002). During adolescence, the body becomes a central focus, which makes body image a major concern for many girls.

Social processes among friends are important in transmitting and reinforcing cultural ideals of the body (Murray et al., 2011). Peer experiences provide an important social context where appearance norms and ideals are communicated, modeled, and reinforced, and may be of significant consequence for body image development (Lawler & Nixon, 2011). Girls partake in conversations about appearance, often involving criticism and teasing, which contribute to body image concerns and negative evaluations of one's own body. These ideas and conversations between peers, about appearance, are prompted by the constant exposure to cultural ideals in the media. Girls view similar messages and images thus creating matters for conversation. The internalization of the thin ideal occurs when girls accept this media ideal and compare

their body to that, which more often than not creates body dissatisfaction. Richardson and Paxton (2010) conducted a body image intervention based on the risk factors for body dissatisfaction. The *Happy Being Me* intervention focused on body image prevention messages (i.e., the media is not real, appearance does not equal how valuable you are) that girls believed themselves is key to having a positive body image. This interactive, school-based intervention resulted in girls having greater knowledge about body image and the media portrayal, lower body comparisons and dissatisfaction, lower appearance conversations, higher body satisfaction, and higher self-esteem scores (Richardson & Paxton, 2010).

Due to the countless changes that can trigger body image concerns, and external influences continuously fostering body dissatisfaction, it is important that specific intervention strategies, targeting adolescent girls independently, emphasise positive self-perceptions and a positive body image (Lindwall et al., 2014; Richardson & Paxton, 2010). Similar interventions aimed specifically at the psychological aspects or cognitive behaviours surrounding adolescent development have shown positive results (Blumer & Werner-Wilson, 2010; Turner & Werner-Wilson, 2008). In addition, interventions highlighting PA have been shown to further impact adolescent body image, self-esteem and overall psychological wellbeing.

## **2.4 Impact of PA on body image**

### **2.4.1 Understanding PA and associated benefits**

PA is defined as: “any bodily movement produced by skeletal muscle that results in energy expenditure,” and includes a range of activities such as sport, structured

exercise and activities of daily living (Caspersen et al., 1985). The current Canadian PA guidelines for youth (adolescents) indicate that those 12-17 years of age should be engaging in 60 minutes of moderate-to-vigorous intensity PA daily, with vigorous-intensity activities at least 3 days per week, and activities that strengthen muscle and bone at least 3 days per week. The guidelines also highlight that engaging in more daily PA provides greater health benefits (Canadian Society for Exercise Physiology, 2016). Moderate-to-vigorous PA (MVPA) can support daily living to improve health, improve fitness, grow stronger, feel better, improve self-confidence and learn new skills (CSEP, 2016). An elevated heart rate, heavy breathing and sweating characterise MVPA; these effects or physiological responses experienced to a greater extent would be characterised as vigorous PA (VPA). For example, bike riding leisurely, to school or to a friend's house, would be classified as MVPA and running would be classified as VPA (CSEP, 2016).

Engaging in regular PA, as outlined above, has been shown to have countless physical and psychological health benefits. The benefits of regular PA include, but are not limited to, increased cardiovascular health, increased longevity, healthy joints, lower blood pressure, and reduced anxiety and stress (Burgess et al., 2005; Casey et al., 2014; Grieser et al., 2014; Lubans et al., 2010; Prichard & Tiggemann, 2008; Trost et al., 1999; Carson et al., 2014; McManus, Ainslie, Green, Simair, Smith, & Lewis, 2015). Among young people, PA is inversely associated with numerous cardiovascular disease risk factors such as elevated blood lipids, hypertension, and obesity, whereas PA is positively associated with HDL cholesterol and bone mass (Trost et al., 1999; Janssen & LeBlanc, 2010). Additional to the numerous physical health benefits, engaging in PA

produces positive psychosocial benefits, such as positive feelings about body image, higher self-esteem and self-concept, as well as a higher health related quality of life (Casey et al., 2014; Schmalz et al., 2007; Schneider et al., 2008; Mak et al., 2016). Carson and colleagues (2014) examined the longitudinal association between different PA intensities and cardiometabolic risk factors in a sample of 315 Canadian youth. Baseline and follow-up (2-years) data were collected, with the main outcome measures of: body mass index (BMI), waist circumference, cardiorespiratory fitness, and systolic blood pressure. PA was objectively assessed with accelerometers, and cardiorespiratory fitness was based on a calculated maximal oxygen uptake (Carson et al., 2014). Those students with more time spent in VPA showed increased cardiorespiratory fitness and decreased waist circumference at follow-up. Those who engaged in more MVPA also reported decreases in waist circumference (Carson et al., 2014). Further expanding on the benefits of PA on self-esteem, Schmalz and colleagues (2007) investigated a longitudinal study to explore this link. PA was assessed through three measures surrounding, inclination toward activity, participation in sport and organised activities, and an indirect physical fitness test. Global self-esteem was measured using the six-item Self-Perception Profile for an average total self-esteem score. Results suggested that PA participation positively effects self-esteem among adolescent girls (Schmalz et al., 2007).

Despite the numerous health benefits, PA decreases during adolescence in girls, with levels being significantly lower in girls than boys (Pate et al., 2007; Sebire et al., 2014). Evidence suggests that adolescents have become increasingly less active as a result of reduced active transport (i.e., walking to school), less time spent in physical education, and minimal leisure-time activities (Cumming et al., 2011). Most children

and adolescents are not meeting PA recommendations, resulting in substantial increases in rates of overweight and obesity, and greater occurrence of risk factors for various chronic diseases (Crocker et al., 2006; Sebire et al., 2014; Jamner, Spruijt-Metz, Bassin, & Cooper, 2004). The ParticipACTION Report Card 2015 reported that only 9% of children and youth, ages 5-17 years, achieve the recommended 60 minutes of PA each day (ParticipACTION, 2016). Not only are PA levels low, sedentary behaviours are increasing, with reports indicating that Canadian children and youth are spending an average of 7.6 to 9.3 hours per day being sedentary (ParticipACTION, 2016). With the increasing sedentary time comes increased health implications; for instance, prolonged sitting has been reported to cause a reduction in vascular functioning in young girls (McManus et al., 2015). At-risk adolescents are even less likely to meet PA recommendations (Lawman, Wilson, Van Horn, Resnicow, & Kitzman-Ulrich, 2011; Kitzman-Ulrich et al., 2010; Sutherland et al., 2013; Stalsberg & Pedersen, 2010). A review by Stalsberg and Pedersen (2010) examined the relationship between SES and PA in adolescents. Results indicated that adolescents with higher SES are more physically active than those with lower SES; certain economic factors contribute to this. For example, lower SES families often cannot afford sport equipment and memberships costs, or parents work unfavourable jobs and are not able to provide transportation (Stalsberg & Pedersen, 2010). Additionally, at-risk adolescents have increased rate of poor health outcomes and higher prevalence of overweight and obesity; this is even more so in minority adolescent girls (Clemmens & Hayman, 2004; Lubans et al., 2010). These low activity levels are largely associated with a number of specific barriers or correlates faced by adolescent girls.

#### **2.4.2 Correlates of PA for adolescent girls**

There are many correlates to PA for adolescents, and according to Trost and colleagues (1999), these correlates can generally be categorised as environmental and psychosocial. Environmental correlates include perceived PA of parents and friends, access to sporting and/or fitness equipment at home, involvement in community PA organizations or sports teams, and self-reported sedentary activities; whereas, psychosocial variables of PA range from self-efficacy to social norms and beliefs regarding PA (Trost et al., 1999). Many of these variables are more predominant in at-risk adolescents, with self-efficacy and motivation being emphasised as high importance (Kitzman-Ulrich et al., 2010; Lawman et al., 2011; Wilson, Williams, Evans, Mixon, & Rheume, 2005). Environmental correlates are made up of physical factors as well as contextual aspects like parental support and peer influences. Parents largely influence children's and adolescent's lives, including their behaviour and development of positive health choices (Verloigne et al., 2014). With that said, adolescence is a developmental period with increasing independence; still, even when it does not appear so, parental support is imperative to young individuals PA participation. Sebire and colleagues (2014) report various types of parental support that impacts a child's PA level. Positive associations result from modeling support (i.e., parents being active themselves with a positive attitude towards PA), as well as logistic support (i.e., parents facilitating PA via financial and transportation support). Specifically with girls, maternal support (i.e., encouragement, logistic and verbal support, plus co-participation) is associated with greater PA, and may help develop the perceived competence, self-efficacy and self-esteem needed to maintain PA (Sebire et al., 2014; Lubans et al., 2010;

Corning, Gondoli, Bucchianeri, & Blodgett Salafia, 2010). Kitzman-Ulrich and colleagues (2010) explored the importance of parental engagement and family support in PA participation among at-risk adolescents, and reported that overall negative family support significantly impacts MVPA participation. At-risk adolescents frequently experience a lack of family support and these individuals are in greatest need for more family support (Kitzman-Ulrich et al., 2010).

From the beginning of adolescence through mid to late adolescence, drastic changes in girls' physical and psychosocial factors greatly attribute to their PA participation (Sebire et al., 2014; Dunton, Schneider, & Cooper, 2007). The effects of body composition and body image largely influence exercise motives among adolescent girls. Moreover, factors such as time constraints and support for PA from peers, parents, and teachers, as well as socio-environmental factors like access to gender-specific programs, are also shown to be significant correlates of PA participation among adolescent girls (Neumark-Sztainer, Story, Hannan, Tharp, & Rex, 2003; Trost et al., 1999; Dunton et al., 2007; Verloigne et al., 2014). A focus group study by Slater and Tiggemann (2010) identified gender-specific reasons for adolescent girls' declining rates of participation in sport and PA. The participating girls expressed many different reasons including losing interest, lacking competence and feeling 'masculine' when playing sports. Furthermore, in the majority of the focus group girls expressed the issue of access and availability of sports and PA options for girls (Slater & Tiggemann, 2010). Studies suggested that the social context and the specific activities available to girls directly influence enjoyment (Clark et al., 2011; Kitzman-Ulrich et al., 2010). Clark and colleagues (2011) explored the perceptions adolescent girls have about PA and being

active. Through qualitative semi-structured interviews Clark and colleagues (2011) were able to gain an understanding of how young adolescent girls describe the PA experiences they encounter within their daily lives. Results indicated that girls enjoy dancing as well as unstructured experiences that provide creative outlets to explore their physical abilities themselves (Clark et al., 2011). Therefore, providing an equal amount of sporting opportunities or gender-specific physical activities for girls and boys is necessary for increasing PA participation.

Specific to adolescent girls, research has indicated that the most important correlates that need to be addressed include feelings of self-consciousness or lack of self-efficacy (Davison et al., 2007; Trost et al., 1999; Dishman et al., 2004; Kitzman-Ulrich et al., 2010). Trost and colleagues (1999) conducted a cross-sectional study to identify the psychosocial and environmental correlates of objectively measured PA behaviours, and discovered PA self-efficacy, and beliefs regarding PA outcomes as the most significant correlates of PA. The Social Cognitive Theory (SCT) identifies cognitive processes as key mediators between external stimuli (i.e., an intervention) and behaviours (i.e., PA). Self-efficacy is one of these cognitive processes, reciprocally interrelated with outcome expectancy value, goal setting, and satisfaction (Dishman et al., 2004). In other words, for one to attain desirable PA participation, they must believe they have the ability (i.e., self-efficacy) to attain their goal of a positive outcome (Dishman et al., 2004).

These above mentioned correlates are amplified among at-risk adolescent girls, whom are in even greater need of support. A study conducted by Lawman and colleagues (2011) looked at the effects of motivation, enjoyment and self-efficacy on PA

in underserved (at-risk) adolescents. Motivation for PA, enjoyment of PA, and self-efficacy were subjectively measured through questionnaires, and accelerometers were used to objectively measure PA participation. Based on the Self-Determination Theory (SDT), Lawman and colleagues (2011) stated that behaviours motivated by intrinsic factors (i.e., autonomy, competence, belongingness) strongly influenced the degree of motivation. Therefore, enjoyment and personal satisfaction from engaging in PA leads to increased intrinsic motivation, which in turn leads to sustained PA behaviours. Results highlighted that motivation and self-efficacy must be integrated into interventions for increasing PA in at-risk adolescents (Lawman et al., 2011). A report comparing gender preferences and motivation factors for PA in at-risk, underserved adolescents conveyed that girls were more likely to participate in PA if it was fun, provided health benefits and there was a variety of choices offered (Wilson et al., 2005). In an attempt to address many of these identified correlates, there are a number of settings and intervention programs targeting the PA behaviours of adolescent girls.

### **2.4.3 PA Interventions for adolescent girls**

PA behaviours in adolescent girls must be understood in order to design and implement appropriate interventions to increase PA levels, promote healthy living and encourage positive body image. Body image dissatisfaction has been reported to be associated with lower levels of, and a barrier to, PA participation among adolescent girls (Richardson & Paxton, 2010; Yungblut, Schinke, & McGannon, 2012). However, engaging in regular PA has been repeatedly reported to have positive effects on body image satisfaction and overall physical and psychological wellbeing, including self-efficacy. Therefore, the interrelated relationship between positive body image and PA

participation requires targeted interventions that consider this relationship. For example, the *New Moves* intervention program targeted personal factors (i.e., body image), behavioural factors (i.e., goal setting), and socio-environmental factors (i.e., peer support) to bring about changes in PA, eating, and weight control behaviours. It consisted of multiple components such as: nutritional and social support, self-empowerment sessions, and motivation techniques, designed to prevent various weight-related problems, including psychological factors (e.g., body dissatisfaction) in adolescent girls (Neumark-Sztainer et al., 2010). The intervention resulted in positive improvements in PA and body image, with the girls experiencing more self-efficacy and more PA support from friends and family members (Neumark-Sztainer et al., 2010).

Research has consistently indicated that PA interventions targeting adolescent girls should aim to improve body image by emphasising the functional aspects of the female body in an environment that provides support and encourages social interaction (Abbott & Barber, 2011; Clark et al., 2011; Crocker et al., 2006; Sebire et al., 2014). Thus, PA should be delivered in many forms, be performed in multiple settings or environments, and include individual or group based participation. Previous research has suggested that engaging in PA (including sport and recreation activities) may offer a context in which the body's appearance and performance are likely to be judged and evaluated (Abbott & Barber, 2011; Prichard & Tiggemann, 2008). However, a number of studies have also indicated that girls participating in PA and sport related activities demonstrate higher functional values and satisfaction, and report a more positive body image than non-active girls, partly due to the social environment associated with group PA and sport, as well as the focus on body function and body acceptance (Abbott &

Barber, 2011; Crocker et al., 2006; Gibbone et al., 2014; Lubans et al., 2010; Pate et al., 2005; Richardson & Paxton, 2010). Abbott and Barber (2011) explored the association between sport participation and body image among adolescent girls, investigating both aesthetic and functional aspects of body image across sport types. Participants indicated which sport(s) and what other forms of PA in which they participate, and then rated the intensities by denoting how many hours per week they participated in each sport or activity. Participants were divided into three groups including; sport participants, physically active only, and not physically active. Sports were further categorised into non-aesthetic sports, referring to those focused on the physical capabilities of the body (i.e., speed, strength, skill), and aesthetic sports, where the body is a central concern for success (i.e., appearance, body shape) (Abbott & Barber, 2011). Girls were put in a group depending on their individual sport type participation. There were no significant differences between aesthetic and functional values among non-aesthetic sports and aesthetic sports participants about functional body image; but overall, girls who participated in sports reported higher satisfaction in their bodies' functionality than those who participated in regular PA or were not physically active (Abbott & Barber, 2011). Although females tend to evaluate the aesthetic qualities of their bodies, leading to possible body image dissatisfaction, lower body esteem or body shame and poor interceptive awareness, participation in PA and sport encourages girls to form an instrumental relationship with their bodies. PA and sport related activities introduce the importance of functionality, and increases the awareness of the body's physical capabilities, which leads to positive body evaluations (Abbott & Barber, 2011).

General PA, encompassing sport (e.g., soccer, volleyball, etc.) and recreation activities (e.g., hiking, yoga, martial arts), is associated with positive appearance perceptions as well as positive health and fitness evaluations, and provides girls with opportunities to invest the body functionally (Clark et al., 2011; Abbott & Barber, 2011). However, aesthetically based sports and activities such as dance, figure skating, and gymnastics, emphasise the body's physical appearance, which can strongly contribute to a high drive for thinness, self-objectification, body shame and disordered eating behaviours (Abbott & Barber, 2011; de Bruin, Oudejans, & Bakker, 2007; Murray et al., 2011; Slater & Tiggemann, 2011). With the numerous negative effects associated with participation in aesthetic sports on body image, Burgess and colleagues (2005) considered an aerobic dance intervention to enhance physical self-perception and body image. The results of this 6-week aerobic dance intervention revealed significant reductions in body image dissatisfaction (i.e., attractiveness, feeling fat, strength) and enhanced physical self-perceptions. Dance is considered a suitable form of PA for young girls as it does not compromise their concept of femininity and provides a sense of social support, typically in a non-competitive environment (Burgess et al., 2005; Clark et al., 2011; Smolak, 2004). Dance has been stated as an activity that girls enjoy and is one of the most common self-reported activities girls engage in (Clark et al., 2011; Grieser et al., 2006; Dowda et al., 2007). There are many forms of PA, and preference varies among individuals. The reasons females participate in PA provide motive for different activity selection (Prichard & Tiggemann, 2008; Clark et al., 2011).

Research has also highlighted the necessity of a supportive environment when developing and delivering PA interventions. A good example of a supportive

environment is the school-based setting (Dishman et al., 2004; Grieser et al., 2014; Jamner et al., 2004; Lubans et al., 2010; Neumark-Sztainer et al., 2010; Pate et al., 2005; Pate et al., 2007). Schools are a popular setting for implementation of interventions as young individuals, from diverse ethnic and SES backgrounds, spend the majority of the day at school; there is continuous contact with the students, there is access to the necessary personnel, curriculum and facilities to promote PA and healthy eating, and it provides a safe and supportive environment (Lubans et al., 2010; Tomlin et al., 2012). There is an abundance of literature around school-based PA interventions that have shown success with short-term improvements in PA participation in children and adolescents (Grieser et al., 2014; Jamner et al., 2004; Lubans et al., 2010; Neumark-Sztainer et al., 2010; Pate et al., 2005; Pate et al., 2007; Naylor & McKay, 2009). A recent study conducted by Casey and colleagues (2014) measured the effectiveness of a multi-faceted, school-community linked program on PA levels and health-related quality of life (HRQoL) in adolescent girls from low SES, rural settings. The intervention schools incorporated the program into the physical education curriculum; the students participated in two 6-session PA units consisting of a sport unit (e.g., soccer or tennis) and a recreational unit (e.g., leisure centre-based). Outcome measures were assessed at baseline and 12-month follow-up, and included health-related quality of life (HRQoL), PA and potential mediators of PA. The control condition involved schools completing their usual curricular and co-curricular programming. The control group did receive intervention resources, but only at the end of data collection. The community component was designed to address reported barriers to PA participation outside of school by linking community fitness instructors and sports coaches to the participants

while at school (Casey et al., 2014). Those who attended a community-based activity showed greater development of self-efficacy and reported significantly higher HRQoL scores at 12-month follow-up. The intervention increased awareness of the sports clubs and leisure centres present in the community; which then provided a link between the community settings and the physical education curriculum by highlighting where one could engage in various types of PA (Casey et al., 2014). Another study involving a similar school-community connection, the *Trial of Activity for Adolescent Girls (TAAG)* intervention, was designed to create changes in schools and promote collaboration between community agencies with the aim of increasing PA in adolescent girls (Grieser et al., 2014). *TAAG* consisted of 4 components around physical education focusing on maximizing time spent in MVPA, health education, developing PA programs for girls, and social marketing efforts to promote overall PA participation. Results indicated that schools are an ideal setting for PA; however, including a community component to interventions could be beneficial for increasing adherence and achieving better outcomes (Grieser et al., 2014; Casey et al., 2014).

School-based interventions, incorporating multiple components and focused on enhancing self-efficacy and developing behavioural skills, have been shown to be effective in increasing PA levels in adolescents (Dishman et al., 2004; Pate et al., 2005; Pate et al., 2007; Jamner et al., 2004). The *Lifestyle Education for Activity Program (LEAP)* has received considerable attention in current literature as an effective school-based intervention promoting PA. The *LEAP* intervention targeted grade nine girls through two channels: changes in instructional practices, and changes in the school environment (Pate et al., 2007). The delivery and content of in-school physical

education was changed to enhance PA self-efficacy and enjoyment, and promote participation in PA. The *LEAP* physical education intervention aimed to teach young girls the physical and behavioural skills needed for an active lifestyle through seven required “essential elements” (i.e., physically active, gender-specific, girl friendly, choice-based approach, cooperative activities, small group methods, activities that girls and young women enjoy, behavioural skills needed to adopt and maintain an active lifestyle). The changes in the school environment simply consisted of creating an environment that supported PA for girls. Through full implementation and maintenance of *LEAP*, 45% of the intervention girls reported increased participation in VPA (Pate et al., 2007).

*Project FAB*, another school based intervention, was designed to promote PA among sedentary adolescent girls through a variety of activities (i.e., aerobic dance, basketball, swimming) in a special 60 minute physical education class, 5 days per week (Jamner et al., 2004). In addition to the daily PA sessions, the intervention also included a one day per week lecture/discussion on health benefits of PA and strategies for becoming physically active, and possible strategies for change such as self-monitoring, goal-setting, and problem solving (Jamner et al., 2004). With similar outcomes as *LEAP*, *Project FAB* focused on self-efficacy, social support, perceived barriers, perceived benefits, and enjoyment of exercise. It was found that there was an overall increase in activity among the intervention participants, suggesting that physical education interventions can enhance physical fitness and have the potential to ameliorate PA behaviours (Jamner et al, 2004).

The positive outcomes of these interventions are promising for the general adolescent girl population; however, little is known about the effects of these interventions on specific sub-populations of adolescent girls, in particular those who are considered at-risk. Research has indicated that this group is most in need of such interventions, and thus the specific challenges and barriers (e.g., self-efficacy, perceived competence) associated with the PA behaviours of this sub-population need to be addressed (Gibbone et al., 2014; Murray et al., 2011). Programs targeting at-risk adolescent girls should incorporate positive youth development, including components such as meeting needs for safety, caring relationships, and community connections (Armstrong & Boothroyd, 2008). It is well known that schools are a key setting for PA promotion; however, few interventions have been conducted in schools in low-income or disadvantaged communities (Sutherland et al., 2013). The students at these schools often face additional challenges beyond those faced by the general adolescent population; including lack of parental support, cost of and time available for school sports, and choice or variety of PA offered at school (Sutherland et al., 2013). Lubans and colleagues (2010) developed a school-based prevention program that targeted at-risk adolescent girls from disadvantaged secondary schools. *The Nutrition and Enjoyable Activity for Teen Girls (NEAT Girls)* program focused on the promotion of low-cost lifetime (i.e., walking, jogging, resistance training, swimming, tennis) and lifestyle (i.e., activities of daily living like walking to school, taking the stairs) PA. The *NEAT* reward system encouraged compliance with the program, and results successfully indicated higher PA participation, and healthier nutrition choices (Lubans et al., 2010).

*Youth Outdoor Adventures* was an education and recreation program targeted at at-risk youth with the aim to foster self-esteem, leadership skills and a sense of community among participants (Everett, Chadwell, & McChesney, 2002). The program consisted of outdoor education skill workshops (e.g., learning basic outdoor skills such as tent setup), adventure trips (e.g., kayaking, mountain climbing), and adventure leadership training programs (e.g., teaching one another skills). The program resulted in the young individuals experiencing new outdoor sports and activities, building positive relationships, and gaining confidence and self-esteem (Everett et al., 2002). With the aim of targeting multiple health and social behaviours often associated with at-risk youth (e.g., alcohol consumption, substance abuse, aggressive and criminal acts), Werch and colleagues (2005) tested a brief multi-behaviour intervention integrating PA and alcohol use. *Project SPORT* incorporated a fitness consultation, a take-home fitness prescription targeting adolescent health promoting behaviours, and print materials with messages concerning alcohol consumption, with a specific focus on risk and protective factors (Werch et al., 2005). The purpose behind this multi-factor approach was to replace targeted negative behaviours (e.g., aggressive acts, substance abuse), with productive behaviours (e.g., PA). This intervention was effective in increasing PA habits and other positive health behaviours, while reducing alcohol consumption (Werch et al., 2005).

A recent study with at-risk girls, involving the use of mobile phone based apps in physical education to enhance learning and PA, showed notable success (Gibbone et al., 2014). This intervention placed importance on establishing a constructive environment by involving the girls' input on choices of activities, and encouraging social support

systems that encouraged positive self-image and interpersonal relationships (Gibbone et al., 2014). Through personal planning (i.e., health goals, PA and fitness routines, preferred activities in class and journal reflections), the girls expressed enjoyment of activities typically done at social settings for fun and entertainment. After being exposed to the various apps and participating in diverse activities, the girls then selected the spin bikes, yoga and soccer as favourite activities, a noteworthy change from the originally selected low-intensity/leisure activities (e.g., walking). Interactive apps, such as the ones used in this study, were not only interesting to the girls, but they also provided guidance and feedback concerning their PA progress. Most importantly they offered a sense of freedom and autonomy, which the researchers believe may have influenced their PA motivation and PA participation (Gibbone et al., 2014).

When designing interventions for adolescent girls, importance should be placed on a gender-specific, choice-based instruction program to build activity skills and reinforce participation in PA outside of class (Gibbone et al., 2014; Pate et al., 2005; Pate et al., 2007; Dunton et al., 2007). Activities that girls enjoy, such as aerobics, dance, walking, and self-defence, promote greater adherence. Programs to increase PA among adolescent girls should address the self-consciousness and discontent girls often experience with PA. This entails activities or settings that make differences in body shape less conspicuous and encourages girls to value their body and learn to invest it instrumentally (Abbott & Barber, 2011; Davison et al., 2007). This is of particular importance for at-risk girls who experience greater body dissatisfaction and have fewer opportunities to engage in activities that encourage positive self-perception (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006; Wilson et al., 2005).

## 2.5 Summary

Although there is some evidence reporting the effectiveness of interventions in at-risk adolescents, a gap still exists with those who are most at-risk (e.g., those with limited family or social support and increased unhealthy behaviours such as substance abuse, sexual exploitation). Moreover, there is a need to address the underlying psychosocial variables that are often linked to such unhealthy behaviours. For at-risk adolescent girls, negative self-perceptions and body dissatisfaction are predominant, negatively impacting self-esteem and self-efficacy, and resulting in unhealthy behaviours (Paxton et al., 2006; O'Dea & Caputi, 2001). In order to address these many facets, interventions should be integrative and provide opportunities that will engage these girls and provide them with the tools necessary for ensuring overall health and wellbeing. The integration of psychosocial variables with PA is a promising approach as it provides these girls with the opportunity to learn and experience positive body related emotions in a safe and supportive environment.

## **CHAPTER 3 METHODS**

### **3.1 Preface**

The following chapter describes in detail the methods and protocols of this research study. The study design was exploratory in nature and utilised a mixed methods approach in order to gain valuable insight concerning the thoughts and perceptions of adolescent girls' PA behaviours, experiences and preferences, feasibility information concerning the integrated intervention program, and an estimate of effectiveness in terms of body image, self-concept and PA experiences. Survey research and semi-structured interviews with the participants were conducted. Ethical approval was granted by the Behavioural Research Ethics Board at the University of British Columbia (H15-01213) and School District 23 (H15-01213). The following sections outline the pilot study (which helped to inform the main study) followed by the main study protocol, including the study design, participants and setting, the intervention program, methodological procedures, scientific measures and activities surrounding data collection, management and analysis.

### **3.2 Pilot study and results**

A pilot study was conducted in October-December 2015 with a sub-sample of at-risk adolescent girls in order gain insight concerning the newly developed intervention program (detailed in Sections 3.7-3.8), as well, to pre-test the questionnaires and interview guide prior to the main study. Over the duration of the eight week program, through observation, the researcher noted which physical activities were well received or disliked by the girls, and which activities would likely be of interest to the other

groups. At the end of the eight weeks, the researcher evaluated the program using the same methods and measures (i.e., questionnaires and semi-structured interviews) intended for the main study.

The Physical Activity Enjoyment Scale (PACES) questionnaire (Motl et al., 2001) (which is further detailed in Section 3.8.2) was distributed to the sub-sample in order to test the ease of administering and receiving the questionnaire in this particular population. The PACES questionnaire was easily administered and well received by all participants; they completed it with no complications. Moreover, throughout the eight weeks, there was continued discussion around self-image and physical appearance amongst the girls, and thus the researcher felt that including a measure of physical self-perception might be beneficial. The Physical Self-Description Questionnaire (PSDQ) (Marsh, 1996), a measure of physical self-perception and self-concept was included, however given the time limitations surrounding the start of the main study, the PSDQ was not piloted.

In addition to the questionnaire, the researcher conducted voluntary in-person semi-structured interviews with the participants, to pre-test the interview guide. Qualitative procedures and analysis are detailed below (Sections 3.8.3; 3.9.2). All interviews were transcribed verbatim, and thematic analysis was used to examine and explore the qualitative data. Three underlying themes emerged: 1) Who's defining health today, 2) The meaning of PA in the lives of adolescent girls, and 3) All PA is not created equal: the importance of context. Based on these results, and the research questions, the researcher identified gaps that needed to be further addressed; therefore, the interview guide was revised to include greater substance and clarity surrounding

the questions and probes. Moreover, based on the results of the pilot study, the activities within the intervention program were refined and adjusted to include many of the suggestions/recommendations offered by the sub-sample of girls.

### **3.3 Research questions**

The purpose of the current study was to evaluate the feasibility and estimate the effectiveness of an integrated PA and psychosocial program for at-risk adolescent girls. The research questions for this study included; 1) What are at-risk adolescent girls' perceptions and thoughts concerning PA behaviour, experiences and preferences, 2) Will an integrated PA and psychosocial program be acceptable for at-risk adolescent girls, and 3) Will an integrated PA and psychosocial program have the potential to be effective at increasing PA enjoyment, body image and physical self-concept?

### **3.4 Study design**

This study was exploratory in nature and based on a mix-methods pre-experimental design. A pre-experimental design is suitable when the aim of a study is to evaluate interventions without randomization, but with the use of pre and post intervention measurements (Harris et al., 2006; Thomas, Nelson, & Silverman, 2015). The intervention program was delivered to two groups of at-risk adolescent girls from two schools within School District 23. Program implementation occurred in January-March 2016 and February-April 2016.

### **3.5 Participants and setting**

The participants of this study comprised of adolescent girls (N=24) between the ages of 11-17 years, who may have been experiencing challenges in their personal or

family lives (e.g., social isolation, academic challenges, unhealthy relationships, etc.).

The participating girls were students who attended a middle school and high school in the Okanagan Region of British Columbia. The middle school includes grades 6-8 and is located in an area recognised as lower SES. The secondary school includes grades 10-12, and is recognised as low SES, but also has a proportionally higher aboriginal population. This sample was chosen because these girls represent an at-risk, underserved population known to experience increased social and emotional challenges, and decreased PA participation. There is a gap in literature around the specific considerations for this at-risk demographic relating to PA and body image, and thus requires further attention (Whitehead & Biddle, 2008).

### **3.6 Recruitment, consent and assent**

The participants for this study were recruited by guidance counsellors at each school. The guidance counsellor identified the girls using a qualitative system of behavioural inconsistencies (e.g., decline in academic performance, change of social circles, reported problems at home). This recruitment protocol had previously been used by our community partner, the Central Okanagan Elizabeth Fry Society (E-Fry), to recruit past participants to the Girls United Program. E-Fry is a National charitable organisation, with regional divisions across Canada, with a mandate to bring about an end to violence, eliminate poverty, and seek justice for women and children (Central Okanagan Elizabeth Fry Society, 2013). The Central Okanagan division of E-Fry (COEFS) has been working with local schools to deliver the Girls United Program, an intervention program involving a social worker connecting with a small group of girls. Girls United is specifically designed to meet the unique needs of at risk pre-teen and

adolescent girls. The overarching goal of the program is to foster the safe and healthy emotional development of young girls by strengthening their sense of connection, belonging, and resiliency. “This program provides an opportunity for girls to explore and learn about how to live safer, healthier lives and fulfill their rights to freedom from violence, exploitation and abuse” (Empowerific COEFS, 2013). To further enhance the Girls United Program and provide opportunities for these girls to engage in PA, the current intervention program named Girls On the Move (GoM) was created.

There were no specific exclusion criteria, however, only girls that were specifically identified as “at-risk” by the school guidance counsellor were invited to participate. Participants who were identified and expressed interest in participating were provided with a parental consent form, that included the project information (Appendix A), as well as a student assent form (Appendix B); the girls were asked to take these forms home and discuss the program and consent/assent with their parents or guardians. The guidance counsellor notified parents about the program and that consent and assent forms were sent home with their daughter. Parents were encouraged to contact the researchers should they have any questions or concerns about the project, or if they wanted to learn more about the project. Participants were asked to return the signed parental consent and student assent forms to the researchers at the start of the program (week 1).

### **3.7 Girls On the Move program**

Once parental consent and student assent were received, the participants took part in a 1.5 hour session during school, once a week, over an 8-week period. The program included an additional week (week 9) for the sole purpose of data collection.

No curriculum from the integrated program (PA and psychosocial) was delivered during week 9. The program included 45 minutes of PA (e.g., sport, yoga, dance, etc.) delivered by researcher, and 45 minutes of psychosocial curriculum (e.g., education about building self-confidence and self-esteem, healthy relationships, coping with everyday stressors, learning about resilience, etc.) delivered by the program facilitator, a registered social worker from E-Fry. The psychosocial curriculum was based on the existing Girls United Program previously developed and delivered by the social worker from E-Fry. Table 3.1 provides a detailed overview of the newly created GoM program.

Table 3.1

*Girls On the Move (GoM) Program Components*

<b>Week</b>	<b>Physical Activity</b>	<b>Psychosocial</b>
Week 1 (Baseline)	- Introductions - PA questionnaires - No PA in week 1	- Introduction, knowing your self
Week 2	- General body movement PA and weight machines	- Self-esteem & body image
Week 3	- Bootcamp style PA (e.g., cardiovascular and strength exercises)	- Understanding the world we live in - Review of media in relation to gender issues and pressures
Week 4	- Sports in the gym (e.g., basketball, kickball, soccer)	- Healthy relationships and sexuality
Week 5	- Meditation and stretching - Free play (e.g., gymnastics, cheerleading, dance)	- Communication skills and boundaries
Week 6	- Field trip (e.g., Energyplex, ice skating)	- Conflict resolution/cyber bullying and social media
Week 7	- Yoga	- Keeping yourself safe
Week 8	- Hike/walk outdoors	- Emotional wellness
Week 9	- PA questionnaires - Discuss interview scheduling	- Questions and sharing resources

**3.8 Measures and procedures**

This study utilised a mixed methodology approach, which involved the collection and analysis of both qualitative and quantitative data (Bryman, 2006; Denzin & Lincoln, 2011). The researcher “mixes” or integrates the two forms of data by having one build on the other (Denzin & Lincoln, 2011). Mixed methods research has certain advantages such as filling in the blanks one method may not fully explain. It conveys a sense of the

rigour of the research and can add clarification to the intentions of a study (Bryman, 2006). Research looking at the use of mixed methods indicates that there is considerable value in combining quantitative and qualitative research (Bryman, 2006). The quantitative methods of this study included: participant demographic variables, two questionnaires concerning PA enjoyment and experiences, and perceptions of physical self-concept. With regards to qualitative methods, participants also participated in voluntary in-person semi-structured interviews at study completion. Details of these measures are below.

### **3.8.1 Demographic information**

Demographic information was collected through a brief questionnaire consisting of fill in the blanks, and selecting an option from a list. The information gathered from the participants included age, grade, whether or not they have any sibling(s), their area of residence, mode of transport to and from school, and their PA or sport participation in and/or outside of school (Appendix C). This questionnaire was completed in week 1, at the same time as the other self-reported measures outlined below. The researcher administered the questionnaires with assistance from the program facilitator, a social worker from the E-Fry.

### **3.8.2 Quantitative measures**

Participants were asked to fill out brief questionnaires about their PA enjoyment and experiences, as well as their perceived physical self-concept, at the start of the program (week 1) and again at program completion (week 9). Questionnaires were used because they are a simple yet effective way to collect consistent responses from a

group like this. With adolescent population groups, self-report questionnaires are typically used, as they are non-reactive or neutral, and practical (convenient and affordable) (Brener, Billy, & Grady, 2003; Trost, 2007; Sallis & Saelens, 2000). Self-reports are the most commonly employed procedures to measure PA, as they are quick to administer, unobtrusive, versatile, and can offer several sources of PA information (Kohl, Fulton, & Caspersen, 2000). The researcher provided information about the purpose of the questionnaires, and clear instructions about how to fill out the questionnaires. While the participants completed the questionnaires, the researcher and the program facilitator (social worker) were readily available to answer and assist with any potential questions. These measures are detailed below.

*The Physical Activity Enjoyment Scale-PACES* (Motl et al., 2001) was used to identify the PA perceptions and experiences of the participants, as well as evaluate PA enjoyment (Appendix D). Research consistently indicates that enjoyment or fun is considered an important variable or a primary motivation for youth sport or PA participation (Kendierski & DeCarlo, 1991; Motl et al., 2001). PACES was originally developed to measure PA enjoyment in college students; however, was later modified for 8<sup>th</sup> grade comprehension (Jamner et al., 2004; Motl et al., 2001). The modified PACES assesses 16 bipolar items (e.g., When I am active, I enjoy it), on a 5-point Likert-scale ranging from 1 (disagree a lot) to 5 (agree a lot). The items negatively worded are reverse coded, and then scores across all items are averaged to create a total enjoyment score (Davison et al., 2007; Motl et al., 2001).

Several factors such as enjoyment of physical education and sport involvement are reported to be related to overall PA enjoyment. Accompanying these factors, Motl

and colleagues (2001) used PACES as a measure of PA enjoyment in adolescent girls. As a result, significant relationships were observed among the scores of the stated measures providing evidence of the validity of PACES scores (Motl et al., 2001). Lawman and colleagues (2011) used PACES in a study with underserved (at-risk) adolescents, and showed it to be an effective measure of PA enjoyment in this demographic.

*The Physical Self-Description Questionnaire-PSQD* (Marsh, 1996) is a multidimensional tool used to measure physical self-perceptions, body image and self-concept (Appendix E). In other words, the purpose of the PSDQ is to see how people describe themselves physically (Marsh, Richards, Johnson, Roche, & Tremayne, 1994). The PSDQ consists of 11 scales; 9 of which measure physical self-concept (i.e., health, coordination, PA, body fat, sport competence, appearance, strength, flexibility, and endurance), and the other 2 measure global self-concept (i.e., global physical self-concept, and global self-esteem). The PSDQ is a 70-item questionnaire, using a 6-point scale ranging from 1 (false) to 6 (true), with in between options (e.g., mostly false, more true than false). Items are positively and negatively worded (e.g., I am attractive for my age; I am too fat), then scored by calculating the averages of the items specific to each scale (Marsh, 1996; Dunton, Scheider, Graham, & Cooper, 2006). The PSDQ begins with highlighting (on the actual questionnaire form) that the questionnaire is not a test, everyone will have different answers, and answers should be kept private (Marsh, 1996). This is applicable to adolescent girls as this is when girls may have mixed feelings about themselves. Also, self-concept, self-esteem and feelings towards oneself are directly related (Casey et al., 2014; Schneider et al., 2008), thus the PSDQ will

provide further insight relevant to the proposed study. The PSDQ is reported to be a comprehensive instrument that is appropriate for at-risk adolescent girls (Lubans et al., 2012; Marsh et al., 1994).

### **3.8.3 Qualitative measures**

Participants were invited to participate in voluntary in-person semi-structured interviews to gain more detailed insight into their perspectives and experiences concerning the program. Interviews were the preferred method for gathering information about the perceptions and experiences of the participating adolescent girls. Qualitative inquiry is primarily naturalistic and involves interpreting or making sense of the meaning people attach to their experiences (Mayan, 2009). As a researcher, building rapport with the participants and remaining neutral are important qualities for obtaining valuable data (Mayan, 2009; Harrell & Bradley, 2009). There is a unique relationship between the interviewer and participant; the interviewer must find balance between encouraging and controlling (Hannabauss, 1996; Thomas et al., 2015). It is key that the interviewer is able to get the respondent(s) to participate and stay engaged; to build this rapport, the interviewer needs to have “friendly professionalism” (Harrell & Bradley, 2009). The interviewer must be non-judgemental and must not offer opinions, as there are no right or wrong answers. Verbal and nonverbal behaviours are important so to never lead respondents in a certain direction (Harrell & Bradley, 2009). Recently, Mitchell and colleagues (2015) conducted a study in adolescent girls about experiences and engagement in physical education classes. Through conducting in-depth qualitative research, they were able to gain rich, detailed and meaningful descriptions of the girls’ physical education experiences (Mitchell, Gray, & Inchley,

2015). Interviews allow the researcher to have a direct face-to-face social interaction for the most subjective experiences and attitudes (Denzin & Lincoln, 2011).

The semi-structured interview approach allowed some control or direction between the researcher and the participant; however, not so much in which the participant could not share her own thoughts. Semi-structured individual interviews are informal and conversational; they involve a guide of questions and topics that must be covered, but there is some flexibility in the order of asking the questions (Harrell & Bradley, 2009; Mitchell et al., 2015). The questions are standardised and determined ahead of time and probes may be used throughout to ensure adequate information is gathered and the necessary material is covered (Harrell & Bradley, 2009).

The questions developed for this study were guided by the research literature and the research questions, and informed by the outcomes of the pilot study, as outlined above (Section 3.2). These interviews were conducted by the primary researcher upon completion of the program (week 9). The interview responses were audio recorded and transcribed verbatim. Interviews occurred at each school, were scheduled at the participants' convenience outside of program-time and ranged in duration from 20-40 minutes. The interviews allowed the participants to openly express feelings or thoughts about the program, in their own words. Question cues or probes, as outlined below, were also used to get the girls thinking about the different components of the program, so they could further expand on their experiences and contribute their views.

### **3.8.3.1 Interview schedule**

As outlined in the pilot study section (Section 3.2), the original interview schedule was informed by the research literature and three major concepts reflected in the overarching research questions: program feasibility, PA perceptions and experiences, and body image and physical self-concept. Based on results from the pilot study, questions within the interview schedule were further refined for greater clarity and to gain more specific, accurate information based on the concepts of research questions, however the context around the concepts remained the same.

A funnel protocol was used with the broad concepts being divided into smaller sections, so that more general overarching questions were asked first, followed by more detailed questions about the concepts of interest (Harrell & Bradley, 2009). Detailed questions were also informed and guided by any important themes arising from participants' answers to the general questions. Probes were used to clarify and elaborate on participant responses (Appendix F). Probes during an interview are used to clarify or gain a better understanding of the respondent's reply; probes stimulate the interview (Harrell & Bradley, 2009). The general questions allowed participants to discuss anything surrounding the topic, whilst the additional questions and cues were used to help expose initial perceptions, thoughts, opinions and feelings. The purpose behind these questions was to make the in-person interviews suitable for each individual. The questions incorporated aspects of the program specifically, as well as PA as a whole to assess feasibility and acceptability, and provide information about PA behaviours and experiences. Interviews allow the researcher to access information that cannot be captured through surveys or questionnaires (Denzin & Lincoln, 2011; Harrell

& Bradley, 2009). By thinking about the answers to these questions, the participants were able to learn something new about PA, body image and self-concept, as well as discover their perceptions, thoughts and feelings towards overall wellbeing.

### **3.9 Data analysis**

#### **3.9.1 Quantitative analysis**

Descriptive analyses were completed and presented as means (M) and standard deviations (SD) for all sample characteristics. Paired-samples t-tests were used to assess changes over time from baseline assessment (week 1) to post-intervention assessment (week 9) in the outcome variables (PA enjoyment, physical self-description). The main analysis was conducted with all available data using the principle of intention to treat for the missing data. Intention to treat assumes that participant's status did not change from the last occasion of observation or measurement; this is referred to as last observation carried forward (Altman et al., 2001). Intention to treat analysis is commonly used to avoid "overoptimistic estimates of the efficacy of an intervention" and preserve the sample size (Gupta, 2001). Intention to treat is suggested as the primary analysis when reporting results in a number of previous health promotion interventions (Smith, Bauman, Bull, Booth, & Harris, 2000; Williams et al., 2004). For those participants who completed questionnaires at baseline, but did not complete follow-up, baseline scores were substituted for the missing values so that no change was assumed. A  $p$  value of  $\leq 0.05$  was used to declare statistical significance.

Given the exploratory nature of this study and the main outcome variable of feasibility, a sample size calculation was not undertaken and thus this study is not

sufficiently powered to infer true effect. However, this analysis provided an estimate of effectiveness, which is suitable for the exploratory (pilot work) nature of this study. This is consistent with similar pilot work and feasibility studies (Keats & Culos-Reed, 2008; Story et al., 2003; Broderick & Metz, 2009; Ransdell, Dratt, Kennedy, O'Neill, & De Voe, 2001). All statistical analyses were conducted using IBM's Statistical Package for the Social Sciences (SPSS Version 21.0).

### **3.9.2 Qualitative analysis**

In qualitative research, data collection and data analysis are concurrent processes; therefore, the researcher started analysis after the first set of interviews (Patton, 2002). The researcher recorded observations and reflections over the duration of the data collection process to improve the quality of data analysis (Patton, 2002). Upon completion of the interviews, pseudonyms were assigned to maintain participant confidentiality. Once all of the interviews were transcribed verbatim, a thematic analysis was undertaken. Thematic analysis is used for identifying, analysing and reporting patterns or themes within data (Braun & Clarke, 2006). It minimally organises and describes the data set, and can assist with interpretation of various aspects of the research topic (Braun & Clarke, 2014). The researcher used hand coding, which was peer reviewed by an expert qualitative researcher throughout the process. It began with reading each transcript through carefully, and revisiting them as frequently as needed during analysis. Through reading the transcripts, interesting points and reflections relevant to the study were made note of, and organised into relevant patterns and themes. Themes capture something important about the data in relation to the purpose of the research (Braun & Clarke, 2014). The researcher aimed to discover

the relevance of the themes to accurately represent the collected data. Themes are directly related to the research question, and once these themes were established they were reviewed and refined, which also lead to the development of sub-themes under each main theme (Braun & Clarke, 2006). Overall, these steps led to the data being simplified and categorised for analysis to produce conclusions (Braun & Clarke, 2006).

Saturation is reached when no new data appears within the sample (Mayan, 2009; Bowen, 2008). In qualitative research, saturation is reached when no new themes are identified and no new insights are obtained (Bowen, 2008). In the current study, saturation was reached with 16 interviews; therefore, there was no need to conduct further interviews. Tuner and Werner-Wilson (2008) interviewed a total of eight girls and reported this adequate for reaching saturation in their study. A study involving inner-city minority adolescents reported reaching saturation at 11 qualitative interviews (Bauman & Berman, 2005). Finally, another qualitative study of adolescent girls met saturation with 10 participants (Hoyt & Kennedy, 2008). Thus, based on reaching saturation and previous research, the sample size for this study (n=16) was deemed sufficient.

### **3.10 Rigour**

Rigour is demonstrating the ways and reasons a particular investigation deserves attention (Mayan, 2009). The researcher held the responsibility for ensuring rigour by identifying and trusting the strategies within qualitative inquiry (Morse, Barrett, Mayan, Olson, & Spiers, 2002). Firstly, the researcher implemented empathetic neutrality to promote rigour (Patton, 2002). Empathetic neutrality is finding a balance between having empathy for the participants while maintaining a neutral stance

towards their emotions, thoughts, and behaviours (Patton, 2002). It required the researcher to be compassionate and non-judgemental at the same time; doing this increases the researcher's ability to be open to what they hear and learn from the other person. Empathic neutrality helps build rapport to get detailed insight, perceptions and experiences from the participants (Patton, 2002).

Additional verification strategies and self-correcting were employed throughout the research process. First, an audio recorder was used to record and store all of the interviews. Secondly, from the recordings, transcription of the interviews was completed with close attention and care, and then peer reviewed by an experienced qualitative researcher to support reliability and validity. Third, the results were synthesised and decontextualized for all individual participants; consequently, individuals were unable to recognise themselves or their experiences (Morse et al., 2002; Thomas et al., 2015). Fourth, a key component for ensuring rigour is methodological coherence between research questions and the components of the methods and the analytic procedure (Morse et al., 2002). Thus, collecting and analysing data concurrently allowed the researcher to form an interaction between what was known and what was to discover. Furthermore, qualitative reliability is duplication within the data set, indicating similar experiences among participants (Mayan, 2009). A fifth strategy included transparency, which involved detailing the data collection process and providing adequate fragments of the participants' responses to reinforce interpretation of data (Patton, 2002). Data was systematically checked; supervisors and an expert qualitative researcher constantly monitored the conceptual work of analysis. These verification strategies were employed in this study as they helped the researcher

recognise the appropriate progressions in the research process to achieve reliability, validity and ensure rigour (Mayan, 2009).

### **3.11 Data storage**

All data will remain confidential and securely stored. Data is identified only by code number and pseudonyms have been used for the interview data. Electronic data, digital audio recordings of interviews and interview transcriptions, are stored on a password protected computer located in the Physical Health and Activity Behaviour (PHAB) Lab, which is directed by Dr. Cristina Caperchione (supervisor of the researcher). All paper-based data, such as the demographics and questionnaires are stored in a locked file cabinet also located in the PHAB Lab. Only the researcher and supervisor (Dr. Caperchione) have access to this data. All data will be stored for a minimum of 5 years after the study results have been published or otherwise presented. Destruction of data will occur at the end of this period to ensure that confidentiality will not be breached.

## CHAPTER 4 RESULTS

### 4.1 Sample characteristics

The sample included 24 adolescent girls from a local middle, and secondary school. The mean age was 13 years with a SD of 1.98. Over 87% of the participants resided in areas of Kelowna recognised as low SES, and the majority indicated that they were driven to or rode the bus to school daily. Half of the participants (50%) did not participate in any PA within school, such as a school sports team or school club (e.g., dance club, swim club). The majority of the participants were active in some way outside of school, indicating participation in one or more types of activities. Table 4.1 provides further details concerning demographic characteristics.

Table 4.1

*Individual Participant Characteristics as a Percentage and Number of the Sample*

Variable	Participants %, (n)
Age (years)	
11-13	75 (18)
14-16	25 (6)
Grade	
6-8	75 (18)
9-11	25 (6)
Siblings	
0	4 (1)
1-2	71 (17)
3-4	17 (4)
4+	8 (2)
Area of residence	
Rutland	58 (14)
Mission	5 (1)
Glenmore	5 (1)
Downtown	-
Black Mountain	4 (1)
Other (Joe Rich, West Kelowna, Glenrosa)	29 (7)

Transportation to school <sup>a</sup>	
Walk	(9)
Bike/scooter/skateboard/rollerblade	(4)
Drive (get a ride)	(13)
Bus	(7)
Outside of school PA <sup>b, c</sup>	
Individual (yoga, dance, skiing, gymnastics, swimming)	(12)
Team sports (soccer, hockey, basketball)	(6)
Leisure (walking, cycling, working out)	(7)
None	(4)
In school PA	
School sports team(s)	29 (7)
School club	4 (1)
Other	17 (4)
None	50 (12)

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*Note.* PA = Physical Activity, <sup>a, b</sup> participants indicated 1 or more options, <sup>c</sup> 2 participants unresponsive

## 4.2 Preface

The study revealed positive changes over time in areas of physical self-perception, and demonstrated that adolescent girls have an understanding of PA and health. Adolescent girls are aware of different types of PA, and the associated motives and barriers to participation. The importance of friendship and girls-only groups at this age were emphasised, and overall feedback regarding the Girls On the Move program (GoM) was positive. The participants also recognised the many influences on body image and what often contributes to body image dissatisfaction. This chapter outlines the quantitative (Section 4.3) as well as qualitative (Sections 4.4-4.6) findings.

### 4.3 Quantitative results

#### 4.3.1 Physical Activity Enjoyment Scale – PACES

A paired-samples t-test was conducted to compare PA enjoyment at baseline (week 1) and PA enjoyment post-intervention (week 9). Significance level was set at ( $p \leq 0.05$ ). One participant had missing data at baseline (week 1), therefore was dropped from analysis. Two participants did not complete post-intervention (week 9) measurements; therefore, principles of intention to treat were employed by carrying over participants' baseline measurements to post-intervention (Altman et al., 2001). There was no significant difference in the scores for PA enjoyment at baseline and post-intervention  $t(20) = 0.97, p = 0.34$ . These results suggest that there was no change in PA enjoyment over time. Table 4.2 details these results.

Table 4.2

*Results of T-tests and Descriptive Statistics for Change Over Time in PA Enjoyment*

Outcome	Baseline		Post-Intervention		95% CI of Difference	<i>t</i>	<i>p</i>	<i>d</i>
	M	SD	M	SD				
<b>PACES (n=21)</b>								
PA Enjoyment	49.57	3.37	48.48	5.06	-1.25, 3.44	0.97	0.34	0.26

#### 4.3.2 Physical Self-Description Questionnaire - PSDQ

Sets of paired-samples t-tests were conducted to compare physical self-perception and self-concept at baseline (week 1) and post-intervention (week 9). Means were independently calculated for each of the 11 scales, at each time period: health, coordination, PA, body fat, sport competence, physical self-concept, appearance, strength, flexibility, endurance, and self-esteem. Significance level was set at ( $p \leq 0.05$ ).

Three participants did not complete post-intervention measurements; therefore, principles of intention to treat were employed by carrying over participants' baseline measurements to post-intervention (Altman et al., 2001). Missing values were replaced by the individuals mean for the remaining items on a particular scale. For example, if a participant was missing a score for the sport competence scale, the remaining five scores from the sport competence scale were averaged to estimate this value (Dunton, Jamner, & Cooper, 2003).

There was a significant difference found in the scores for: coordination  $t(2.10)$ ,  $p=0.05$ ,  $d=0.18$ , PA  $t(2.88)$ ,  $p=0.01$ ,  $d=0.31$ , strength  $t(2.41)$ ,  $p=0.03$ ,  $d=0.34$ , and endurance  $t(2.87)$ ,  $p=0.01$ ,  $d=0.23$ . There was no significant difference found in the scores for: health  $t(0.52)$ ,  $p=0.61$ , body fat  $t(-0.34)$ ,  $p=0.74$ , sport competence  $t(0.81)$ ,  $p=0.43$ , global physical self-concept  $t(1.38)$ ,  $p=0.18$ , appearance  $t(1.71)$ ,  $p=0.10$ , flexibility  $t(0.25)$ ,  $p=0.98$ , and self-esteem  $t(0.51)$ ,  $p=0.62$ . These results suggest that there were changes over time in 4 of the 11 scales of the PSDQ. Table 4.3 details these results.

Table 4.3

*Results of T-Tests and Descriptive Statistics for Change Over Time in Physical Self-Description*

Outcome	Baseline		Post-Intervention		95% CI of Difference	<i>t</i>	<i>p</i>	<i>d</i>
	M	SD	M	SD				
<b>PSDQ (n=22)</b>								
Health	4.42	0.85	4.49	1.03	-0.20, 0.33	0.52	0.61	0.07
Coordination*	3.87	1.04	4.06	1.12	0.00, 0.38	2.10	0.05	0.18
PA*	4.31	1.09	4.63	0.99	0.09, 0.56	2.88	0.01	0.31
Body Fat	4.48	1.34	4.42	1.50	-0.42, 0.30	-0.34	0.74	0.04
Sport Competence	3.78	1.39	3.89	1.43	-0.18, 0.40	0.81	0.43	0.08
Self-Concept	4.17	1.10	4.35	1.32	-0.09, 0.43	1.38	0.18	0.15
Appearance	3.94	1.24	4.13	1.47	-0.04, 0.43	1.71	0.10	0.14
Strength*	3.49	1.10	3.90	1.31	0.06, 0.76	2.41	0.03	0.34
Flexibility	4.23	1.18	4.23	1.09	-0.25, 0.26	0.25	0.98	0.00
Endurance*	3.44	1.32	3.73	1.24	0.08, 0.50	2.87	0.01	0.23
Self-Esteem	4.30	1.33	4.35	1.27	-0.16, 0.26	0.51	0.62	0.04

\* Significant change over time ( $p \leq 0.05$ )

#### 4.4 Qualitative results

Thematic analysis of verbatim transcripts was used to examine and explore the qualitative data, and resulted in three underlying themes: 1) PA in the eyes of adolescent girls, 2) Friendships and small group participation, and 3) Being healthy to be happy. Relevant subthemes, under each main theme, were identified and supported with direct quotes from the participants. Pseudonyms were used for participant anonymity.

##### 4.4.1 PA in the eyes of adolescent girls

There are a number of factors (e.g., enjoyment, health, social media) that greatly influence PA participation among adolescent girls today. Adolescent girls have ideas of what PA encompasses, but there was no universal definition across the group. Based on the participants' responses, the data was further divided into two sub-themes: 1) Being

active according to adolescent girls today, and 2) Enablers and barriers to PA participation, which are discussed as follows.

#### **4.4.1.1 Being active according to adolescent girls today**

Many of the girls shared their thoughts about what PA is and what being active means to adolescent girls today. A majority of the girls categorised PA as exercise and/or sport, indicating that it was about “*working out and stuff*,” doing sports, and walking or running. For instance, Rosie stated that girls say: “*I’m active, I workout*.” The girls generally identified this as, “*going for runs and stuff*” or “*like running*”. Other common responses included “*doing sports and stuff outside of school and in school*.” Some of the girls also attached PA to physical responses of the body, indicating that PA is; “*at least getting like huffing and puffing everyday or something...getting out, maybe even outside and just running around, making something like your heart pump*” (Laura), and involved the movement of the physical body, as outlined by Chloe’s response, “*just getting out and doing something you love that’s body movement and just fun*”.

Although the majority of the girls’ responses were focused on the physical body, a few of the participants did identify the mental or psychological aspects associated with being physically active. Kyla stated, “*just like doing something fun and while you’re doing that it gives you a workout and you don’t even realise*.” Chloe specified that PA personally helps her with stress and she can “*escape reality and just do something fun*.” Zoë said the reasons why she is active are “*it helps with my depression and anxiety*.” She continued to describe how being active impacts her mood:

*“If you’re like happy, you’re happy when you workout and if you’re like angry you can just like take out your anger on things and you just feel so good cuz you’re just*

*going at it and your hearts just like racing and you're sweating and it makes you feel so good."*

The participants also shared the types of activities they felt were of interest to adolescent girls. Somewhat surprising, walking was identified as the most common activity by the girls. Consistently, many of them specified that this was mainly for leisure, such as *"walking around and hanging out"* or *"going on a walk with my dog"* rather than for a purpose, such as walking to a destination like school or a friend's house. It was a nice surprise that the girls looked at activities such as walking as a way to be active, and they viewed it as more than just active transport.

Many of them were also interested in sport, indicating that they particularly liked team sports like volleyball, basketball, ringette, track and field, and specifically identified soccer as the top sport. Moreover, the girls who participate in sports connected playing sports to being fit and healthy; *"we're fit because it [sport] keeps you healthy too and it's fun to do it"* (Sarah), and *"I know people on teams they do a lot of exercise and practices and games and its just like I feel like that's good cuz then its also like making yourself stay active and healthy"* (Sadie). Not too surprising, many of the girls also highlighted aesthetic type sports such as dance, gymnastics, and cheerleading to be popular among adolescent girls today. Additionally, the girls mentioned a few leisure-type activities such as jumping on the trampoline, snowboarding, horseback riding, and swimming. The main finding is that the girls offered a variety of examples that included sport, leisure and recreation type activities, all of which were connected to health and wellbeing.

#### 4.4.1.2 Enablers and barriers to PA

In addition to discussing what PA is, or what it means to adolescent girls, participants also shared some of the primary reasons why girls are and/or are not active. The majority of girls agreed that a main reason why adolescent girls participate in PA is because it is fun. Many also indicated that it *“gives you something to do...it gets boring if you’re not active”*. Tess said, *“well people are probably active because it makes them feel better about themselves.”* Sadie shared:

*“People who are active are really trying to achieve a goal or just really want to stay healthy or you know just make themselves feel better and that’s what I’m really trying to do is just like trying to get active just to make myself feel better and cuz I’m really trying to build myself back up instead of like tearing myself down everyday so its just like I wanna start doing that to make myself feel better. “*

Many of the girls also made reference to their physical appearance as a reason for being active. Common responses included *“staying in [physical] shape...to look a certain way is important for a lot of girls”* (Jill). Zoë touched on weight, stating, *“they want be skinny... if they [girls] loose weight then guys can like them.”* Many of the girls expressed that being thin is a primary concern for girls of this age.

Noteworthy, was the connection these girls made between the effects of social media on PA participation and the drive to be thin. Regarding social media, some girls indicated that Instagram, Facebook, Pinterest and Twitter are sources of societal or peer pressures to look a certain way. Hayley felt that social media pressured girls to have a slim figure in order to fit in; *“like you see pictures and you’re like oh I want to look*

*like that.” Sophie said “there’s like a lot of stuff like Thinspo<sup>1</sup> like that’s not gonna make your mind healthy, that’s gonna like not make you feel good about yourself.” It is evident that social media has a strong influence on body image among adolescent girls. Zoë viewed social media as negative, indicating that it is “making them [girls] be someone who they’re really not.”*

In addition to reasons for being active, the participants highlighted some of the main reasons why they felt that adolescent girls, including themselves, were not active. Participants alluded to a lack of time, motivation and/or “laziness” as reasons for not being active. Tess indicated, “they [adolescent girls] don’t like have the time for it and they’d rather be like doing something else” and “they just don’t want to do it.” These reasons were further compounded by common distractions, specifically “being on their phones or watching TV” (Alexa). Sophie added, “a lot of girls are like glued to their phones and so like even though being active makes them feel good they’d rather be on their phones talking to friends.” Many of the girls openly communicated throughout the program that “watching movies or Netflix” was a common interest and a frequent pastime after school, but also acted as a distraction to being more active. It is not shocking that adolescent girls can pass extended periods of time watching shows or movies on Netflix when it is so easily accessible.

Interestingly, a few participants inferred that not being active might be because some girls lack self-confidence in their abilities to be active. Sarah thought, “maybe they don’t think they can do it as well as other people. Or maybe they think they’ll be judged because they’re not as fit as other people.” This was echoed by Rosie, who suggested

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<sup>1</sup> Thinspo: an abbreviation for ‘thinspiration’; a blend of ‘thin’ and ‘inspiration.’ Involves images posted on social media of very thin girls “inspiring” other girls to be very thin.

*“they aren’t [active] because they think it’s too hard.”* Kyla expanded that girls can feel self-conscious or have negative feelings towards their body: *“some people who aren’t active, they just don’t want to be active because they say that they’re like fat or chubby or something.”*

The participants also provided some practical reasons why they, or other adolescent girls, may not be active. Specifically, they indicated that it could be due to *“maybe they just don’t have enough money to put themselves like in that situation where they can do a sport or something”* (Tess). Financial barriers were mentioned by many of the participants as a reason for not playing or being able to play a sport. Chloe said she would definitely play sports, and wanted to try hockey, but it would *“take some time and saving up some money.”* Tess explained that the expensive cost of an activity was reason she couldn’t participate:

*“I wanted to go into dance last year with my best friend but our parents didn’t have enough money for it because it was like \$200-\$300 the program that we were gonna do. And then me and my friend both have one other sibling so they would have to something, and then that would be a lot of money.”*

Another practical barrier that was identified by the girls was transport. Sophie voiced, *“their [girls’] excuse is they can’t get out by themselves.”* Many of them cannot get out by themselves or have no way of getting somewhere (i.e., to a practice, to the gym). Rosie explained that not having a ride was the reason why she could not participate in an activity she wanted: *“I think it was like one of the basketball leagues or something because like it didn’t work with my moms work schedule or something...she just couldn’t drive me at that time.”*

Another interesting reason for not being active was that girls “*do not have enough enthusiasm*”, or in other terms, have not found an activity that they enjoy doing. Chloe reinforced this by saying girls are “*not exposed to the right things that they might be interested by*,” and Jill said girls “*need to do activities they enjoy*.” Chloe expanded on this by saying that girls “*need to be open and experience everything in sports activity or just physical activity and see what they love to do and enjoy doing*.” A few girls identified that everybody is different and what girls like is different depending on “*your kind of personality*.” Although many of the participants outlined a number of barriers, some of the girls felt that there were no barriers or reasons for not being active; “*you can always do like workouts at home so there’s not really an excuse cause you can always do that stuff*” (Sophie). It was highlighted amongst the group that getting out and just doing things, or trying activities is important, and the girls expressed that getting out and doing these things and being active is easier and even more fun with friends.

#### **4.4.2 Friendships and small group participation**

There are various reasons as to why adolescent girls prefer to be active with friends (e.g., company, motivation), as well as to participate in a smaller group setting (e.g., more comfortable, support). Friendships and relationships with peers are evidently very important to adolescent girls. Based on the participants’ responses surrounding the topic of friendships, the data was divided into subthemes highlighting the value of participating in a small group, especially with friends, and the advantages of a designated girls-only group, such as the case in this study. Three sub-themes emerged: 1) Being active with friends, 2) Small group participation compared to physical education, and 3) The Girls On the Move (GoM) program.

#### 4.4.2.1 Being active with friends

Collectively, the girls agreed that it is easier to be active with friends. Rosie stated, *“you don’t think of it as so much like ‘uh I have to go for a run or something,’ it’s like you have your friend there to like talk to or something while you’re doing it.”* Alexa said, *“it’s kind of boring when you’re just all alone so you could do it with your friends and you guys can both have fun!”* The girls communicated that being with a friend, or a group of friends, provides a sense of support and is motivational in terms of participating in PA. One of the girls emphasised that being with friends was easier to practice skills; they could talk about things and cheer each other on. Kyla expressed that when it comes to being active alone, *“you just like have less motivation,”* and Sadie expressed that it is definitely easier to be active with friends because:

*“It’s like motivation to like cuz when you’re with someone and you’re doing it and you’re like you’re helping each other, encouraging each other...I really like that. Just being with someone who actually wants to do that same thing and you...having that support system I guess too, so it’s easier to be with someone that you know than just being on your own or with a bunch of people that you don’t know.”*

The girls also highlighted some activities they would enjoy doing with friends, preferably outside. Sophie said, *“me and my friends we love like going skateboarding to the beach and then going swimming,”* and she likes being outside in the fresh air because it makes her feel *“happy and refreshed.”* Zoë enthusiastically shared:

*“Hiking! Like going up to the top of this mountain...there’s like this little hot springs kind of thing and just hiking up there and like sitting up there chilling talking*

*about life [with friends] and like what you want to do in life... just going outside getting fresh air like it helps you like clean your body out."*

Spending time with friends is important to the girls; according to their common interests and preferences, they choose to do activities together that they all enjoy.

The girls also highlighted the value of having friends for support: "*friends are really important because they can talk to you if you're having a hard time*" (Kyla), and "*you have someone you can trust and have someone to talk to*" (Hayley). In particular, the girls cherished relationships with their friends when dealing with tough situations or problems. Jill expressed that middle school can be a hard "*there's a lot of stuff going on in middle school and you need friends to help you through it...without friends [it'd be] lonely.*" Among girls this age, friendships hold the same amount, if not more, significance than relationships with their parents. Chloe discussed this significance:

*"I think at this age a lot of girls need more emotional support other than parents cuz some girls are really afraid to come out to parents but I think once girls can find that one person who's been through a lot and just being able to talk to someone about like life or if they have questions they can trust someone other than their parents cuz I know for me its sometimes hard to talk to my parents but now that I have a friendship base like a tight base I can go talk to these other people about it...Your true friends will be there for who you, it doesn't matter what you look like but if the ones [others] think that matters than they're not your true friends."*

It was apparent that the girls spend a lot of time with their friends, and being with friends makes them happy. Bluntly, a few of the girls stated: "*what would you do without*

*friends? Life would be reeeeeeally boring.” (Rosie), and “friends are important because they help me get through things and like they make me not bored and like lonely and stuff...I don’t know what I would do without my friends” (Tess). According to Leah, friends are those important people in your life that care about you:*

*“There would be nobody else that would truly care about me you know other than of course my aunt and my mom I mean its unconditional love but its nice to know that other people [friends] would truly care about you they're willing to be close to you.”*

#### **4.4.2.2 Small group participation (girls group vs. PE)**

The participants really enjoyed the small group setting, and felt it was a safe and comfortable environment. Moreover, the girls-only group made it easier for the girls to open up and not to feel judged. Laura said, *“everybody’s non-judgemental they’re not gonna judge you, everybody’s nice to one another.”* Many of them expressed that it offered an intimate support system, where trust and honesty were highlighted. Sarah shared why she liked the small girls-only group:

*“Because you can like, like if you tell someone in our group like something that you want them to keep then you know that they won’t tell everyone so you can like trust everyone in the group instead of like telling someone in a big group and it like spreading rumours and stuff.”*

During group, the conversations really mattered because they went beyond everyday pleasantries and discussed things like abuse, drugs and alcohol, healthy relationships, emotional wellness, and bullying and conflict resolution. These conversations connected the girls to one another as many of them shared similar thoughts and

experiences. Leah indicated that these conversations and discussions were very prominent for her:

*“Well all of our deep and serious talks really stood out for me. Um I dunno I guess when it came to abusive relationships when we were talking about that. I know with my mom and including myself have been through abusive relationships. Kinda opened my mind up.”*

Brooke shared that at the beginning of the program she felt anxious and uncomfortable, but once she realised the girls had things in common with her, she felt differently; *“I’m able to like connect with them and know that they wouldn’t judge me if I had to come to them for advice.”* Encouragingly, many of the girls articulated that they made new friends. Tess was thrilled, *“it was really fun I met a lot of new people and I have more friends now!”* Sophie’s favourite memory of the program was getting to know the other girls and making new friends. Seeing as friendship is so important at this age, the girls cherished the opportunities to spend time with and meet new friends.

The girls unanimously voiced that this group was very different than gym or physical education class. Primarily, physical education class is a much bigger group, a mix of boys and girls, and generally follows a set curriculum. Sophie said, *“In PE [physical education] class we have different classes mixed together, so it’s like there’s more people watching your performance, you’re getting graded and like you have to do good and like you’re getting tested.”* Several girls felt that being with the boys created judgements, and some felt slightly uncomfortable interacting with them. Comparing physical education to the girls-only group, Megan said: *“the boys sometimes are aggressive. And then we were all girls so like nobody would try to like attack you...I think*

*it was cuz it was all girls you weren't like intimidated or anything.*" Again, this age marks increasing awareness of boys; therefore, being active with boys can definitely generate certain feelings of pressure or intimidation among girls. The participants indicated that in physical education the activities are those "basic" things like basketball, soccer or hockey, which generally boys would play more frequently or prefer to play compared to girls. Physical education class was also often split with boys and girls playing separately or at different times throughout class. Unexpectedly, Laura felt strongly about the girls-only group being different than physical education with the boys due to slight discrimination:

*"Because [in group] you don't feel like you're being judged every minute, every step of the way. You know cuz like in gym class we were doing this thing where I felt like the teacher was being very like sexist I dunno he had a girls team and then a guys team and then when we it was like floor hockey and like we had to go up there in front of all the guys and play like hockey."*

The girls added that physical education did not include things like dance or gymnastics, and the teachers selected the activities, leaving the girls with no choice in what activities they could (or had to) participate in. Hayley said, *"PE [physical education] is a bigger group and you have to do like a certain thing, so it's not as free."* The participants certainly liked that the girls-only group allowed for choice. Rosie expressed:

*"You take our suggestions and we can do things we like to do instead of say the girls don't want to do hockey but they force us to do it anyways. So like it felt better than regular gym class."*

#### 4.4.2.3 Girls On the Move program

The physical activities included in the Girls On the Move (GoM) program were based on what the girls wanted to do throughout the weeks. The activity selection was initially based around the outcomes of the pilot study (detailed in the methods Section 3.2), and further informed during discussion with the girls prior to the start of the GoM program. According to the majority choices, the activities were then selected and assigned to each week of the program. The following describes participant responses to the overall GoM program.

The participants mainly indicated that the activities were really fun. Chloe said the activities *“really kinda just get you going,”* and Ashley simply declared they were *“all fun and good!”* The field trips were found to be most favourable activities among the group, and this was followed closely by walking, particularly because it was a pleasant *“change”* to leave the school grounds. The majority of the girls did not have a least favourite activity. The girls enjoyed being active and ‘hanging out’ with the other girls. The participants were given some freedom within guidelines, which they liked, and they all were thrilled to be in the group instead of being in class. Chloe said, *“group was just good for any teenage girl, we have a support system but we’re also like having fun and bonding time together.”* The girls liked the program during school as it broke up the day and was convenient for them to get to and participate in. However, many of them agreed that if it were after school, there would be more opportunities and time for out of school activities or field trips. The girls indicated it would be *“cool”* to have the program after school, and they would join GoM if they could arrange it with their parents or guardians. The girls also indicated that the length of the program was

suitable during school and would be a good length after school as well. Nonetheless, many of the girls wanted it to be longer so that they *“could do more stuff,”* and *“[have] more talk time and activity time.”* Most importantly, GoM provided these girls with a safe and comfortable environment. *“I felt safe there you know. I felt comfortable being able to talk about things”* (Leah).

The girls also expressed that the leaders were supportive *“you guys are great and like you’re not gonna judge us”* (Laura), and the girls looked forward to seeing the leaders each week. According to the girls, being able to talk to an adult, in a safe place, was one of the best parts of the GoM program. Zoë explained that:

*“You guys [program leaders] helped us. You guys listen to us and then you give us feedback and you didn’t judge us or anything...and then you guys talked about it and helped us out, you guys didn’t just sit there and like ‘oh I don’t know what to do but you know, that sucks to be you.’ You guys actually helped us out with it and told us what to do and what’s right for us to do.”*

Unfortunately, several of the girls specified that they were missing a positive adult figure in their life; therefore, the program leaders were respected and greatly valued by the girls.

Many of the girls indicated that the topics that were discussed in the psychosocial component of the program (e.g., abuse, healthy relationships, bullying, emotional wellness) were informative, and extremely valuable in helping them become more aware of issues or concerns in their own lives. Brooke indicated:

*“[I] felt safe and nobody would judge you and you could like say what you wanted and people would be like yeah it happened to me or no that didn’t happen to me what did you do in that situation and just learning from it”*

A few participants also said they talked about what was learnt in the group outside of group time, with other girls from GoM, as well as with girls who were not involved in program. Some of the girls specifically commented that those who were not in GoM missed out on learning some interesting things. The GoM program simply offered a place for these girls to go, to learn, to talk and to be physically active in the ways they wanted. Laura expressed, *“I’m really grateful that you guys actually like had a group for that.”* Rosie said, *“I think it’s a good program. I like everything about it”* and Chloe summarised GoM as:

*“I think the group was just good for any teenage girl...[it’s] a really good thing for girls these days in society who just need to let another reality out, and Internet is not your main goal in life and I think just being happy is the main thing.”*

#### **4.4.3 Being healthy to be happy**

There are numerous means from which adolescent girls are acquiring information and ideas about health; this was discussed in relation to happiness and the influence of these ideas on body image. Based on the participants’ responses and views on health, the data was divided into subthemes highlighting descriptions of health: the physical, mental, and social aspects, and ways someone can take care of themselves. Two sub-themes emerged; 1) Health defined by adolescent girls, and 2) Body image and what makes someone healthy.

#### 4.4.3.1 Health defined by adolescent girls

According to the participants, being healthy is being happy. Healthy is *“being okay with your body and taking care of it to the best of your ability”* (Brooke), and taking care of your body is *“eating healthily and knowing what your body can and can’t do”* (Brooke). Not surprising, the girls reported eating properly and being active to be key components of health, which they felt that in turn meant taking care of their bodies. Eating properly was identified as consuming fruits and vegetables and not always eating ‘junk food’, as well as eating the appropriate amount of food. Many of the participants commented on girls their age not eating enough in order to be skinny, which they agreed is unhealthy. Zoë promptly stated that to be healthy, *“[girls need to] have a little bit of meat on them. Just a little bit where you can’t count their ribs [bone thin]...just eating the proper amount of food.”* Kyla echoed this saying *“if you’re like starving yourself out for no reason just to like lose weight I think that’s stupid because you’re hurting yourself and you’re like not healthy at all.”* Laura added that it is important to *“make sure that you’re getting the right nutrition and that you’re really healthy cuz even vegetarians and vegans, because I’m a vegetarian myself, and you have to get like the right nutrition.”*

Eating properly was the primary component the participants considered in the definition of health, followed by being active. Physical health was described as exercising, moving your body, and getting outside. Remarkably only one participant (Jill) mentioned getting enough sleep as an important part of health. Noteworthy, the participants more readily defined the term physically unhealthy rather than physically healthy. Alexa indicated *“gets sick easily”* as physically unhealthy, and Kyla said

*“procrastinating sitting on your phone all the time”* was unhealthy. Moreover, many of the girls connected being physically unhealthy with sedentary behaviours. For example, Zoë described activities such as *“laying in bed all day, texting, watching TV”* as unhealthy, Jill suggested *“sitting around doing nothing,”* and Megan reiterated, *“sitting down all the time...just always being on your electronics.”* A few of the participants also recognised all aspects of health (i.e., physical, mental and social) to be interrelated. Chloe depicted, *“being physically healthy is just an equal counterpart to being mentally healthy cuz if you're physically healthy you feel good so then mentally you are good.”*

The girls' understanding of mental and social health was a bit more widespread than the physical aspect. This is not surprising as mental health is rarely the first matter that comes to mind when discussing health; also, many were not familiar with the term social health as this is not a component of health that is widely discussed or understood. Nonetheless, when the term social health was used the girls did have a basic understanding of what it may encompass. They understood that it did have something to do with increasing social interactions and being around others, but many categorised this as part of mental health, highlighting the importance of being happy to be mentally healthy. Mental health, according to the girls, included confidence, self-esteem and knowing how to take care of your self mentally. Sarah said, *“being happy and feeling good about yourself,”* and Chloe put it pleasantly as, *“feeling healthy is someone who's happy and can brighten up a room when they walk in...confidence I'd say.”* Brooke defined mentally healthy as: *“learning things that stress you and how to deal with it.”* Hayley said that you can take care of yourself mentally by: *“don't get caught up on things that you can't change.”* Similar to physical health, it was easier for some of the girls to describe

the meaning of mentally unhealthy. Kyla stated, *“mentally [unhealthy] I think that you're just like not focused on things that you're supposed to be doing you're not happy inside and out with the way you look or the way you feel.”* Unhealthy is *“[being] insecure and depressed”* (Alexa), and *“bottling up all your feelings”* (Sophie).

In most cases, the girls combined the meaning of mental and social health as a single broader subject. Presumably, the girls understood mental and social health from personal experiences or from the influence of adults in their lives. With regard to social health the girls mostly discussed good relationships, social connections and support. Leah said, *“keeping positive people in your life”* was important. Megan voiced the importance of *“[having] good relationships in your life and being able to talk to your parents.”* A few of the girls indicated that talking to a trusted adult is important for dealing with difficult or unhealthy situations. Alexa said, *“if you have a problem you could go talk to a trusted adult”* and Kyla said *“tell an adult if you're being bullied or something...being aware that other people around you might be bullied and or if you're being bullied tell somebody.”* This element of having someone to talk to, particularly in negative situations, relays back to the importance the girls placed on having friends to talk to. In the eyes of the participants, the leaders of the GoM program were trusted adults who they could come to with anything; this was an extremely valuable component of the program. According to the participants, the relationships with the group leaders went beyond just support; they shared experiences and knowledge, provided advice and guidance, and offered additional resources. Foremost, the leaders emphasised to each girl the importance of taking care of herself; that she is in control of her health, her body, and her life.

#### 4.4.3.2 Body image and what makes someone healthy

Unfortunately, being skinny is a driving force among adolescent girls today; this idea of skinny comes from today's culture with influences from the media, peers and society in general. Rosie voluntarily shared:

*"A lot of girls, all they care about is having like the perfect body and stuff like that but like the perfect body to them is like being like so skinny that like you can see your bones and its like bad skinny which is what perfect is considered to be."*

Interestingly, a few of the girls highlighted the significance of being skinny with no connection to social media. For instance, Hayley said, *"they [girls] worry more about what they look like then like they worry more about what the outside looks like than the inside."* Nonetheless, one of the main influences on this idea of skinny was social media. Girls desire the approval of others and believe that they need to be 'perfect'. This idea of being 'perfect' or having the 'perfect body' stems from what is displayed on social media. Brooke confirmed this, *"being skinny is important to teenagers these days because of social media, because of the way they [media] portray girls...they're skinny and then girls try to achieve that."* Many of the girls mentioned that girls their age want to look like the models and celebrities they see online, and they believe that if they look that way people will like them more. Encouragingly, the participants also agreed that skinny does not necessarily mean healthy. As said by Sadie:

*"You don't have to be super skinny to be healthy. I feel like you can you know do activities and still be healthy and like go workout at the gym or go shoot some hoops or whatever or like 30 minutes out of your day exercising, I feel like that's*

*like that's healthy if you're doing that and eating healthy. Yeah you don't have to be super skinny to be healthy."*

Jill echoed, *"some people are starving themselves just to be skinny and that's not good for your body."* The participants also uncovered that some girls are taking drastic measures in order to attain this unrealistic body. For instance, Chloe revealed; *"some girls are ending up purging and all this and that's not healthy."* Also, it was communicated that being skinny or losing weight is one of the top reasons adolescent girls work out. Kyla said, *"a lot of girls say that they want to work out to get bikini ready bodies."* Leah believed that this need to be skinny is ridiculous because often girls are already very thin; *"I hear so many people, so many teenage girls saying I need to get this belly fat off it's like what belly fat?!"*

Another body image that is constantly displayed in social media today is 'strong'; women who are extremely lean and muscular, and referred to as "bikini models". Many of the girls immediately associated being strong in a mental or psychological sense. For instance, being mentally strong was recognised as being able to handle emotions or deal with conflict. Most of the girls began by differentiating the two types of strong (mental and physical). For example, Jill acknowledged:

*"Well there's physically strong and mentally strong...being physically strong is like working out and stuff and you can do some other stuff that some people who are weaker can't do and being mentally strong is you can handle harder situations than some other people."*

Zoë defined mentally strong as *"being able to stand your ground. Like being able to say no to someone. Like that takes a lot of guts to but just say no to someone"* then went on to

describe physically strong as *“if you're moving on your own and this big heavy box comes then you'd be able to move that”*. Generally, the participants' understanding of strong continually referenced back to mental health; Sadie said, *“being strong I feel like its not only with muscle its with personality, like getting through something or yeah just being strong like having stability on everything or able to get through something having that like self-power and everything.”* On a positive note, the participants showed awareness of healthy and unhealthy body images, with multiple girls expressing the importance of loving oneself, and being healthy to feel good.

The expression 'feeling healthy' generated various ideas and inspirations, many of which revolved around being happy to be healthy. In addition to happy, the girls described feeling healthy as: good, calm, relaxed, energetic, and grateful. These feelings overlapped with the feelings the girls described when they moved their bodies. Sadie shared a powerful cultural statement about her aboriginal dance:

*“I feel there's so many things that I feel. I just feel so happy and uplifted. I know you're not normally supposed to dance or do anything with a negative mindset but when I do that [dance] and I'm like not feeling that good it just turns my mood right around and its like the best feeling and I just love it and I would choose that [dance] over anything just to feel that way...It makes me feel like confident of who I am and that I am native and it makes me feel just really good...It's a really good feeling I feel so much positive good energy when I dance.”*

The participants reflected on what they might feel on the inside, when they move their bodies, when they play their favourite sport, or when they are participating in an activity they love. The girls associated many positive feelings such as, empowered, free,

fast, hyper, excited, refreshed, powerful, confident, accomplished and strong. Leah described feeling free in her body and mind, and Alexa said it made her want to exercise more. Chloe exclaimed, “[moving my body] feels good! Sometimes it’s just letting emotions out as you’re doing it [moving] just makes you feel so much better.” Kyla, one of the girls who loved being active, declared:

*“Feeling healthy would probably be getting the satisfaction after you’ve ate a really healthy meal...or getting the satisfaction after like a long run and you’re really tired and after that might be really sore but you should be happy that you worked out and be happy that you have that chance to build your muscles.”*

Although, the participants unanimously agreed that moving their bodies was good for their overall health, they did communicate some undesirable feelings linked to moving their bodies: feeling tired, sore, and anxious or uncomfortable. Although feeling tired and sore were brought up as negative outcomes associated with exercise, the girls also explained that this did not deter them from being active because these outcomes (tired and sore) made them feel that they had worked hard and accomplished something. In comparison, feeling anxious or uncomfortable was attached to activities the girls did not enjoy.

In sum, there was a significant difference from baseline to post-intervention in measures related to physical self-description and self-concept. This quantitative result showed positive changes in physical self-description, which was further supported by the qualitative results, which showed that adolescent girls have knowledge about PA, health, and body image. Small group participation, being with friends, and being active

in ways they enjoy, showed to be vital for PA participation among at-risk adolescent girls.

## CHAPTER 5 DISCUSSION

The results of the current study showed adolescent girls understood PA and health; however, body image was still a concern with the drive to be thin being strongly influenced by social media. An integrated program, encompassing psychosocial and PA components, and tailored to the specific needs and preferences of at-risk adolescent girls, appeared to be both feasible and efficacious. Qualities of these types of programs include a small group setting, and allowing the girls the opportunity to be involved with activity choice. It appears that these components are vital to creating a supportive environment and providing positive and enjoyable experiences.

The findings of this study suggest that adolescent girls are aware of the meaning and the importance of health, and they know that PA and proper nutrition are directly related to being healthy. The participants easily provided examples, benefits, and barriers to PA and appropriately referenced healthy versus unhealthy food. This understanding was somewhat unexpected, particularly in this age group where they are constantly bombarded with mixed messages throughout the media (Tiggeman & Slater, 2013; Wiseman, Sunday, & Becker, 2005). However, the recent push to promote awareness and educate the general public about the benefits of engaging in healthy lifestyle behaviours, via large public health campaigns, may be positively impacting adolescent girls' behaviours. For example, campaigns like ParticipACTION have focused their attention and resources on large media campaigns specifically targeting PA for children and adolescents (ParticipACTION, 2016). These campaigns are being televised regularly throughout Canada, and clearly outline the Canadian PA guidelines, provide concrete examples of age-specific sports, exercises and physical activities that could

help reach these guidelines, and most importantly, highlight the health benefits associated with being regularly active (ParticipACTION, 2016). In addition, many of these campaigns also provide education around sedentary behaviour and how this differs from being active. These messages are supported by the Canadian Guidelines for Sedentary Behaviour (CSEP, 2016), which, as one of the few countries to have sedentary behaviour guidelines for children and adolescents, further supports efforts toward increasing awareness and educating our youth about the importance of engaging in healthy behaviours (e.g., increase PA, decrease sedentary behaviour) for greater health benefit.

Similar to the public health messaging and campaigns surrounding PA, there has also been increased awareness and attention around youth mental health, as more and more adolescents are affected by mental health issues now than ever before (Livingston, Tugwell, Korf-Uzan, Cianfrone, & Coniglio, 2013). Again, this focused attention on increasing awareness and education around youth mental health via large public health media campaigns may help to explain why many of the girls in this study were cognisant of mental health and its link to overall health. For instance, *The Bell Let's Talk* awareness campaign has recently made headway with efforts towards ending the stigma, and promoting awareness and understanding around mental illness (Bell Canada, 2016). Moreover, *In One Voice*, a local campaign, was a social media intervention involved with the NHL hockey team, the Vancouver Canucks, with the primary target group of youth and young adults living in British Columbia, Canada (Livingston et al., 2013). The goals of *In One Voice* were: 1) to increase activity on an interactive, educational, youth-focused website ([mindcheck.ca](http://mindcheck.ca)) as a way to improve

mental health awareness and knowledge, and 2) to improve attitudes and behaviours towards mental health issues (Livingston et al., 2013). Finally, the *Right By You* campaign, created by *Partners for Mental Health*, aims to better support youth mental health in Canada by increasing awareness and acceptance, developing a greater understanding of how mental health affects young people, and supporting youth who currently struggle with mental health problems or illnesses (Partners for Mental Health, 2016). Thus, the effort, time and resources (i.e., funding, specialised health professionals, etc.) allocated to large public health campaigns, such as the ones outlined above, may be advantageous to increasing awareness and education of adolescents concerning health-promoting behaviours. However, it is unclear if these messages and campaigns result in actual behaviour change, thus further examination of the effects of these messages and campaigns on behaviour change is needed.

Even though the girls in this study had a good understanding that engaging in PA had many physical and mental health benefits, physical appearance (rather than health in general) was commonly reported as the leading reason for being active. This finding is not surprising partly because of the well-known impact that the sociocultural environment, particularly the media and peers, has on this population (Clay, Vignoles, & Dittmas, 2005; Groesz, Levine, Murnen, 2002). The participants understood the serious impact of the media, specifically social media, on perceptions of body image among girls their age. Today, the Internet is the most pervasive form of media, with social media being used unanimously among adolescent girls (Tiggemann & Slater, 2013; Perloff, 2014). Adolescent girls use social media mainly because all of their friends do; it is a form of communication and entertainment, and can be used at anytime and anywhere

on a variety of devices. These girls are on several networking sites, have all sorts of accounts, and spend a considerable amount of time online. With this, they are constantly exposed to the thin ideals of female beauty by seeing celebrities, models, and peers. Undoubtedly, Internet exposure is correlated with body image concerns in adolescent girls (Tiggemann & Slater, 2013; Clay et al., 2005). They are comparing themselves to this unrealistic standard of beauty, and internalising the thin ideal. The media often presents this ideal together with affluent lifestyle factors (i.e., expensive clothes or make-up); so, when considering particular adolescent groups such as at-risk, this emphasises the gap between the audience and the cultural ideal, as this is not feasible for most (Wiseman et al., 2005). Although the participants recognised the negative impact of social media on body image and the desire to be thin, the girls themselves reported average physical self-description and physical self-concept, which was likely influenced by this constant exposure, as discussed above.

Adolescent girls are strongly influenced by the sociocultural messages, images and powers of the media, which are then reinforced by peers (Hutchinson & Rapee, 2007; Shroff & Thompson, 2006; Woelders, Larsem, Scholte, Cillessen, & Engerls, 2010). Adolescence is the point in their lives where they are seeking their own identity, but also striving to fit into the perceived “norm”; therefore, they are turning towards peers as their main source of information (Wiseman et al., 2005). This is particularly evident when it comes to physical appearance. Adolescent girls believe thinness is key in determining attractiveness and popularity; consequently, social comparisons, peer interactions, and appearance conversations lead to perceived peer pressures for thinness (Eyal & Te’eni-Harari, 2013; Gondoli, Corning, Blodgett Salafia, Mucchianeri, &

Fitzsimmons, 2011; Helfert & Warschburger, 2011; Hutchinson & Rapee, 2007). Due to the constant pressures of the 'perfect' body, and the yearning for approval and admiration from peers and others, adolescent girls often struggle to develop and/or maintain a positive self-image. This becomes an even greater struggle for at-risk adolescent girls because they report higher rates of body dissatisfaction and negative self-image than the general adolescent girl population (van den Berg et al., 2010; O'Dea & Caputi, 2001). They lack the confidence and self-esteem to contest peer pressure (Clay et al., 2005), thus resulting in a more pronounced drive for the 'perfect' body as a way to gain approval and 'fit in' with their peers. Peers are influential in the development of individual personality traits, physical characteristics and behavioural tendencies (Hutchinson & Rapee, 2007). Research shows that adolescent girls' friendship groups share body image attitudes and share similar levels of body image concerns (Woelders et al., 2010). Teasing or exclusion from social networks and activities because of one's appearance is a concern for adolescent girls (Helfert & Warschburger, 2011). During adolescence, increasingly more time is spent with peers and the desire to be accepted and belong to a group holds high importance.

Another layer of complexity within friendships and peer relationships is mixed-sex interactions. Mixed-sex interactions become more frequent during adolescence with girls and boys combining their friend groups (Gondoli et al., 2011). Socialising in a mixed-sex environment provides girls with a perceived idea of their attractiveness, which causes escalated body-related concerns (Gondoli et al., 2011). Depending on the age of the girls, with relation to biological and social transitions, mixed-sex experiences vary. In this study, the associations with boys differed between middle school and

secondary school, with the older girls already having experienced many mixed-sex interactions. The younger adolescent girls (middle school) were not as concerned with boys; many were just beginning to pay attention to and wanting to spend time with boys, typically in a group setting with their girl friends. The older adolescent girls (secondary school) participated in more mixed-sex interactions such as boy-girl parties, group dates and individual romantic relationships. Due to these more frequent interactions with boys, the older girls indicated that looking a particular way for boys was important; in order to appeal to boys, girls needed to be attractive, which to many is being thin. Girls this age are strongly influenced by boys, and act a certain way to get their attention. They are insecure with their changing bodies, and with lowered self-confidence and self-esteem they seek approval from boys (Compian, Gowen, & Hayward, 2004). It is reported that at-risk girls more often have boyfriends or are involved with older boys; also, these girls describe their boyfriends as the most important people in their social network, suggesting that relationships with boys may be a way of enhancing poor self-concept (Compian et al., 2004). However, a program like GoM offered to girls in the earlier stages of adolescence, that provides opportunities for the girls to learn to be happy with themselves and their bodies, build self-esteem and confidence, and create awareness that they don't need to impress anyone, particularly boys, may help with this transition to later adolescence.

The effects of peer pressure are evident in this age group; however, the findings from this study also highlighted the importance of friends for promoting social support. Research highlights that social support from peers plays a major role in health promoting behaviours such as PA, healthy relationships, personal safety, and emotional

wellness (Kirby, Levin, & Inchley, 2011). The findings from this study indicated that girls prefer to be active with friends because it is motivating, easier and more fun. They have someone to talk to while being active, and they can practice skills and cheer each other on. For example, walking/hiking was commonly seen as an activity where they can be active, while socialising and having fun together. Participating in PA alone was pronounced boring; however, having girls the same or similar age can be sufficient to make one feel comfortable. Being active without friends or peers can be taken as threatening (Whitehead & Biddle, 2008). Along with social support, the attitudes and behaviours of friends also influence PA participation, meaning that adolescent girls who have active friends are more likely to participate in PA (Kirby et al., 2011; Whitehead & Biddle, 2008). According to the participants, friends are valued for support in ways beyond PA, especially when dealing with tough situations or problems.

Even though friends are of utmost importance at this age, these girls need a supportive adult figure; adults are responsible for providing the support, care and reinforcements that friends cannot (Laird, Fawkner, Kelly, McNamee, & Niven, 2016; Sebire et al., 2014; Humbert et al., 2006). Support from adult and parent role models is important for educating and promoting healthy behaviours for these girls. This is particularly true for PA where research has consistently highlighted that social support, and more importantly parental support plays a vital role in increasing PA participation (Humbert et al., 2006; Camacho-Miñera, LaVoi, & Barr-Anderson, 2011; Coleman, Cox, & Roker, 2008; Wright, Wilson, Griffin, & Evans, 2010). Social support involves providing emotional (e.g., encouragement), instrumental (e.g., financial), or informational support (e.g., instruction) and can be from friends, family, teachers, or other adult figures. There

are known associations between parental support and adolescent PA levels, whether it is co-participation, supervision, praise or logistic support (Laird et al., 2016; Humbert et al., 2006). Adolescents with parental encouragement to be active were significantly more likely to report higher PA than those without (Kirby et al., 2011; Kitzman-Ulrich et al., 2010; Humbert et al., 2006). It is reported that adolescents of low SES receive less involvement and encouragement from adults compared to their more privileged peers; therefore, they desire any kind of involvement from an adult figure (participation, supervision, organisation) (Humbert et al. 2006). Girls who participate in sport normally live in an active household with parents and/or sibling(s) that are active; they usually have high levels of family support, including practical support such as transportation and activity costs or fees (Coleman et al., 2008). Higher family income or SES is associated with higher PA for girls (Biddle, Whitehead, O'Donovan, & Nevill, 2005), compared to those at-risk adolescents in difficult social circumstances, living in lower SES or poverty who are reported to have the lowest PA rates; the absence of parental support likely being a contributing factor (Clemmens & Hayman, 2004; Kitzman-Ulrich et al., 2010; Humbert et al., 2006). Participating in PA, in a safe supportive environment is especially important with at-risk adolescent girls; they want the presence of a supportive and trustworthy adult to participate, facilitate and supervise activity (Humbert et al., 2006). Apparent in the GoM program, and supported in the literature, at-risk adolescent girls are enthusiastic about having an adult participate in activities (Humbert et al., 2006). Programs like GoM offer adolescent girls opportunities to be more active in a safe and welcoming environment, alongside supportive, knowledgeable adults.

Adolescent girls are not meeting today's recommended PA guidelines, and are often described as 'low active' or 'disengaged' (Colley et al., 2011; Tremblay et al., 2011; Mitchell et al., 2015). There are numerous barriers that contribute to this lack of participation or disengagement. While PA is associated with more positive perceptions of one's body attractiveness and overall physical self-worth (Biddle et al., 2005), the participants described negative self-perceptions, lacking self-confidence or feeling self-consciousness, as reasons why adolescent girls are not active. These various psychological barriers along with low self-esteem, lack of competence and self-efficacy are consistently supported in the literature (Sebire et al., 2014; Mitchell et al., 2015; Burgess et al., 2005; Coleman et al., 2008). Environmental and social barriers also contribute to lower participation rates, with practical reasons like financial limitations being especially common in the at-risk population. Adolescent girls, particularly of minority, who live in difficult social circumstances, participate in less PA (Clemmens & Hayman, 2004). PA barriers perceived by adolescent girls must be understood in order to tailor intervention programs (Camacho-Miñera et al., 2011; Robbins, Pender, Kazanis, 2003). With that said, the barriers, challenges and specific needs of at-risk adolescents girls are different than those of the general adolescent population. Therefore, tailoring programs to meet these specific needs is very important. Research has shown that tailoring programs is important for creating awareness and interest, as well as reaching and attracting the desired demographic; tailored messages are customised to individuals in order to increase chances that the message will be considered personally relevant to someone (Noar, Bena, & Harris, 2007). For example, the *NEAT Girls* intervention used materials that were branded and tailored to appeal specifically to low

SES adolescent girls (Lubans et al., 2010). It is reported that tailored messages are more effective than generic messages in affecting health behaviour change (Noar et al., 2007). Additionally, tailoring programs helps to engage girls as well as increase adherence and participation in PA (Taymoori & Lubans, 2008).

The findings of the current study support the need for a tailored program. Specifically, it is suggested that the following components should be considered when developing programs for this population. First, a girls-only supportive environment is reported to be a vital when targeting adolescent girls. Research in multiple disciplines consistently emphasises that girls-only interventions are imperative for various reasons including: inclusiveness, freedom from comparison from boys, greater opportunities to develop skills and relationships, increase enjoyment and decrease concerns about body image (Camacho-Miñera et al., 2011; Coleman et al., 2008; Lubans et al., 2010). The findings from this study correspond with the literature, highlighting benefits such as, increased comfort, reduced anxiety, less judgement and shared experiences. Small girls-only group settings also allow for open communication and the girls feel like they can be themselves (Turner & Werner-Wilson, 2008). A supportive environment is key in influencing self-esteem and increasing self-confidence in adolescent girls (Blumer & Werner-Wilson, 2010; Burgess et al., 2005; Dowd, Chen, Jung, & Beauchamp, 2015; Turner & Werner-Wilson, 2008). When targeting at-risk adolescent girls, a supportive environment is the cornerstone to producing successful program outcomes (Neumark-Sztainer et al., 2010). A supportive environment also promotes social interaction and positive peer relationships. Adolescent girls enjoy spending time with, and undeniably prefer participating in PA with friends; friends play a significant part in shaping the

lives of these girls. Research suggests that more friendship-focussed interventions, which are inclusive of all friends regardless of their ability, could contribute to increased PA (Coleman et al., 2008; Camacho-Miñera et al., 2011). In future programs targeting adolescent girls, including friends might be a key element for changing behaviours and attitudes.

Another important aspect of tailoring programs, is allowing participants to be a part of the development of the program, by giving choice in activities. Research shows that choices about which class and in which group or individual to participate with are also critical in engaging girls (Mitchell et al., 2015). A lack of motivation and enthusiasm are commonly expressed as reasons why girls this age are not active; girls lack enthusiasm because they are not exposed to activities they enjoy. Enjoyment is a main, if not the most, important motivation factor in PA participation among adolescent girls (Biddle et al., 2005; Whitehead & Biddle, 2008; Dishman et al., 2005). Enjoyment influences behaviour by providing an immediate reward of being physically active, and activities in which girls feel they have control and choice over are reported to be the most enjoyable (Dishman et al., 2005; Mitchell et al., 2015). PA is for enjoyment's sake, thus adolescent girls choose activities that are fun, informal and unstructured because they don't want to work hard (Whitehead & Biddle, 2008). Therefore, in order to engage girls and promote regular adherence and participation it is important that they play a participatory role in developing programs activities.

In the current study, there were also observable differences in activity preferences, motivation and enjoyment between the participants in middle school compared to those in high school. Motivation is important factor in PA behaviours at-

risk adolescents (Kitzman-Ulrich et al., 2010); motivation is greatly influenced by enjoyment, which confirms activity choice to be the most essential to PA participation. Canadian PA guidelines are the same for children and youth (adolescents), ages 5-17 years, and even though there is a small age gap between early and late adolescence, activity selection differs. Older adolescent girls preferred different activities and required information about different psychosocial topics; therefore, programs need to be refined for younger and older adolescents. Early adolescence is the time where girls begin to place increasing importance on friends, their attitudes, values and behaviours; therefore, this is high-risk period for development of unhealthy behaviours and body image disturbances. As girls transition to late adolescence, more severe body image related problems have already developed (i.e., eating disorders) (Hutchinson & Rapee, 2007). The findings from this study revealed the behaviour differences depending on age; with the older girls there was mention and discussion around drugs and alcohol, whereas with the younger girls this was yet to be an issue. Therefore, future programs must consider this age gap when tailoring programs, and include psychosocial topics and activities that are not only appropriate for the sub-population, but also appropriate for any age differences that may exist.

As alluded to above, the topics discussed in the psychosocial component should be tailored to the at-risk adolescent girl population, such as in the GoM program, and include various aspects surrounding: gender issues, healthy relationships and sexuality, communication skills and boundaries, conflict resolution, safety, and emotional wellness. Other programs targeting adolescent girls that include psychosocial education consist of similar components (Blumer & Werner-Wilson, 2010; Turner & Werner-

Wilson, 2008). For example, the *Pathways* program highlighted the importance of a supportive small girls-only group setting, and included components such as: self-awareness, self-esteem, positive attitudes, relationships, communication, sexuality, mental health, substance abuse, body image, healthy mind, healthy body, academic and career skills training. This program showed to have a positive influence on reducing high-risk behaviours of adolescent girls through the psychosocial education (Blumer & Werner-Wilson, 2010). Topics such as these are not discussed at school, as the curriculum does not often allow for this. Typically, it is assumed that these topics may be discussed at home, with parents and/or guardians, however this is often not the case for at-risk adolescents. Research has highlighted that this particular sub-population has little support at home and lacks role models; therefore, the opportunity to address such sensitive topics is lost (Secor-Turner et al., 2014). If they are not getting the opportunity to talk and learn about these important topics at home or school, there is a need for programs like GoM. Adolescent girls are vulnerable at this stage of life, therefore providing information about social relationships, appropriate education, possible opportunities, and health can have a significant impact on a young girl's future (Bailey, 2012). Moreover, role models are vital for this knowledge translation. Programs like GoM, where the leaders are trained and experienced (i.e., health promotion specialist, social worker specialised in youth), to work with young girls and address these sensitive topics, is necessary given that many do not get this from school or home. The group facilitators of the GoM program were viewed as trusted and supportive adults, and had a positive impact on the participants, especially those who did not have supportive figures at home.

There is strong support around multicomponent strategies for adolescents; incorporating components of PA and health education, as well as, encouraging family and community support, show effectiveness in increasing PA in adolescents (Naylor & McKay, 2009). Programs such as GoM have the potential to create awareness and educate young girls about positive body image; they offer an environment to talk about things like the media, relationships and social interactions, as well as provide an opportunity to build self-confidence and self-esteem by learning how to value the physical body through engaging in PA and sport. Moreover, this environment allows girls to be themselves, where they are free from judgement and are supported by others who have had similar adolescent experiences. Future programs incorporating PA and psychosocial components, like GoM, must be targeted and tailored to the needs of at-risk adolescent girls.

The quantitative findings from this study did not completely support the qualitative findings. For instance, findings from the qualitative interviews emphasised PA enjoyment as an important factor for PA participation, specifically highlighting that adolescent girls enjoy being active in a desirable setting, with friends, engaging in activities they choose. However, the quantitative results from the Physical Activity Enjoyment Scale (PACES) showed no change in PA enjoyment over time from baseline to program completion. This may be due to the girls not caring about completing the questionnaires, thus the post-intervention responses mirrored their responses from baseline. Another likely reason for this lack of change would be the length of the program. The program ran for 8-weeks, meeting once a week, so the girls only got to sample all the different types of activities. In this case, if the girls were to participate in

a certain activity multiple times perhaps their skills would develop and, in turn result in increased enjoyment. Secondly, the qualitative findings also demonstrated a general understanding of PA as a key component of health, and the girls explained the positive feelings, both physically and mentally (i.e., feeling good about themselves), that accompany PA participation. Despite that, the quantitative findings showed no change in certain measures of Physical Self-Description Questionnaire (PSDQ), specifically those relating to perceptions of body image (i.e., body fat, appearance), self-concept and self-esteem. For example, being active made the girls feel tired, which they self-reported as an undesirable feeling on the PSDQ; however, during the interviews they expressed feeling tired as a positive outcome, indicating that this meant they had worked hard or accomplished something. These discrepancies may be a result of limitations with the measurement tool in that it was not sensitive enough to pick up the girls' interpretation of being tired.

## **CHAPTER 6 CONCLUSIONS**

### **6.1 Overview**

There are no specific considerations relating to body image, self-concept and PA for at-risk adolescent girls. PA participation in adolescent girls is vital for overall health and wellbeing, and positive improvements in PA contribute to a positive body image in adolescent girls. The overarching purpose of the present study was to examine the feasibility of an integrated PA and psychosocial program (GoM) aimed at improving the body image and physical self-concept of at-risk adolescent girls, as well as, evaluate perceptions, preferences and experiences of PA. Results indicated high levels of satisfaction with the GoM program among the girls. Even though girls were not meeting the recommended PA guidelines, they had an understanding of PA and health, and recognised different types of PA and the associated correlates to participation at this age. Activity choice was highlighted as key for enjoyment, and enjoyment was vital for increased PA participation. The results of this study also indicated that at-risk adolescent girls preferred a girls-only group setting, partly due to the importance placed on friendship or developing new friends at this age. Peers and social media significantly influence the body image perceptions of adolescent girls; a beauty ideal, which is tainted by the media and often supported by peers, creates a constant drive to be thin in order to 'fit in'. Adolescence is a vulnerable period of life, especially for those at-risk; therefore, education about various psychosocial topics (i.e., sexuality, communication and boundaries, safety) can meaningfully affect these girls. An integrated PA and psychosocial intervention shows promise as a strategy for reaching

and engaging at-risk adolescent girls, particularly when it is delivered in the supportive, small group environment.

## **6.2 Strengths and limitations**

An important strength of this study was program delivery by a collaborative team, including a health promotion specialist and a certified social worker. Both being experts in their field offered a large knowledge base for effective program implementation. Involvement of a certified social worker is crucial when working with a population like this as there are a number of specific barriers and challenges that require the attention of those with specialised training (e.g., understanding abuse and healthy relationships). Working with the certified social worker, who was an employee of a community not-for-profit organisation, also allowed for an opportunity to continue fostering a collaborative community partnership, which is valuable for future program dissemination and knowledge translation. Another strength included the unique study sub-sample (i.e., at risk adolescent girls), which provided valuable data representing an underserved and understudied population. This study also had a high level of participant retention, which may be a result of high program satisfaction that was reported by the participants. Additionally, the mixed methodology measures (i.e., self-report questionnaires and semi-structured interviews) used to collect data were unobtrusive and low cost; more importantly they allowed for rich data to be collected concerning the feasibility of the GoM program, as well as provided an estimate of effectiveness concerning changes in perceived physical self, body image and PA enjoyment. The pilot study was another important strength as it helped refine and

develop the program. The pilot provided a trial for the questionnaires and the interview guide to make necessary adjustments to the methodology before the main study.

Although this study had a number of strengths, it was not without its limitations. Although the sample size was sufficient for the qualitative portion of the study design, this study was not sufficiently powered to show cause and effect in terms of change, thus the quantitative results should be viewed with caution. Secondly, the pre-experimental design did not include a control group, thus the direct impact of intervention program is not clear. Assessing the effectiveness of the program was restricted because there was no control group to compare the intervention group to. A control group is used to limit the effects of extraneous variables; this means to determine if the results of the intervention are due to the intervention itself, not due to other factors. For example, having a control group would help to determine if the positive changes in perceived coordination are due to participating in the sport activities during the program, rather than a result of practicing at home. Also, this program was specifically developed to address the needs of a sub-sample of the adolescent population (i.e., at-risk adolescent girls), thus limiting the direct generalizability and transferability of the program. Potential researcher bias may have also been introduced due to the dual role of the researcher in both facilitating the intervention program, and collecting and analysing the data. An important strategy used to mitigate this bias was the use of a program facilitation guide that was utilised by the researcher throughout the duration of the program. This guide provided a schedule for the PA and psychosocial components to be covered each week, and allowed the program leaders to be in sync and prepared for their portion of the session. Lastly,

there are limitations that primarily surround the complexity of working with this population. Firstly, communication with parents or guardians indirectly, by means of the written consent form, creates difficulties around obtaining signed consent. Second, collecting complete questionnaire data is more difficult with this population; this age group can be apathetic and rather uninterested in completing forms that resemble a test, even though completing the questionnaires were voluntary and there was no wrong answer.

### **6.3 Future recommendations**

This exploratory study elicited valuable data through a mix-methods approach. Although the qualitative portion provided rich data specific to the project objectives, the quantitative data did not contribute to the results and thus requires future experimental research in order to understand the true effectiveness of the intervention program. Undertaking a randomised control trial specifically with this understudied population would be beneficial. Furthermore, this study was limited to at-risk adolescent girls and although they are an underserved and understudied population, recent research has indicated that adolescent boys are also increasingly effected by body image and physical self perceptions (van den Berg et al., 2010), thus it would interesting to examine and compare possible differences in the needs of adolescent boys. Examining other sub-populations, such as girls with eating disorders, would also be advantageous given the struggles this population has with body dissatisfaction and abusive exercise (Helfert & Warschburger, 2011).

As mentioned in the discussion, there is increasing awareness around addressing mental health for children and adolescents, specifically depression, as this

continues to be of increasing concern for this particular population due to such factors as bullying, teen pregnancy, drug and alcohol use, and unhealthy relationships (Blumer & Werner-Wilson, 2010; Collingwood et al., 2000; Paxton et al., 2006). Therefore, examining depression via a self-report questionnaire may provide a greater understanding of how an integrated program, such as GoM, would impact this aspect of mental health in youth. Furthermore, given the direct relationship between decreased depression and increased quality of life (Papakostas et al., 2004), it may also be beneficial to include a measure of quality life specific for the adolescent population, such as PedsQL 4.0, that includes questions on physical, emotional, social and school functioning for a summated score indication of health related quality of life (Casey et al., 2014).

Lastly, results of this study highlighted the importance of utilising a collaborative team with expertise specific to the intervention components. Future research should ensure that these types of intervention programs are developed and facilitated by these specialists. Moreover, during the development stages, individuals from the specific study population should be included in the design of the program to ensure that the specific needs and preferences of the population are met. The pilot study and consultation with the girls in the study was invaluable to the development and refinement of the GoM program, and thus it is recommended that a similar participatory approach should be taken when designing similar intervention programs for other sub-populations (e.g., at-risk adolescent boys, girls with eating disorders, etc.).

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## APPENDICES

### Appendix A: Parent Consent Form



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#### Consent Form

#### Study Title: Girls on the Move

##### **Principal Investigator**

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##### **Purpose**

The main purpose of this research study is to gain insight into the physical activity interests and experiences of adolescent girls living in Kelowna. Specifically, we would like to learn more about how girls who participate in the Girls United Program think about and experience being active. This is an exciting opportunity for young girls to openly share their thoughts and feelings about adolescents, as well as experience different types of physical activity in a safe, supportive and welcoming environment.

##### **Study Procedures**

This study, in which your daughter has been invited to participate, is an extra component to the Girls United Program, which involves 30 minutes of physical activity and one hour of workshops about topics such as body image, healthy relationships, and self-esteem. All girls who take part in Girls United will be asked to fill out a brief questionnaire about their physical activity preferences and experiences in the first week (week 1) and last week (week 10) of the program. During the last week (week 10), they will also be invited to participate in a voluntary interview about their physical activity experiences. Participation in this research is voluntary and there is no

requirement to take part. In no way will your daughter's involvement with Girls United be affected if she decides not to participate in the research.

Those who do agree to participate will be invited to take part in a face-to-face interview and will be contacted to schedule a convenient time. These interviews will last approximately 30 minutes, be held at the school, and will be conducted by both co-investigators. With your daughter's permission, the interview will be recorded.

### **Potential Risks**

If your daughter participates in this research study, there are no risks greater than what she would experience in her daily life or from regular physical activity participation (i.e., sweating, muscle soreness, or potential minor injury). If your daughter has a physical activity limitation or restriction, please notify the researchers and adaptations will be made so she can participate.

### **Potential Benefits**

Physical activity contributes to overall health and wellbeing and has specifically been linked to increase self-confidence and a positive body image for adolescent girls. By providing fun and relevant activities for the girls, they will gain an understanding about the endless benefits of being active everyday.

### **Confidentiality**

Participation in the study is free and voluntary. Only the Principal Investigator and the Co-Investigators will have access to the digital audio files and transcripts. Although participants will be asked to respect the confidentiality of what is discussed in the group, the researchers cannot ensure that all participants will comply with this request. Therefore, complete confidentiality cannot be guaranteed due to the nature of group-based programs.

At any time throughout the program, and up to 4 months after the interview is complete, your daughter may withdraw from the research study without penalty or prejudice. All documents related to this research project will be identified only by code number and kept in a locked filing cabinet. This study forms part of Kaitlyn's thesis, which will be published; therefore, will be publically available on the internet via iRcle. All documents from the research study will be retained for five years after publication in a secure storage location on UBC-O campus.

### **Contact for information about the study:**

If you have any questions or desire further information with respect to this study, you may contact Dr. Cristina Caperchione at (250) 807-9684 or [cristina.caperchione@ubc.ca](mailto:cristina.caperchione@ubc.ca).

### **Contact for concerns about the rights of research subjects**

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Services at 1-877-822-8598 or

the UBC Okanagan Research Services Office at 250-807-8832. It is also possible to contact the Research Participant Complaint Line by email (RSIL@ors.ubc.ca).

**Consent**

Your daughter's participation in this study is entirely voluntary. You may refuse permission to participate or withdraw your daughter from the study at any time without jeopardy.

Your signature indicates that you give consent for your daughter to participate in this study.

---

**Parent or Guardian Signature**

**Date**

---

**Printed Name of the Parent or Guardian signing above**

## Appendix B: Student Assent Form



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### Student Assent Form

#### Study Title: Girls on the Move

Dear Student,

As a member of Girls United, you are invited to participate in a research study about the girls' experiences of physical activity. If you agree to take part, please fill out the form at the bottom of this letter and return it to Allie with your signed parent consent form.

As a participant, you will have the opportunity to fill out a brief questionnaire about the kinds of physical activities you do, and your thoughts about physical activity at the start and the end of the program. You are also invited to participate in an in-person interview to share your opinions about your physical activity experiences. If you choose to participate in the interviews, you will help us understand how we can create more enjoyable physical activity experiences for girls like you. In total, you will be asked to give 1.5 hours of your time in addition to the time spent in Girls United.

You don't have to participate in the interview or fill out a questionnaire if you don't want to; it's completely up to you. There are no risks greater than what you would experience in your daily life or from regular physical activity participation like in PE class (i.e., sweating, muscle soreness, or potential minor injury). If you have a physical activity limitation, please let us know and we will make changes or adaptations so you can participate. Also, you can withdraw from the research or change your mind up to 4 months after the interview without any consequences. You can still take part in Girls United and no one will treat you differently if you don't complete the interviews or questionnaire.

If you participate, your identity will remain anonymous as all individual records and results will be analyzed and referred to by number code only. You may also pick a pseudonym, or a fake name for your data that only the researcher will know. For accurate data collection in the interview, we would like to audiotape the discussions and will ask your permission to do this before the start of the interview. If you don't want us to record the discussion, we will take notes instead. No true names will appear in any written report. Once the interview is completed and the researcher transcribes it, you will be given the opportunity to review your transcript, and change anything that you feel identifies yourself.

Please know that when you take part in the interview, what is talked about in the interview will always remain confidential. The interview will be scheduled at a time that is convenient for you outside of the program. It will be an additional 30 minutes to

learn about your personal thoughts of the program. While in the group you should know that other group members might know who you are and will hear what you say. We will ask everyone to not tell others outside of the group what we discussed during the group; however, we cannot control what other participants do with the information discussed. This study forms part of Kaitlyn's thesis, which will be published; therefore, will be publically available on the internet via cIRcle.

If you have any questions or would like more information about this study, you may contact Dr. Cristina Caperchione at (250) 807-9684 or by email at [cristina.caperchione@ubc.ca](mailto:cristina.caperchione@ubc.ca).

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Services at 1-877-822-8598 or the UBC Okanagan Research Services Office at 250-807-8832. It is also possible to contact the Research Participant Complaint Line by email ([RSIL@ors.ubc.ca](mailto:RSIL@ors.ubc.ca)).

---

**Please return this form**

I \_\_\_\_\_ (your name) **give/do not give** (please circle one) my consent to take part in Girls United Physical Activity Program.

I agree to be recorded during the in-person interview (please check box).

---

**Your signature**

---

**Date**

With kind regards,

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## Appendix C: Demographics Form



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### Questionnaire

#### Demographic Information

Using the blanks provided, please complete the following. Circle **one** answer.

1. Age: \_\_\_\_\_
2. Grade: \_\_\_\_\_
3. Do you have sibling(s)? YES or NO
  - a. How many? \_\_\_\_\_ brother(s)  
\_\_\_\_\_ sister(s)
4. What area of Kelowna do you live?
  - a. Rutland
  - b. Mission
  - c. Glenmore
  - d. Downtown
  - e. Black Mountain
  - f. Other: \_\_\_\_\_ (Please specify)
5. How do you get to school?
  - a. Walk
  - b. Bike / scooter / skateboard / rollerblade
  - c. Drive (get a ride)
  - d. Bus
6. Do you participate in any organised physical activity or sport **outside** of school?  
YES or NO
  - a. Individual (yoga, dance, skiing, gymnastics, swimming)
  - b. Team sports: (soccer, hockey, basketball)
  - c. Leisure (walking, cycling, working out)
7. Do you participate in any physical activity or sport **with / in** school?  
YES or NO  
(Please specify)
  - a. School sports team: \_\_\_\_\_
  - b. School club: \_\_\_\_\_
  - c. Other: \_\_\_\_\_

## Appendix D: Physical Activity Enjoyment Scale (PACES)

### Physical Activity Enjoyment Scale

**Instructions:** Please read the following statements and choose the **best** (circle one) answer for you. Please answer carefully and honestly.

*Example:* When I am active...

I enjoy it	1	2	3	4	5
------------	---	---	---	---	---

When I am active...	Disagree a lot	Disagree	Neutral	Agree	Agree a lot
I enjoy it	1	2	3	4	5
I feel bored	1	2	3	4	5
I dislike it	1	2	3	4	5
I find it pleasurable	1	2	3	4	5
It's no fun at all	1	2	3	4	5
It gives me energy	1	2	3	4	5
It makes me depressed	1	2	3	4	5
It's very pleasant	1	2	3	4	5
My body feels good	1	2	3	4	5
I get something out of it	1	2	3	4	5
It's very exciting	1	2	3	4	5
It frustrates me	1	2	3	4	5
It's not at all interesting	1	2	3	4	5
It gives me a strong feeling of success (accomplishment)	1	2	3	4	5
It feels good	1	2	3	4	5
I feel as though I would rather be doing something else	1	2	3	4	5

## Appendix E: Physical Self-Description Questionnaire (PSQD)

### Physical Self-Description Questionnaire

This is a chance to look at yourself. It is NOT a test. There are no right answers, and everyone will have different answers. Be sure that you answer honestly. Please do not talk about your answers with anyone else. Your answers are kept private.

#### **Instructions**

1. Please read each sentence and choose the **BEST** (circle one) answer for you.
2. Please do not skip a sentence or leave any blank.
3. Be careful to circle the number on the same line as the question.

#### ***Examples:***

	<b>FALSE</b>	<b>Mostly FALSE</b>	<b>More FALSE Than TRUE</b>	<b>More TRUE Than FALSE</b>	<b>Mostly TRUE</b>	<b>TRUE</b>
1. I like to read comic books.	1	2	3	4	5	6

*I put a circle around the number 6 under the answer "TRUE". This means that I really like to read comic books. If I did not like to read comic books very much, I would have answered 1 (FALSE) or 2 (Mostly False).*

	<b>FALSE</b>	<b>Mostly FALSE</b>	<b>More FALSE Than TRUE</b>	<b>More TRUE Than FALSE</b>	<b>Mostly TRUE</b>	<b>TRUE</b>
2. In general, I am neat and tidy.	1	2	3	4	5	6

*I answered "More FALSE Than TRUE" because I am definitely not very neat, but I am not really messy either.*

If you have any questions, please do not hesitate to ask!  
Thank you for taking your time filling this out.

	FALSE	Mostly FALSE	More FALSE Than TRUE	More TRUE Than FALSE	Mostly TRUE	TRUE		FALSE	Mostly FALSE	More FALSE Than TRUE	More TRUE Than FALSE	Mostly TRUE	TRUE
1. When I get sick I feel so bad that I cannot even get out of bed.	1	2	3	4	5	6	18. I have a nice looking face.	1	2	3	4	5	6
2. I feel confident when doing coordinated movements.	1	2	3	4	5	6	19. I have a lot of power in my body.	1	2	3	4	5	6
3. Several times a week I exercise or play hard enough to breath hard (to huff and puff).	1	2	3	4	5	6	20. My body is flexible.	1	2	3	4	5	6
4. I am too fat.	1	2	3	4	5	6	21. I would do well in a test of physical enrudance and stamina.	1	2	3	4	5	6
5. Other people think I am good at sports.	1	2	3	4	5	6	22. I don't have much to be proud of.	1	2	3	4	5	6
6. I am satisfied with the kind of person I am physically.	1	2	3	4	5	6	23. I am sick so often that I cannot do the thigns I want to do.	1	2	3	4	5	6
7. I am attractive for my age.	1	2	3	4	5	6	24. I am good at coordinated movements.	1	2	3	4	5	6
8. I am a physically strong person.	1	2	3	4	5	6	25. I get exercise or activity three to four times a week that makes me huff and puff and lasts at least 30 minutes.	1	2	3	4	5	6
9. I am quite good at bending, twisting, and turning my body.	1	2	3	4	5	6	26. I have too much fat on my body.	1	2	3	4	5	6
10. I can run a long way without stopping.	1	2	3	4	5	6	27. Most sports are easy for me.	1	2	3	4	5	6
11. Overall, most things I do turn out well.	1	2	3	4	5	6	28. I feel good about the way I look and what I can do physically.	1	2	3	4	5	6
12. I usually catch whatever illness (flu, virus, cold, etc.) is going around.	1	2	3	4	5	6	29. I'm better looking than most of my friends.	1	2	3	4	5	6
13. Controlling movements of my body comes easily to me.	1	2	3	4	5	6	30. I am stronger than most people my age.	1	2	3	4	5	6
14. I often do exercise or activities that makes me breathe hard.	1	2	3	4	5	6	31. My body is stiff and inflexible.	1	2	3	4	5	6
15. My waist is too large.	1	2	3	4	5	6	32. I could jog 5km without stopping.	1	2	3	4	5	6
16. I am good at most sports.	1	2	3	4	5	6	33. I feel that my life is not very useful.	1	2	3	4	5	6
17. Physically, I am happy with myself.	1	2	3	4	5	6	34. I hardly ever get sick or ill.	1	2	3	4	5	6
							35. I can perform movements smoothly in most physical activities.	1	2	3	4	5	6

	FALSE	Mostly FALSE	More FALSE Than TRUE	More TRUE Than FALSE	Mostly TRUE	TRUE		FALSE	Mostly FALSE	More FALSE Than TRUE	More TRUE Than FALSE	Mostly TRUE	TRUE
36. I do physically active things (like jogging, dancing, bicycling, aerobics, gym or swimming) at least 3 times a week.	1	2	3	4	5	6	55. Most things I do, I do well.	1	2	3	4	5	6
37. I am overweight.	1	2	3	4	5	6	56. When I get sick it takes me a long time to get better.	1	2	3	4	5	6
38. I have good sports skills.	1	2	3	4	5	6	57. I am graceful and coordinated when I do sports and activities.	1	2	3	4	5	6
39. Physically I feel good about myself.	1	2	3	4	5	6	58. I do sports, exercise, dance or other physical activities almost everyday.	1	2	3	4	5	6
40. I am ugly.	1	2	3	4	5	6	59. Other people think that I am fat.	1	2	3	4	5	6
41. I am weak and have no muscles.	1	2	3	4	5	6	60. I play sports well.	1	2	3	4	5	6
42. My body part bend and move in most directions well.	1	2	3	4	5	6	61. I feel good about who I am.	1	2	3	4	5	6
43. I think I could run a long way without getting tired.	1	2	3	4	5	6	62. Nobody thinks that I'm goodlooking.	1	2	3	4	5	6
44. Overall, I'm no good.	1	2	3	4	5	6	63. I am good at lifting heavy objects.	1	2	3	4	5	6
45. I get sick a lot.	1	2	3	4	5	6	64. I think I would perform well on a test measuring flexibility.	1	2	3	4	5	6
46. I find my body handles coordinated movements with ease.	1	2	3	4	5	6	65. I am good at endurance activities like distance running, aerobics, bicycling, swimming, or cross-country skiing.	1	2	3	4	5	6
47. I do lots of sports, dance, gym or other physical activities.	1	2	3	4	5	6	66. Overall, I have a lot to be proud of.	1	2	3	4	5	6
48. My stomach is too big.	1	2	3	4	5	6	67. I have to go to the doctor because of illness more than most people my age.	1	2	3	4	5	6
49. I am better at sports than most of my friends.	1	2	3	4	5	6	68. Overall, I'm a failure.	1	2	3	4	5	6
50. I feel good about who I am and what I can do physically.	1	2	3	4	5	6	69. I usually stay healthy even when my friends get sick.	1	2	3	4	5	6
51. I am good looking.	1	2	3	4	5	6	70. Nothing I do ever seems to turn out right.	1	2	3	4	5	6
52. I would do well in a test of strength.	1	2	3	4	5	6							
53. I think I am flexible enough for most sports.	1	2	3	4	5	6							
54. I can be physically active for a long period of time without getting tired.	1	2	3	4	5	6							

## Appendix F: Interview Guide

### Interview Guide

#### A. PHYSICAL ACTIVITY PERCEPTIONS AND EXPERIENCES

*[Probe]: I'm really interested in physical activity, but I haven't been your age in a long time. Can you help bring me up to speed? What do girls like doing these days? What does being active mean to girls your age today?*

**1. What were your favourite and least favourite activities from the program?**

- Why did you enjoy or dislike them?
- How did they make you feel?

*I remember you mentioning that Wednesdays were your favourite! Why?*

**2. Was there a particular moment that really stood out during the weeks?**

- Do you have a favourite memory of the program?
  - What made it so special/memorable?
- What do you think about the activities?
- How was it for you participating in a group?

*A lot of girls who have been a part of this program previously say that being active makes them feel good, but still are not active! I'm confused...if it makes us feel good, why don't girls like you do more activity?*

**3. Were you involved in PA before this program? Why or why not?**

- How do you think that has made you or shaped who you are?
- Did you ever want to participate in an activity but weren't able to? If yes, why couldn't you?
- If you used to play sports/be active? Why don't you do it anymore? What do you miss about it?

**4. Would being active be easier if you had friends to do it with?**

- If so, why do you think it's easier to be active with friends?
- If you could dream up any type of activity for you and your friends that is fun and exactly what you wanted it to be, what would that look like?
  - With friends or alone?
  - Outside or inside?
- Why are friendships so important to you right now?

## B. DEFINING HEALTH AND BODY IMAGE

*I just want to know what it's like to be a teenage girl today, and I want to be able to share that with the world. It's hard being a teenage girl and I get that, I need your help to understand.*

### 1. What does the term PA mean to you? What does it mean to you in your life?

- Why do you think people are active or are not active?
  - Are those reasons for you?
- What do you think about girls who play sports (i.e., hockey, soccer)

### 2. What does being healthy mean to you?

- Strong? Why is strong a good thing?
- Skinny? Why does that mean healthy?
- Would you say you are healthy?
- What does FEELING healthy look like for you?

*If health = taking care of your body*

- How else do you take care of your body?
  - Mental and social connections?

### 3. What does being unhealthy mean to you?

- Physical and/or mental?

### 4. What do you think other girls your age think about health?

- Why do you think it's important to be healthy?
- Who's the healthiest person you know – what makes them so healthy?

### 5. How do you feel when you move your body?

*Some girls have told me it's hard to put into words, but if you had to try to explain it, what words would you use?*

- Good, bad, empowered, free, etc. why?
- When you were doing the activities with the group, was it different from how you might feel in PE class? If yes, why do you think that might be?
  - What's different when you're just with the girls vs. with boys?

### 6. What is it about this program and the environment with the girls that you like?

- When you're in this group how is it different than your relationships with friends outside of the group?
  - On social media?
- If you weren't participating in this group what would you be doing?
  - On your computer?

- Watching TV (movies, Netflix, etc.)?
- Working?
- Hanging out with friends?

**7. Can you share some of your ideas about how we can make this program better?**

- What can we add to it or what should we take away, why?
  - Should it be longer or shorter
  - Should it be after or during school
  - Should it take place somewhere else, rather than at school, why?

*Thanks so much for your time. I really enjoyed talking to you.  
Do you have any questions for me? Do you want to share anything else?*