PROGRAM EVALUATION OF KIDS' RUN CLUB: EXPERIENCES OF GIRLS IN GRADES 4-6

by

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Dedication

This project and Master's degree are dedicated to my husband, Graham, and two sons, Josh and Drew, who were along for the ride on this three-year journey. As Graham said many times, "we're doing our Master's".

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Abstract

A formative evaluation, guided by the social-ecological model (SEM), was conducted on a school-based, co-ed running program in Halifax, NS called Kids' Run Club (KRC). The purpose was to examine the association between individual, social and environmental factors and participation by girls in Grades 4-6 and to determine how the program can be improved to recruit and retain more girls. Questionnaires gathered mainly quantitative data from 109 girls at six schools who were current (n=82) and past (n=27) participants. Findings reveal significant associations between factors from all three levels and participation, with interpersonal factors showing the strongest predictive values. Ideas for improving KRC related to the distances run, making it fun, and creating a culture of participation. The associations found between SEM factors and participation suggested that barriers to participation should be explored further, including surveying girls who have never participated in KRC.

List of Abbreviations Used

AHKC	Active Healthy Kids Canada
CAAWS	Canadian Association for the Advancement of Women and Sport and Physical Activity
CANPLAY	Canadian Physical Activity Levels among Youth Study
CBVRSB	Cape Breton-Victoria Regional School Board
CFLRI	Canadian Fitness and Lifestyle Research Institute
CHMS	Canadian Health Measures Survey
CSEP	Canadian Society for Exercise Physiology
GOTR®	Girls on the Run
HRM	Halifax Regional Municipality
HRSB	Halifax Regional School Board
KRC	Kids' Run Club
MK	Marathon Kids®
MVPA	Moderate-to-vigorous physical activity
PA	Physical activity
REB	Research Ethics Board
SEM	Social-Ecological Model
TAAG	Trial of Activity for Adolescent Girls
TCPS	Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans
WHO	World Health Organization

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Chapter 1: Introduction

Physical activity (PA) is an important part of healthy development for children and youth and is shown to be associated with numerous physiological and psychosocial benefits (Biddle, Gorely, & Stensel, 2004; Hills, King, & Armstrong, 2007; Janssen & LeBlanc, 2010; Singh, Uijtdewillegen, van Mechelen, & Chinapaw, 2012). Despite these well-documented benefits, rates of activity in Canadian children and youth are very low with less than 10% achieving the PA guidelines of 60 minutes of moderate-to-vigorous PA (MVPA) per day (Active Healthy Kids Canada [AHKC], 2013; Colley, Wong, Garriguet, Janssen, Connor, & Tremblay, 2012; ParticipACTION, 2015). Inactivity in children and youth is a concern in many countries across the globe (AHKC, 2014; Bailey, Wellard, & Dismore, 2005; Hallal et al., 2012; World Health Organization [WHO], 2010) and coincides with high rates of sedentary behavior (Colley et al., 2012), deteriorating fitness (Tremblay, Shields, Laviolette, Craig, & Connor, 2010), and increasing rates of overweight and obesity (Roberts, Shields, de Groh, Aziz, & Gilbert, 2012). Physical inactivity in children and youth is a concern not only due to the potential deleterious health impacts experienced during youth, but also because of the tracking of physical inactivity seen between adolescence and adulthood as well as the association of poor fitness in adolescence and poor health outcomes in adulthood (Hallal, Victora, Azevedo, & Wells, 2006; Telama, Yang, Viikari, Valimaki, Wanne, & Raitakari, 2005).

Research on PA consistently reveals that activity levels decline with age in children and youth (Chung, Cockrell Skinner, Steiner, & Perrin, 2012; Colley et al., 2011; Thompson & Wadsworth, 2012; WHO, 2010). The Canadian Health Measures Survey (CHMS) data from the 2011-13 cycle reveal that while 70% of young children aged 3-4 years are physically active, the rate of PA for those aged 5-11 years is 14% decreasing to only 5% for those aged 12-17 years

(ParticipACTION, 2015). Rates of PA not only decrease with age, but also differ between the sexes with girls of all ages achieving lower rates than boys (Chung et al., 2012; Colley et al., 2011; Thompson & Wadsworth, 2012; WHO, 2010). Data from Nova Scotia demonstrate that percentage of girls in Grades 3, 7 and 11 achieving 60 minutes of MVPA daily is 80.3, 13.2 and 0.9 respectively, all of which are significantly less than for boys of the same age (Thompson & Wadsworth, 2012). National data which provides statistics on PA by gender demonstrates that while 8% of boys aged 5-17 years achieved 60 minutes per day MVPA, the figure for girls was only 4% (AKHC, 2014). Concern regarding inactivity in girls is evident across the globe as many countries struggle to understand and address the factors contributing to girls falling behind boys in achieving PA standards (Bailey et al., 2005; Chung et al., 2012; Hallal et al., 2012).

According to the 2014 *AHKC Report Card on Physical Activity for Children and Youth*, Canada has done well at creating infrastructure and policies that support PA and yet our children and youth continue to fail to attain adequate PA required to achieve health benefits. The 2014 report recommends that in order to increase daily PA, all types of activity must be encouraged in children and youth throughout the day including sports, active play and active transportation. School-based interventions provide one such opportunity and are very popular as they provide convenient and potentially universal access to children and youth (Kahn et al., 2002; Naylor & McKay, 2009). These interventions have demonstrated mixed results regarding impact on overall rates of PA ranging from no increases (Kahn et al., 2002; Metcalf, Henley, & Wilkin, 2012) to those that have shown a positive impact on rates of PA (Beets, Beighle, Erwin, & Huberty, 2009; Dobbins, Husson, DeCorby, & LaRocca, 2013; Kahn et al., 2002). Given the mixed results of research to date and the potential for school-based interventions to impact large numbers of children and youth, it seems warranted that school-based PA interventions continue

to be implemented and evaluated in terms of their potential for helping to address inactivity in school-aged children.

The current study is a formative evaluation of a school-based PA program called Kids' Run Club (KRC). This free, non-competitive, co-ed, running program was introduced in 2004 by Doctors Nova Scotia with the goal of providing participants with an opportunity to be active through running and to learn about healthy lifestyles. Previous evaluations of KRC have focused on the overall participant population, gathering information regarding their general views of the program and some outcome variables such as improvements in their running and whether family members started running with them. The current evaluation provides novel information by focusing specifically on the experiences and views of girls in Grades 4-6 who joined KRC and those who stopped participating. Previous evaluations have not targeted specific subsets of the participant population nor have they included perspectives of participants who have left the program. A search of the literature did reveal a number of evaluations of girls' running programs, however, their focus was mainly on program outcomes rather than gathering information regarding factors that encourage or deter participation and may lead to program improvements, which is the primary purpose of this evaluation.

The decision to focus on girls in Grades 4-6 was predicated on three factors: firstly there is a global concern regarding low rates of PA in girls (Bailey et al., 2005; Hallal, et al., 2012) and, therefore, learning more about the factors associated with their participation in physical activities may help to increase rates in the future. The second factor contributing to this decision is the fact that girls exhibit higher rates of participation in KRC than boys (see Appendices A and B), which is inconsistent with the research demonstrating boys' higher rates of activity at all ages (Colley et al., 2011; Thompson & Wadsworth, 2012). Research also indicates that girls are less

likely than boys to take part in vigorous PA (Colley et al., 2011), of which running would qualify, reinforcing the need to further explore their participation in KRC. Finally, the age group of the target population was selected as research shows a large and steep decline in PA in girls between Grades 3 and 7, with rates of overall activity falling from approximately 80% to 13% respectively (Thompson & Wadsworth, 2012). While there is a large amount of research on factors related to PA in adolescent girls, (Canadian Association for the Advancement of Women and Sport and Physical Activity [CAAWS], 2009, 2012; Tucker Center for Research on Girls & Women in Sports, 2007; Vu, Murrie, Gonzalez, & Jobe, 2006), less is known about factors associated with the initial withdrawal from PA in pre-teen girls. The decline in participation in KRC by girls as they age mirrors the decline seen in overall PA. By focussing on this age-group, this study seeks to provide information that may result in increased participation by girls in KRC beyond elementary school and may also provide information that can be shared with other organizations to enhance their programs.

Program evaluations, such as the current one, are important components of health promotion practice. Evaluations can assist in determining program effectiveness and impact; contribute to accountability to stakeholders (e.g., funders, staff, clients); assist in identifying areas for improvement; and increase capacity-building with like-minded organizations through knowledge transfer (Fitzpatrick, Sanders & Worthen, 2004; Goodman, 1998; McKenzie, Neiger & Thackeray, 2009; O'Connor-Fleming, Parker, Higgins & Gould, 2006). The current evaluation uses a formative approach and was designed to gather information about KRC by examining participant experiences and views to determine if and how the program can be improved. A survey design was implemented to gather mainly quantitative data using self-completion questionnaires.

The methodological foundation for the current evaluation is the Social-Ecological Model (SEM), which has its roots in the work of Urie Brofenbrenner (1977) who proposed that behavior is influenced not only by the individual but by multiple levels or microsystems of environmental factors. Brofenbrenner's model formed a foundation of research and work in health promotion which emphasized the importance of moving away from individual behavior change models to those which recognize the complex and dynamic relationships between individuals and their environments (McLeroy, Bibeau, Steckler, & Glanz, 1988; Stokols, 1992). The SEM recognizes that health is influenced by a variety of factors including those which are individual such as interests, perceptions, and skills and those within the environment surrounding the individual such as social support and aspects of institutions and communities in which they exist. Within the domain of physical activity, the SEM provides a foundation for examining intrapersonal, interpersonal, and environmental factors that interact to impact rates of activity (CAAWS, 2012). A modified version of the SEM developed by CAAWS (2012), along with evidence provided by current research regarding inactivity in girls, has guided the identification of the factors being examined in this evaluation. These include psycho-social factors such as confidence in being active, enjoyment of PA, social support from peers, parents and coaches; and environmental factors including aspects of KRC which may encourage or deter participation such as scheduling, use of walking breaks, games and prizes; and availability of a girls-only KRC.

Background on Kids' Run Club

KRC was created in 2004 by Doctors Nova Scotia, the provincial medical society, following the inaugural Doctors Nova Scotia Youth Run held at the Blue Nose Marathon

(Doctors Nova Scotia, 2014a)[1]. The organization decided to introduce a school-based, provincial, co-ed, running program to support students in training for the Youth Run and promote active, healthy living. The program's development was based on several factors including research conducted on similar programs throughout Canada and the United States and the coordinator's previous experience coaching children and youth in running. The early focus of KRC was to ensure it provided an opportunity for participants to be active through running, and was free, safe, fun and easy to implement (Doctors Nova Scotia, 2014a).

Formal health promotion theory was not incorporated during the initial development of KRC, but upon reflection, it is evident that the main assumptions, upon which KRC is founded, as well as its goals, align with the SEM as seen in Figure 1. KRC was built on a foundation that recognizes the necessity to address individual, social and environmental factors in order to provide an experience that is positive, fun, and reinforces participation by children and youth of varying fitness levels and abilities (Doctors Nova Scotia, 2014a). Intrapersonal factors include enjoyment of the activity, a sense of competency and confidence in being active, and experiencing success. These factors have been shown to be associated with PA in children and youth (Sallis, Prochaska, & Taylor, 2000; Sterdt, Liersch, & Walter, 2014) and are important aspects to the success of KRC. Interpersonal factors thought to influence participation in KRC and supported by the literature (CAAWS, 2012; Fitzgerald, Fitzgerald, & Aherne, 2012; Humbert et al., 2006; Sterdt et al., 2014) include social support from peers, parents and coaches and experiencing a sense of belonging. Environmental factors believed to contribute to participation in KRC are related to reducing barriers to ensure the program is accessible to and inviting to all (i.e. free, school-based and non-competitive). Research reveals that for girls

[1] The sources for information regarding KRC include various documents provided by Doctors Nova Scotia. Where not cited, information has been provided by the lead researcher from experiences in her role as program coordinator.

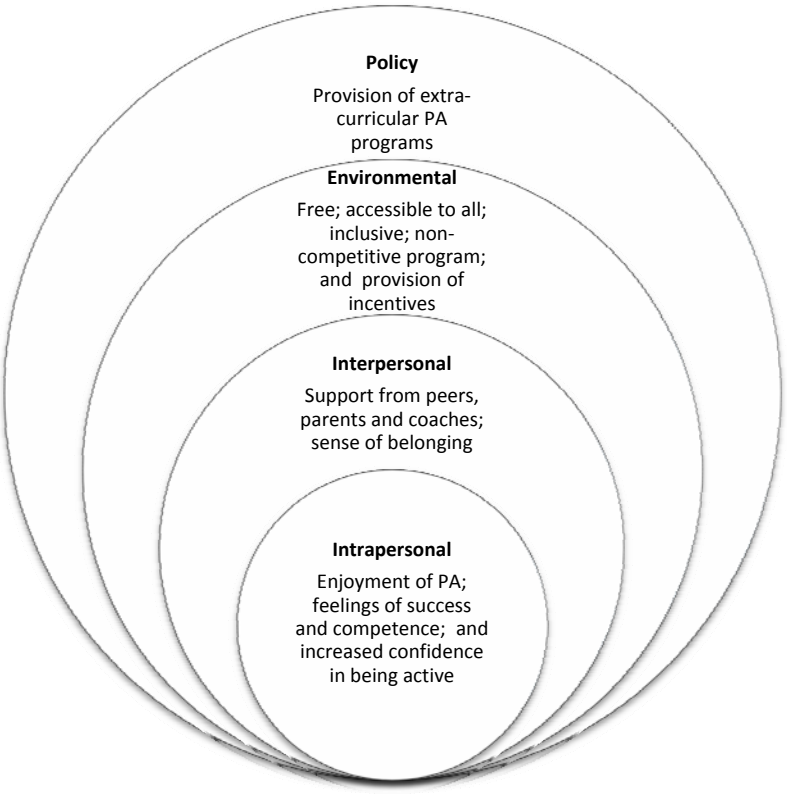

Figure 1. SEM applied to KRC demonstrating the individual, social, environmental and policy-level factors thought to influence participation (Doctors Nova Scotia, 2014a).

in particular, competitiveness, lack of time and cost are common barriers to participation in PA (CAAWS, 2012; Girls Action Foundation, 2012). At the policy level, factors that can impact KRC participation include whether schools have formal or informal practices and/or policies to support the availability of extra-curricular programs, which is the main format for the KRC. Although this factor can have a significant impact on KRC, it is not within the scope of this program evaluation and has not been included in this study. The specific short, intermediate and long-term goals of KRC are related to the factors identified in the SEM and can be found in the logic model in Appendix C.

The main goal of KRC is to provide Nova Scotia children and youth an opportunity to be active and learn about the importance of leading a healthy lifestyle. KRC is managed by the lead

researcher of this study whose position is full-time and spans 10 months during the school-year. Program staff also includes two regional representatives who work for 12 weeks each spring to support participating schools. KRC is implemented at individual schools by volunteer coaches, the majority of whom are physical education teachers, but who also include other school staff, parents, community members and peer leaders. Program resources include handbooks for coaches and runners (available in French and English), school visits by program representatives and finishers' prizes (water bottles) for all participants and coaches. The program is flexible in terms of frequency, intensity and amount of running which allows it to be tailored to participants in Grades Primary to 12 as well as participants of varying fitness levels. KRC is funded primarily by Doctors Nova Scotia but is also supported by program sponsors (Doctors Nova Scotia, 2014b).

KRC is founded on the philosophy of participation rather than competition. Coaches are encouraged to create an inviting, inclusive environment that focuses on fun and personal effort rather than serious training and excellence. Three training programs that use gradual increments in running time/distance are recommended and coaches are encouraged to incorporate walking breaks for those who need them. Although most coaches follow the principal of gradually increasing the amount of running done by participants, not all follow the programs provided by Doctors Nova Scotia. This is often due to restrictions on time. Participants are encouraged to set personal goals based on their own fitness levels, allowing all to achieve success. Running clinics are provided to educate participants and coaches about proper pacing, effort and running technique.

Participation in KRC has grown from 3,500 students in 58 schools in 2004-05 to approximately 16,000 students in 230 schools in 2014-15 (Doctors Nova Scotia, 2015). A

program evaluation conducted in 2011 (Doctors Nova Scotia, 2012) with 74 schools and 1,991 participants indicated that 53% of the participants at the elementary level were girls and 50% were in Grades 3-4. Approximately 75% of schools are at the elementary level; 91% of the coaches are school staff; 84% offer the program as an extra-curricular; 60% run two or three times per week; and 53% have their participants run for 15-30 minutes. The average group size in 2014-15 was approximately 70 participants.

A girls-only KRC pilot was introduced as a program variation in 2012 to address the low rates of PA in adolescent girls. This pilot was designed to provide girls in grades 7-12 an opportunity to experience PA without the presence of male peers. An evaluation completed on the pilot (Doctors Nova Scotia, 2013) revealed that the single-sex environment contributed to participants feeling more comfortable and having more fun. As a result of the positive feedback from girls and coaches, the girls-only version has continued to be offered to junior and senior high schools across the province. The girls-only version of KRC has not been offered to elementary schools to date due to the success of the co-ed version in recruiting large numbers of girls.

All participating schools receive the KRC *Coach's Handbook* containing information and guidelines for implementing the program such as grades to include; safety considerations; frequency, length and location of runs; ideas for helping to make the program fun such as ways to count laps, use of prizes and a list of running games; and a list of related resources (Doctors Nova Scotia, 2014b). Schools are encouraged to identify a community-based fun run as a goal for participants to help motivate them and provide an opportunity to celebrate their training efforts. Other than ensuring the program encourages participants to be active through running (or running and walking), and is safe, free, and fun, coaches are not obliged to follow the other

recommendations made in the *Coach's Handbook*. As a result, KRC varies from school to school.

Program incentives include a runner's handbook provided to all participants at the beginning of the program and a finisher's prize presented at the conclusion of the program. The *Runner's Handbook* includes information about physical activity, proper nutrition, stretching, running technique, reducing screen time, as well as word puzzles, the Healthy Living Challenge and a running log (Doctors Nova Scotia, 2014c). Past finisher's prizes have included water bottles and drawstring bags. Coaches and helpers are also provided with a finisher's prize as a thank you from Doctors Nova Scotia.

Previous evaluation of KRC includes yearly internal reviews by Doctors Nova Scotia staff and feedback from coaches; a parental survey in 2007 (n=130); and two participant surveys in 2008 (n=208) and 2012 (n=2,011). Coaches are asked to provide yearly feedback regarding program resources, aspects of the program they feel work well and how the program can be improved. Coaches also have an opportunity to provide this information during site visits by program representatives. Information gathered from previous participant surveys included data regarding their likes/dislikes of KRC; whether their running improved; impacts on other health behaviors like eating habits and screen time; and whether family members began running with them.

Doctors Nova Scotia measures program success of KRC using a combination of information gathered from coaches and participants, as well as increased growth in participation. Both feedback and program growth have been consistently positive since KRC was introduced in 2004. Other indicators of success are related to recognition by external stakeholders. Doctors Nova Scotia has received two national awards for its contribution to health promotion through

KRC: one from the Canadian Child Health Association in 2006 and another from the Canadian Public Health Association in 2012. KRC has received annual sponsorship from the Nova Scotia Department of Health and Wellness and is endorsed by the Nova Scotia Department of Education. The KRC model has been replicated in Alberta and Doctors Nova Scotia has been asked to assist the medical associations in Prince Edward Island and Ontario with the development of a similar program. Doctors Nova Scotia is committed to continuing to improve KRC, to ensure it is achieving the goals set out in the logic model (Appendix C) and is in full support of this study.

Purpose of the Study

The main purpose of this study is to conduct a formative evaluation using a modified social-ecological lens to gather information from girls in Grades 4-6 who are current or past KRC participants to learn more about factors that are associated with participation that may inform future program development to attract and retain more girls. A second goal of the study is to examine whether participation in KRC is associated with higher rates of self-reported PA and less of a decline in PA than reported by girls who no longer participate. The variables being examined are displayed in Figure 2.

Primary Evaluation Question

The main question this study sought to answer was: What individual, social and environmental factors are associated with KRC participation by girls in Grades 4-6? These factors were explored in order to gain an understanding of the factors that influence participation and the aspects of the program that promote or deter participation.

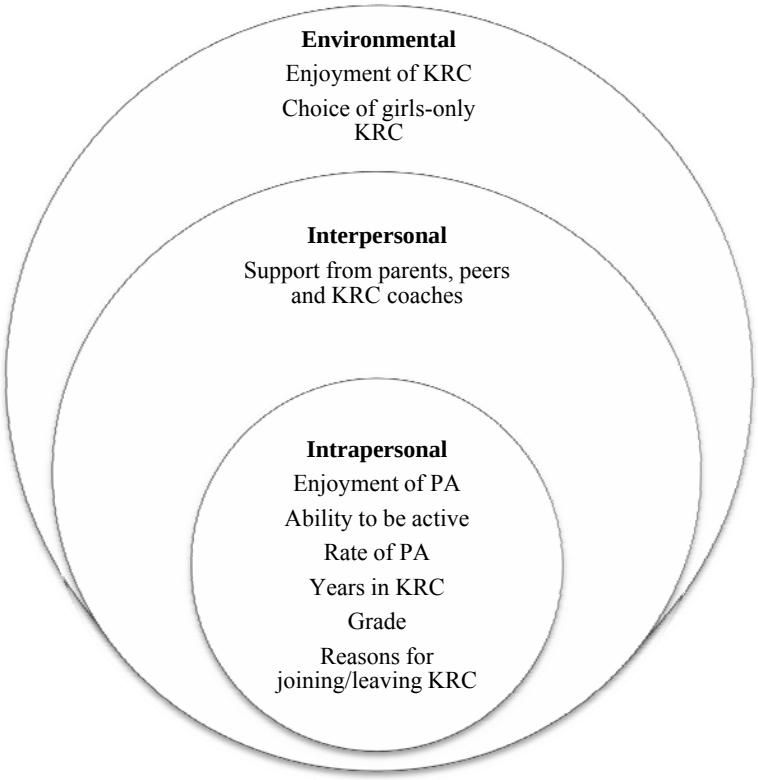

Figure 2. SEM of Intrapersonal, Interpersonal, and Environmental Study Variables.

Subsidiary Evaluation Questions

1. Do girls who continue to participate in KRC report higher rates of overall PA and less of a decline in PA during the previous year than those who discontinue participation?
2. Are there ways KRC can be improved to attract and retain more girls in Grades 4-6?

In addition to exploring individual, social, and environmental factors associated with participation in KRC, this study also examined whether a relationship exists between self-reported rates of PA and participation in KRC. There is value in not only determining if KRC participation is associated with higher rates of PA in participants, but also if continuation in the program is associated with a delay in the decline in overall PA that has been documented for this age group in the literature (Colley et al., 2011; Thompson & Wadsworth, 2012). Findings regarding girls' reasons for not participating in KRC may explain if discontinuation of KRC is a

'symptom' of their decline in PA or if there are other factors that lead to their decision to not take part.

In an effort to obtain additional data regarding program implementation that may result in improved recruitment and retention of girls in KRC in the future, participants were asked for their ideas on improving KRC and coaches were asked to share methods they use to make KRC more enjoyable.

Relevance of the Study

The current study is relevant to the fields of health promotion practice and research as it is contributing to an important health issue: physical inactivity in girls. Specifically, this study is addressing a gap in the literature regarding factors associated with a decline in PA by pre-teen girls. With much of the literature focused on adolescent girls who are inactive, less is known about factors that may influence girls' gradual reduction in rates of PA. Although the current study focuses specifically on participation in KRC rather than PA in general, the findings may provide direction for future research regarding barriers and facilitators of PA for pre-teen girls. In terms of relevance to PA interventions in the field of health promotion, the findings of this study may provide important information about how to increase participation by pre-teen girls. With more than 50% of KRC participants being girls, the current findings may help to inform other organizations about creating programs that attract girls. Finally, the current study contributes to the field of health promotion by demonstrating the role evaluation can play in contributing to effective and improved interventions.

Delimitations of the Study

The current study targeted a specific subset of the KRC population in order to gather data regarding the program from their perspective. The following delimitations guided the recruitment of participants:

1. Study participants included girls in Grades 4-6 who participated in KRC during the 2014-15 school year and those who participated during the 2013-14 school year but not the year in which the study was conducted.
2. Girls who have never participated in KRC were not recruited for this study but have been identified as potential subjects for future evaluations.
3. Only girls who received parental consent and were capable of reading at their appropriate grade level were included in the study.
4. Study participants were recruited by coaches who have implemented KRC for at least 2 years and who agreed to assist with recruitment of participants, distribution and collection of study materials, and completion of a coach's questionnaire.
5. Coaches were recruited from participating schools from the Halifax Regional School Board (HRSB) and Cape Breton-Victoria Regional School Board (CBVRSB).
6. French Immersion schools, coaches and students were not recruited as the questionnaires were not available in French.

Role of the Researcher

This evaluation was conducted by the KRC Program Coordinator who is employed by Doctors Nova Scotia. In her role as coordinator, she has been responsible for the development, implementation, and ongoing evaluation of the program since its inception in 2004. While this evaluation was conducted as part of a Master's degree, it was done in conjunction with the

normal responsibilities of the program coordinator. The limitations and strengths of this combined role are discussed further in Chapter 5.

Summary

Low rates of PA in children and youth are an increasing concern and one that is often addressed through the implementation of school-based PA interventions. The current study is a formative program evaluation conducted on a PA intervention called KRC. The main purpose of the evaluation is to use a social-ecological lens to gather information from girls in Grades 4-6 who are current or past KRC participants to learn more about factors that are associated with their participation. The findings may be useful in adapting KRC in order to increase participation of girls as they enter adolescence and by also providing information that can assist with the development of other school-based, PA interventions targeted to girls. Although the results cannot be directly generalized to the broader population of pre-teen girls, they may provide some information about how these factors contribute to the decline in PA as girls approach adolescence.

Chapter 2: Literature Review

The following literature review gathered information regarding PA in children and youth, with specific focus on girls; the use of the SEM in health promotion; the practice of evaluation within the field of health promotion; and the exploration of program evaluations conducted on similar PA programs. The information compiled in this review informed the current study.

Physical Activity in Children and Youth

Low levels of PA in children and youth have become a global concern. According to the WHO (2010), physical inactivity has become the fourth leading risk factor for global mortality, behind only high blood pressure, tobacco use, and high blood glucose. At the time of the 2010 report, obesity and overweight were trailing slightly behind physical inactivity as a risk factor. Rates of activity are low in many countries resulting in implications for the prevalence of chronic diseases such as cardiovascular disease, type II diabetes, and some cancers; the overall health of all populations; and for the economic consequences of increasing demands on health-care systems. According to Janssen (2012), the direct and indirect costs of inactivity in Canada in 2009 were estimated to be $2.4 and $4.3 billion respectively, representing approximately 3.7% of total health care spending. Discovering ways to reduce the risk and severity of chronic disease are global objectives and as PA has been associated with primary and secondary prevention of these conditions (Warburton, Nicol, & Bredin, 2006), it receives much attention within health promotion research and practice.

Despite evidence demonstrating the benefits of PA (Sothern, Loftin, Suskind, Udall, & Blecker, 1999; Warburton et al., 2006; WHO, 2010) and risks of inactivity and sedentary behavior (Hills et al., 2007; Tremblay et al., 2011), rates of PA remain very low in children and youth. According to the *Canadian Guidelines for Physical Activity for Children and Youth*

(Canadian Society for Exercise Physiology [CSEP], 2012) in order to experience health benefits, children and youth aged 5-17 years need to achieve a minimum of 60 minutes of moderate- to vigorous-intensity PA (MVPA) daily. Moderate-intensity activity is defined as activity that may result in sweating and increased breathing and would rate as a 5 or 6 out of 10 in regards to intensity. It includes activities such as brisk walking, playground play or dancing. Vigorous activity results in heavy breathing and usually scores a 7 or 8 out of 10 on an intensity scale. It includes activities such as running, fast swimming or heavy lifting (CSEP, 2011). The guidelines also state that greater health benefits will be achieved with additional activity (CSEP, 2012).

Data on activity rates in Canadian children and youth demonstrate consistently that the majority are not achieving the PA recommendations. According to the 2012-13 CHMS only 9% of Canadian children and youth aged 5-17 years achieved the recommended 60 minutes of MVPA per day (ParticipACTION, 2015). A multiyear study done by the Canadian Fitness and Lifestyle Researcher Institute (CFLRI) called the *Canadian Physical Activity Levels Among Youth Study* (CANPLAY), shows that rates across the country do not vary significantly other than for the Yukon where children and youth took more steps on average than those in the rest of Canada (CFLRI, 2014). When comparing rates of activity for children and youth globally, the *2014 AHKC Report Card on Physical Activity for Children and Youth* reported that although Canada does well in terms of participation levels in organized sport, providing infrastructure that facilitates PA and creating policies regarding PA, Canadian children rank fairly low in terms of their overall rates of PA (AHKC, 2014).

The research on temporal trends for rates in PA in children and youth shows mixed findings. The most recent CANPLAY evidence from the CFLRI (2014) shows a decline in PA

in children and youth between 2005 and 2014. This pedometer-based study has measured rates of PA in children and youth aged 5 to 19 years in two and three year cycles since 2005. Findings from the 2011/14 cycle are the first to reveal significantly fewer steps being taken than during previous cycles. The CANPLAY data also show that children and youth who take part in organized sport and PA take more daily steps than those who do not. An American study by Iannotti and Wang (2013) examined several variables including PA rates of youth aged 11 to 16 through self-report surveys across eight years between 2001 and 2009. They documented a slight increase in the number of youth who reported having achieved 60 minutes per day of PA during this period. However, a surveillance study conducted in Nova Scotia by Thompson and Wadsworth (2012) using accelerometers to measure activity rates of youth in Grades 3, 7 and 11 revealed a decrease in the number of youth meeting the PA guidelines between the 2001 and 2005 cycles. Statistical comparison of findings from the 2009 cycle with those from the first two cycles was not possible due to a change in methodology (Thompson & Wadsworth, 2012). Despite this challenge in comparison, the authors of the study cautiously suggest that PA rates of boys and girls in Grades 3 and 7 have declined over time. The mixed results regarding temporal declines in PA may be the result of inconsistent and subjective measures used in the past and with the creation of more consistent and objective measures of PA and the existence of reliable baseline data, future research is positioned to measure these trends more accurately (AHKC, 2014).

The study of PA is often paralleled with the study of sedentary behavior. Although the two behaviors have distinct and independent outcomes and guidelines (AHKC, 2014; Lou, 2014), they are invariably linked as they represent a continuum of movement behaviors. According to the Sedentary Behavior Research Network (SBRN), sedentary behavior is defined as “any

waking activity characterized by an energy expenditure ≤ 1.5 metabolic equivalents and a sitting or reclining posture" (SBRN, 2012, p. 540). Research shows that sedentary behaviors are increasing, consume a significant proportion of children's waking hours, and may offer some explanation regarding the lack of physical activity in children and youth (Mitchell et al., 2012). Leatherdale and Ahmed (2011) found that Canadian youth in Grades 6-12 averaged 7.8 hours of recreational screen time (e.g., watching television and videos, playing video games and using a computer) per day. Data from the 2007-2009 CHMS indicated that Canadian children aged 6-19 years spent on average 8.6 hours per day, or 62% of their waking hours, involved in sedentary behavior (Colley et al., 2011).

While overall rates of inactivity in children and youth are of concern, those for girls are of even more concern as they demonstrate significantly lower rates of activity than boys at all ages. There is a growing body of research examining this issue, some of which is described below.

Physical Activity in Girls

The literature consistently indicates that girls are less active than boys at all ages (Bailey et al., 2005; Colley et al., 2011; Public Health Agency of Canada, 2011; Thompson & Wadsworth, 2012), that their decline in activity begins at a younger age, and that the decline for younger girls is significantly larger than it is for younger boys (Dumith, Gigante, Domingues, & Kohl, 2011). This decline in PA and disparity between the sexes is present on provincial (Thompson & Wadsworth, 2012), national (Colley et al., 2011; ParticipACTION, 2015), and global levels (Bailey et al., 2005; Hallal et al., 2012; WHO, 2010). Statistics from Nova Scotia show that while the majority of girls in Grade 3 (80%) meet the PA guidelines, rates decline significantly with age and by Grades 7 and 11, only 13% and less than 1% respectively are considered active (Thompson & Wadsworth, 2012). Activity rates for boys in this same study were 81.6%, 28.4%,

and 4.5% respectively. Worth noting is that the decline for girls between Grades 3-7 is the largest, both compared to boys and older girls.

Some of the activities which decline as girls age, contributing to their overall inactivity, include participation in organized and unorganized sports, vigorous PA, outdoor recreation, active transportation, youth clubs, and physical education (AHKC, 2013; Colley et al., 2012; Thompson & Wadsworth, 2012; Tucker Center for Research on Girls & Women in Sports, 2007). An increase in sedentary behaviors in girls as they age has also been shown to contribute to low overall rates of physical activity (Mitchell et al., 2012; Thompson & Wadsworth, 2012).

Understanding why girls are less active than boys and the factors which contribute to their decline in activity as they age is an important step towards increasing their rates of PA. A review of the literature reveals the factors associated with low and declining rates of PA in girls are varied and complex. A summary of the literature regarding correlates of PA for girls using the SEM as a framework is provided in the following section.

SEM in Health Promotion

The use of theory in health promotion research, practice and evaluation is helpful as it provides a framework for understanding the dynamics of health behaviors and influences of a multitude of forces that impact those behaviors including individual, social and environmental sources (Fitzpatrick et al., 2004; Glanz & Rimer, 2005; Goodman, 1998). Increasingly, current health promotion practice includes much more than educating individuals about how to improve their health behaviors. Today's practitioners seek ways to impact not only individuals, but the environments in which they exist (Glanz & Rimer, 2005).

Health promotion practice, informed by theory, acknowledges that health is the result of a complex interaction of systems, and therefore, includes educating individuals, creating

supportive environments and altering policies (WHO, 1986). The SEM is a common foundation in the development of contemporary health promotion interventions as it provides a framework for examining the complex interactions between intrapersonal, interpersonal, environmental, and policy-level factors that impact individual behaviors (Elder et al., 2007; Glanz & Rimer, 2005; McLeroy et al., 1992).

The SEM developed out of the work of a number of prominent researchers including Urie Brofenbrenner (1977); Kenneth McLeroy, Daniel Bibeau, Allan Steckler, and Karen Glanz (1988); and Daniel Stokol (1992). Brofenbrenner's Ecological Systems Theory (1977) proposed that individual behavior is affected by multiple levels or microsystems of influence from interrelations with those close to the individual, various settings they exist in and larger social influences such as social norms and cultural beliefs. McLeroy et al. (1988), influenced by Brofenbrenner, proposed an ecological model of health behaviors, which classified five levels of influence on behavior including intrapersonal or individual, interpersonal, institutional or organizational, community, and public policy. Daniel Stokol (1992) then proposed combining a social-ecological analysis with health promotion to create and maintain "health promotive" environments. These multilevel approaches have become a foundation in health promotion based on the belief that they will lead to greater and longer lasting changes in health-promoting behaviors (Glanz & Rimer, 2005).

SEM and physical activity. The use of the SEM in the field of PA provides a foundation for understanding and addressing the factors that facilitate and constrain individuals' activity levels (CAAWS, 2012; Elder et al., 2007). Rather than simply telling individuals to 'move more', current interventions increasingly integrate components which address individual, social and environmental factors. A recent systematic review of correlates of PA in children and youth

concluded that PA is associated with a complex combination of biological, psychological, sociocultural, and environmental factors, justifying the use of a SEM approach to research and practice (Sterdt et al., 2014). In terms of understanding and promoting PA with girls, CAAWS provides an adapted version of the SEM (Figure 3) using four categories of factors: intrapersonal, interpersonal, environmental and policy-related. It is this version of the SEM that has guided the current study.

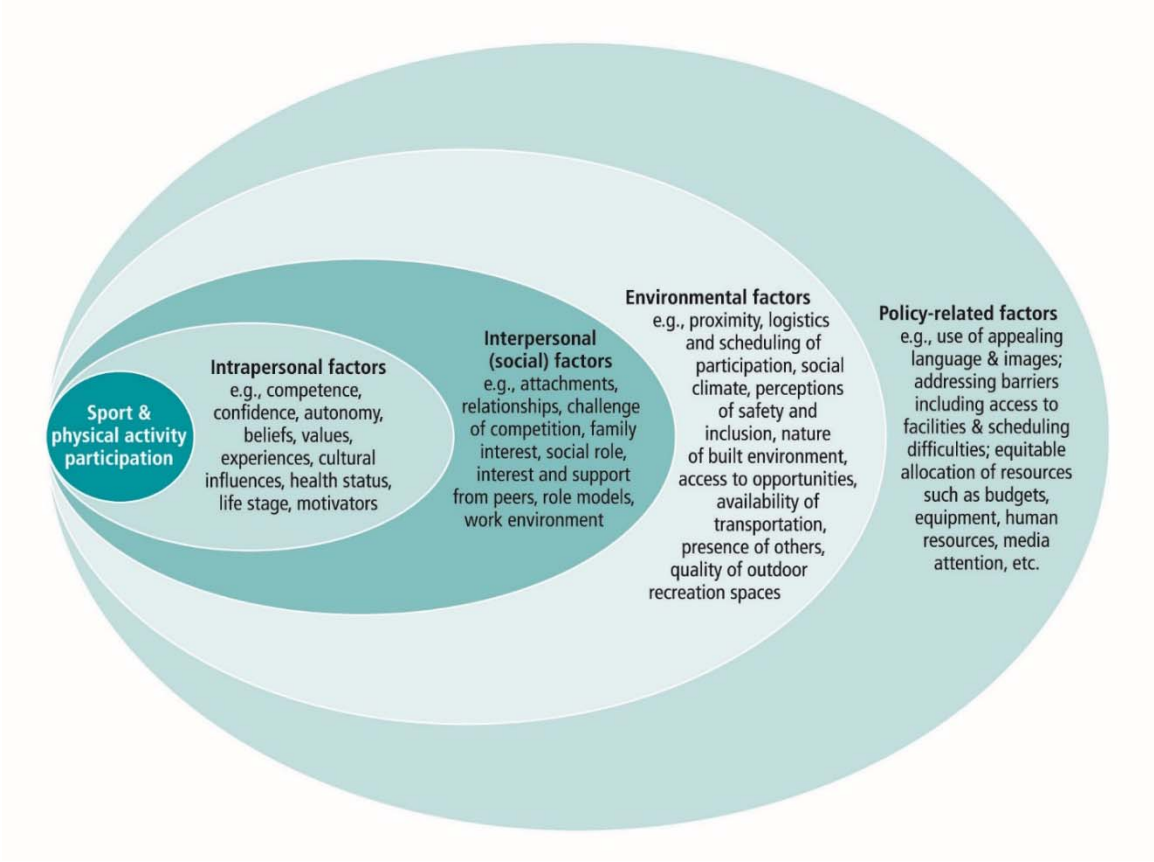

Figure 3. CAAWS SEM of influences on physical activity and sport participation for women and girls. From "Actively engaging women and girls: Addressing the psycho-social factors," by CAAWS, 2012, p. 12. (Copyright 2012 by CAAWS. Reprinted with permission).

Intrapersonal factors. Intrapersonal factors reside within the individual and include age, attitudes, self-concepts, beliefs, interests, motivation, behaviors, physical skills and abilities, and health status (CAAWS, 2014; McLeroy et al., 1988; Stokols, 1992). Research examining PA in

girls indicates that factors such as being younger, being physically literate, having confidence in one's ability to be active, perceiving PA as enjoyable, and believing that PA contributes to good health are associated with higher rates of PA (CAAWS, 2014; Cairney et al., 2012; Camacho-Minano et al., 2011; Dwyer et al., 2006; Humbert et al., 2006; Yungblut et al., 2012). Negative body image; concerns about appearance, weight and sweating; self-consciousness being active in front of others, particularly boys; lack of time; and a dislike for competition have been shown to be negatively associated with PA in girls (CAAWS, 2009; Dwyer et al., 2006; Humbert et al., 2006; Neumark-Sztainer, Story, Hannan, Tharp, & Rex, 2003; Robbins, Pender, & Kazanis, 2003).

The influence of psychological intrapersonal factors on girls' PA can be further explained by aspects of two behavior change theories: Ryan and Deci's (2000) Self-Determination Theory (SDT) and Bandura's (2004) Social Cognitive Theory (SCT). Both theories identify the important role competence and self-efficacy can play in decision making regarding behaviors individuals choose to undertake. Research on girls' PA indicates that those with higher degrees of confidence and self-efficacy are more likely to engage in PA (Craggs et al., 2011; Dishman, Saunders, Molt, Dowda & Pate, 2009; Lytle et al., 2009). As well, research regarding PA interventions for girls emphasizes the importance of providing opportunities for girls to feel more confident about themselves and their ability to engage in PA (CAAWS, 2011, 2012; Neumark-Sztainer et al, 2003).

Another intrapersonal factor that has been shown to be positively associated with PA in the general population as well as with girls specifically is the quality and type of motivation for being active. According to the SDT, motivation occurs on a continuum including amotivation (lack of motivation), extrinsic motivation (outcomes not directly related to the behavior such as a

reward), and intrinsic motivation (inherent outcomes such as enjoyment) (Ryan & Deci, 2000). According to Ryan and Deci, motivation becomes more autonomous and internalized when three basic psychological needs are met through the activity: the need for competence, relatedness, and autonomy. A systematic review (Teixeira, Carraca, Markland, Sylva and Ryan, 2012) examining motivation to be active in the general population concluded that there is a positive relationship between PA and autonomous sources of motivation. The results showed that more intrinsic forms of motivation, such as enjoyment and competence satisfaction, had stronger predictive values for sustained participation in PA. A mixed methods study by Gillison, Sebire, and Standage (2012) sought to explore factors which contributed to teenage girls (13-17 years) having more autonomous and internalized sources of motivation for being active. The findings revealed that internalized motivation can include both intrinsic and extrinsic sources. Three main themes emerged including a greater appreciation for the health-behavior link; achieving a sense of competence through being active; and the importance of social support. The authors conclude that these findings along with future studies can provide practical information for the creation of interventions designed to engage girls in PA.

The literature provides evidence that there are many intrapersonal factors related to PA for girls of all ages. An understanding of the role these factors play in supporting and constraining PA in girls is a critical aspect of research and practice in this area. Looking beyond the individual, at social or interpersonal factors, is also important and the next level of the SEM.

Interpersonal factors. Interpersonal factors are socially based. They include formal and informal relationships with and influences from family, friends, peers, and significant others such as teachers and coaches (CAAWS, 2014; McLeroy et al., 1988; Stokols, 1992; Verloigne et al., 2014; Yungblut et al., 2012).

A wealth of research has been conducted on the social influences on PA in girls which consistently demonstrate that support from family, friends, and significant others can have a positive impact on rates of PA (Bauer et al., 2011; CAAWS, 2014; Camacho-Minano et al., 2011; Dwyer et al., 2006; Humbert et al., 2006; Robbins et al., 2003; Vu et al., 2006). In terms of parental influence on child and adolescent PA, research has examined the impact of parental behaviors including their own PA (modelling), and support for PA, both tangible and intangible provided to their children. A meta-analysis conducted by Yao & Rhodes (2015) encompassing 112 studies revealed the impact of modelling was significant for pre-teen children but not for adolescents. Parental support such as providing transportation, fees for activities and encouragement was shown to have a positive impact on PA rates in children and youth. A qualitative study conducted by Vu et al. (2006) in the United States with adolescents aged 11-15 years found that 85% of the girls they interviewed reported encouragement and support from parents and siblings to be the most influential factor in their being active. A Canadian study conducted with children aged 10-11 years revealed that parental support, encouragement and engagement were associated with PA (Vander Ploeg et al., 2013). The same study revealed that parents were more likely to encourage their sons to be active and that while parental support had a positive impact on PA for both boys and girls on weekdays, it had more of an impact on girls' rates of activity on weekends. These findings suggest that parents can play an important role in helping to narrow the gap in PA between girls and boys.

The presence of friends to be active with has been shown to have a positive impact on participation in PA by girls (Barkley et al., 2014; Dwyer et al., 2006; MacDonald-Wallis et al., 2012; Salvy et al, 2009; Yungblut et al., 2012). A recent systematic review examining the associations between social networks and PA rates of children and youth revealed significant

evidence for similarities between individual's activity levels and those of their peers, suggesting that friendships play a significant role in influencing rates of activity (MacDonald-Wallis, et al., 2012). In another study, adolescent girls who reported high rates of PA self-efficacy showed a decline in PA if they perceived low rates of social support for being active (Dishman, Saunders, Molt, Dowda, & Pate, 2009). This positive impact of having support from peers was also documented in a qualitative study conducted in Ontario with 35 early and late adolescent females (Yungblut et al., 2012). Findings revealed that girls were more likely to try new physical activities if friends were present; that having friends present made the activity more fun and gave them a sense of support; and that having friends present was enough to make a negative PA experience bearable.

Although the social climate is an environmental factor, one aspect that resides within the interpersonal factors of the SEM is the challenge of competitiveness set informally by peers which has been shown to be negatively associated with PA in young and adolescent girls (Camacho-Minano et al., 2011; CAAWS, 2014; Tucker Center for Research on Girls & Women in Sports, 2007; Yungblut et al., 2012).

There is also evidence for the role that adults other than parents, such as teachers and coaches, can play on rates of activity in children and youth (CAAWS, 2012; Eather, Morgan, & Lubans, 2013). A study examining the impact of a school-based PA intervention for Grade 4-5 boys and girls reported that support provided by teachers was shown to have a significant mediating effect on PA of participants (Eather et al., 2013). In terms of evidence-based best practices for PA interventions for girls, the CAAWS (2011, 2012), the Tucker Centre for Research on Girls and Women and Sports (2007) and the Girls Action Foundation (2012) all place significant importance on the role program leaders, coaches and teachers can play in

supporting increased PA in adolescent girls. A 2009 qualitative study conducted by CAAWS with adolescent girls aged 13-17 years revealed qualities that are important in PA leaders are being mature, respectful, understanding, positive, friendly and energetic.

Environmental factors. Environmental factors exist within the institutions and organizations surrounding an individual (McLeroy et al., 1988; Stokols, 1992). They include the social climate and norms; the built environment; the quality, quantity, and variety of opportunities for PA; and the accessibility of PA opportunities including proximity, cost, and perception of being inclusive (CAAWS, 2012).

Studies have found positive associations between PA in children and youth and aspects of the built environment such as access to green spaces, sports fields, and safe walking and biking conditions (de Vries, Bakker, van Mechelen, & Hopman-Rock, 2007; Dwyer et al., 2006; Laxer & Janssen, 2013). A Canadian study examining such factors as they related to inactivity in 6,626 children aged 11-15 years reported that lower numbers of cul-de-sacs, lack of parks, and higher walkability scores (possibly indicating areas not conducive to sport and active play) were related to lower rates of PA (Laxer & Janssen, 2013). Although there was an equal distribution of girls and boys in the study, the findings were not presented by gender, therefore, no conclusions can be made regarding differences in how these environmental factors impact girls versus boys. Interestingly, in the Laxer and Janssen study as well as a Dutch study (de Vries, Bakker, van Mechelen, & Hopman-Rock, 2007) examining similar associations with PA in children and youth, access to recreation facilities was not significantly related to rates of activity. While this factor has been shown to be associated with PA in adolescent girls (CAAWS, 2012; Dwyer et al., 2006; Tucker Centre for Research on Girls and Women in Sport, 2007), it is possible that

younger children, who were examined in the studies above, are more likely to seek opportunities to be active in more informal settings such as parks and neighbourhood streets.

In terms of the impact the environmental factors can have on PA in adolescent girls, the qualitative study conducted by CAAWS (2009) revealed many environmental factors that are related to activity in the population. Creating environments that are welcoming, non-competitive and focused on participation were shown to be important to girls as was providing a variety of activities including girls-only opportunities. Environmental barriers associated with participation in PA included lack of transportation, inaccessibility of facilities, costs, and equipment requirements (CAAWS, 2009; Dwyer et al., 2006; Robbins et al., 2003; Yungblut et al., 2012).

A final environmental factor that was explored through a review of the literature was girls-only PA interventions. Providing a girls-only environment for PA interventions has been recommended by a number of organizations in an effort to provide socially-supportive environments (CAAWS, 2011; Girls Action Foundation, 2012; Tucker Centre for Research on Girls and Women in Sports, 2007). A systematic review by Camacho-Minano et al. (2011) revealed that girls aged 6-18 years prefer single-sex environments as their performance is not being compared to that of boys; they are not being judged or criticized by boys; have the opportunity to develop skill and relationships; are less concerned about body image and get more attention from the coach/teacher. A more recent systematic review by Biddle, Braithwaite and Pearson (2014) examining the effectiveness of PA interventions for girls aged 5-11 years discovered a larger effect rate for girls-only programs, indicating that this type of program should be explored further for girls of all ages.

Policy factors. Policy factors exist at various levels including local, municipal, provincial and federal and include policies, guidelines, regulations and laws (CAAWS, 2014; McLeroy et

al., 1988; Stokols, 1992). Policies that can impact PA in children and youth exist in organizations such as national sport bodies, local recreation centres and schools. Policies that have been shown to impact PA in girls include those regarding equitable use of resources, number of PA opportunities required in school settings, and availability of girls-only PA programs (CAAWS, 2012).

As children and youth spend a great deal of their waking time in schools, policies regarding amount and type of physical education, extra-curricular activities and PA opportunities can have an impact on their overall rates of PA. A report from the United States (President's Council on Fitness, Sports and Nutrition, 2013) examining the impact of policy on school-based PA in children and youth revealed that policies supporting mandatory physical education, classroom-based PA breaks, and walk/bike to school programs had the greatest impact on rates of activity in students. The potential for school-based interventions to reach large proportions of students make them a crucial component of efforts to improve rates of PA and yet evidence from many countries indicates these programs are on the decline (Bailey, et al., 2005). Continued focus on the policy level is required to ensure children and youth have access to adequate, appropriate and effective opportunities to be active.

As this literature review has revealed, the factors associated with PA in children and youth are complex and varied. If health promotion research and practice is to be effective, it must continue to focus on all levels of influence including individuals, their relationships and the environments that surround them. Another important component of health promotion practice and one which can also benefit from a SEM lens, is that of evaluation, which is discussed in the following section.

Program Evaluation in Health Promotion

Evaluation is an important component of health promotion programming as it assists with determining program effectiveness and impact; providing accountability to stakeholders (e.g., funders, staff, and clients); identifying areas for improvement; and increasing capacity-building with like-minded organizations through knowledge transfer (Fitzpatrick et al., 2004; Goodman, 1998; McKenzie et al., 2009; O'Connor-Fleming et al., 2006). Fitzpatrick et al. (2004) define evaluation as the "identification, clarification, and application of defensible criteria to determine an evaluation object's value (worth or merit) in relation to those criteria" (p. 5). In general terms, evaluation involves the collection and assessment of data regarding an intervention in order to make specific judgements with a purpose of justifying resources, improving implementation or determining effectiveness (O'Connor-Fleming et al., 2006).

The two main types of evaluation are formative and summative (McKenzie et al., 2004). Formative evaluation is conducted when the primary purpose is to gather information about a program in order to assure or improve the program quality. It combines an examination of the program before, such as in pilot testing, and/or during implementation in order to make a judgement about its merit or value. Process evaluation is a particular type of formative evaluation and involves an examination of the implementation of a program in order to determine if it is being implemented as planned and to control, assure and improve the quality of the program. Summative evaluation, sometimes referred to as outcome or impact evaluation, is the second category of evaluation and is conducted when the goal is to determine the impact or effect of an intervention (McKenzie et al., 2009). Both formative and summative evaluation are essential to health promotion practice in order to properly monitor and measure program delivery as well as measure and assess program effectiveness (Fitzpatrick & Worthen, 2004). McKenzie

et al. (2004) explain that evaluation of health promotion programs can be done informally or formally, involve internal or external evaluators, and be mandated or voluntary.

Evaluation theory states that it is generally not prudent to do a formative or summative evaluation without also including some degree of process evaluation (Goodman, 1998; Rossi, Lipsey, & Freeman, 2004). In other words, in order to properly evaluate a program regarding its impact, it is important to gather information regarding program fidelity in order to determine what is being measured through the evaluation process.

As important as evaluation is to the field of health promotion, it is not always embraced by practitioners. Several factors can contribute to avoidance of evaluation including lack of understanding of the types and potential benefits of evaluation; insufficient expertise and resources such as time and funding; assumption that the program outcomes will be positive and therefore evaluation is not required; and fear that an evaluation may result in a loss of funding if results are not favorable (O'Connor et al., 2006). As health promotion interventions tend to address complex issues, determining a suitable method of evaluation can be challenging. However, with an increasing expectation that health promotion practice be evidence-based, there is an increasing need to measure and determine program effectiveness, not only to provide evidence to funders and stakeholders, but to share knowledge to advance the profession (WHO, 2010). The following section summarizes a search of the literature for evaluations of programs similar to KRC conducted to obtain evidence that could inform the current evaluation.

Program Evaluations of Similar Physical Activity Programs

A search of the literature revealed a small number of community and school-based running programs that have undergone formal, published evaluations. One of these programs is a girls-only, fee-based, running program in the United States and Canada called Girls On The Run

(GOTR®), which has undergone several impact evaluations (DeBate, 2002, 2005; DeBate & Delmar, 2007; DeBate, Pettee Gabriel, Zwald, Huberty & Zhang, 2009; Zwald, 2010) and a quasi-experimental longitudinal evaluation (Pettee Gabriel, DeBate, High & Racine, 2011). The studies, which used pre- and post-intervention questionnaires to measure a number of outcomes including self-esteem, positive body image, commitment to PA, and rates of PA, revealed significant differences between scores on most factors measured. It would appear, based on the number of published articles on program evaluations over a 10-year period, that the GOTR® organization values the role of evaluation in program implementation. There is a possibility that because this is a fee-based program, its participants are more representative of girls who have an interest in PA in general as well as adequate support for seeking opportunities to be active. It would be interesting to explore participant demographics to gain more insight into the type of girl who participates in GOTR® as well as the impact the fee may have on preventing participation of girls lacking in resources including funds and parental support. Further contact with the organization revealed there were no other evaluations beyond what is published, suggesting there may be potential to learn more about program implementation through formative evaluations in the future.

A quasi-experimental study conducted on a children's running program in the United States called Marathon Kids® (MK) (Springer et al., 2012). The study included both process and summative evaluation goals, examining participants' use of program materials and resources as well as several outcome measures related to rates of PA, fruit and vegetable consumption and several associated psycho-social variables. The measurement tool was a self-administered questionnaire that combined several pre-existing scales with demonstrated reliability and validity. Although specifics are not provided on the number of items in the questionnaires, most

measures being studied included multiple items, suggesting a very lengthy survey. Participants from five MK schools and three control schools completed questionnaires four times during the school year. Analysis included the creation of composite measures representing several psycho-social constructs and recreational activities other than running and walking. These measures were used for comparisons between the MK schools and control schools as well as comparisons for MK participants throughout the four measurement periods. Although the study design and questionnaire length do not match those of the current study, many of the constructs being examined are similar to those being studied in regards to KRC participants and therefore provide support for the direction of this study.

Finally, a process evaluation was conducted on a program in the United States called the Trial of Activity for Adolescent Girls (TAAG) (Young et al., 2008). The evaluation sought to document and measure program fidelity at two stages: the initial training of teachers; and the implementation of the program by teachers to students. Student outcomes were also compared on several variables between control and intervention schools. Program fidelity was high for TAAG trainers, but not as high for teachers who delivered the program to students. Despite lower rates of fidelity, teachers and students reported high rates of liking the program as well as positive outcome variables such as higher rates of participation in PA programs by the girls and better collaboration with community organizations offering PA programs. Several similarities exist between the TAAG program and evaluation and those of the current study: TAAG incorporates the SEM in its development and implementation; although the age-range is different, both programs focus on the experiences of girls; both studies acknowledge and measure the impact of support from peers and coaches; and both studies incorporate process evaluation principles to measure potential differences in program fidelity. The study conducted

on TAAG has contributed to a better understanding of the use of the SEM in the current study and reinforced the importance of measuring the impact program leaders and program fidelity can have on participants' experiences.

As well as the formal literature, information regarding PA program evaluation was sought through an internet search. Various key terms were used such as "program evaluation", "running program", "children and youth", and "physical activity intervention". A summary of the results are provided below.

Direct contact with similar PA programs regarding evaluation. The questionnaires developed to evaluate KRC are fairly specific to the experiences of the girls and coaches being surveyed. With only a few of the constructs being general enough to borrow from existing, peer-reviewed tools, the remaining questions had to be developed by the author. In an effort to ensure the questions were as effective and appropriate as possible, the author contacted several organizations that offer programs similar to KRC to inquire about evaluation methods they incorporate. Of the 12 organizations that were contacted, seven responded. A list of these organizations, their programs, evaluation type and tools used can be found in Appendix D. Of the seven organizations who replied to requests for information, one reported not having any evaluation tools (Kids Running America) and one declined sharing their evaluation tools (Marathon Kids). The remaining organizations were very forthcoming with sharing information regarding formal and informal evaluation methods they utilize. Four of the organizations (G.I.R.L. Run Club, New York Road Runners, Trappers' Run Club and the Heart and Stroke OneStep Program) have conducted formal, impact and/or process evaluations using focus groups and the remaining (JUST RUN) uses a pre- post family/participant survey. Review of the evaluation materials shared by the organizations revealed that the majority are specific to their

programs, unrelated to the goals/context of the current study or very similar to previous questionnaires developed by Doctors Nova Scotia for KRC. The review of the processes and materials used by these organizations was informative and confirmed the importance of evaluation practices.

Summary

The literature review conducted for the current study covered a number of topics including PA in children and youth, with specific examination as it relates to girls; the use of the SEM in health promotion; the practice of evaluation within the field of health promotion; and an exploration of program evaluations conducted on similar PA programs. The review revealed rates of PA in children and youth that are alarmingly low as well as a disparity between the sexes in which girls are at increased risk of being inactive. While the review revealed research examining and explaining the lack of activity in girls of all ages, the majority of focus appears to have been on girls aged 11 years and older who are, for the most part, inactive. There appears to be a gap in regards to PA in pre-teen girls and the factors associated with their decline in activity as they age, particularly between Grades 3-7. A search for evaluations of similar PA interventions targeted to this age-group of girls resulted in a small number, most of which were summative evaluations.

The information compiled in this review has created a platform of evidence and theory, which justified and informed the current study. The following chapter will describe how this information has been integrated into the methodology of the study.

Chapter 3: Methodology

The main purpose of this study is to conduct a formative evaluation using a social-ecological lens to gather information from girls in Grades 4-6 who were current or past KRC participants to learn more about factors associated with participation that may inform future program development to attract and retain more girls. A secondary goal of the study was to determine if participation in KRC is associated with higher rates of self-reported PA and less of a decline in PA during the previous year. This chapter provides details regarding the sample; development of the measurement tools; procedures for obtaining ethics approval, recruiting study participants, assessing risk to participants, and distribution and collection of questionnaires; the quality and rigor of the study; and data analysis.

Research Approach

This program evaluation is a non-experimental, quantitative design guided by the SEM and conducted to gather data from a non-probability sample of girls in Grades 4-6 regarding their experiences in and views about KRC. While the majority of data collected were quantitative, a small number of open-ended questions in all three questionnaires provided some qualitative findings. Although qualitative methods such as focus groups and interviews have the potential to provide more depth on a topic, particularly related to human or social issues (Creswell, 2014), the goal for this study was to gather information from a larger sample in an effort to explore whether relationships exist between various factors (Creswell, 2014), and participation in KRC.

Primary Evaluation Question

What individual, social and environmental factors are associated with KRC participation by girls in Grades 4-6?

Subsidiary Evaluation Questions

1. Do girls who continue to participate in KRC report higher rates of overall PA and less of a decline in PA in the previous year than those who discontinue participation?
2. Are there ways KRC can be improved to attract and retain more girls in Grades 4-6?

As previously explained, the SEM guided the identification of factors being examined within the primary research question for this study (see Figure 2, p. 12). The literature review revealed a number of factors shown to be associated with PA in girls including those within individual, social and environmental domains. The selection of factors included in this study was influenced by the research but also by the limited scope of this project and the decision to not address sensitive issues such as body image or weight. The selected factors were explored in order to determine the degree to which they are associated with participation in KRC and whether they have predictive values. This information could then be used to inform future development of KRC in order to increase recruitment and retention of girls.

The subsidiary questions were included to address secondary goals of the evaluation: To determine if KRC participation is associated with higher rates of PA; and to gather information for improving the program.

Sample

In order to produce results that can be generalized to the overall population of girls who participate in KRC, a probability or random sample is required (Taylor-Powell, 1988). It was anticipated however that various factors might create challenges in recruiting participants for this study. Access to the population was facilitated through KRC coaches, the majority of whom are physical education teachers who tend to be quite busy. Although previous KRC evaluations have been successful in recruiting participants (Doctors Nova Scotia, 2012, 2013), the demands

regarding obtaining parental consent and participant assent, recruiting past participants, managing two different questionnaires and ensuring all documentation was collected/returned to the researcher, may have had a negative impact the number of coaches willing to participate, which would have had a direct impact on the overall sample size. Due to these anticipated recruitment challenges, it was determined that a convenience, non-probability sample would be used, consisting of girls in Grades 4-6 who were current or past participants of KRC.

The initial goal was to recruit a mix of approximately 100 girls who were current and past KRC participants from 10 schools: five from the Halifax Regional School Board (HRSB) and five from the Cape Breton-Victoria Regional School Board (CBVRSB). Although KRC is implemented in all boards in Nova Scotia, these two school boards were selected because of their high rates of participation in KRC and proximity to staff that could facilitate distribution and collection of study materials. With approximately 5,500 students participating in 71 HRSB schools and 3,000 taking part in 34 CBVRSB schools (Doctors Nova Scotia, 2015) the recruitment goal of 100 girls from 10 schools seemed reasonable. The large size of these boards in regards to geographic areas and numbers of students also increased the likelihood of obtaining diverse participants in terms of urban and rural settings as well as socio-economic status. Despite these projections, only six schools willing to participate therefore schools could not be selected on the above factors. Nevertheless, the final sample of six schools did include some variety regarding rural and urban location and socio-economic status of surrounding neighbourhoods.

Although an equal number of current and past KRC participants would have been preferred for study comparison purposes, it was expected that recruiting girls who were no longer taking part would be more difficult. Considering this practical reality, a goal of 25% of the sample was

established for past participants. The final sample met this criterion with a total of 109 girls from six schools based in the HRM including 82 girls (75%) who participated in KRC during the 2014-15 season and 27 (25%) girls who had participated during the previous year but were no longer taking part. Six KRC coaches participated in the study, however only four returned completed coach's questionnaires.

Inclusion criteria.

1. Girls in Grades 4-6 who:
    a. Attended English-language schools within the HRSB or CBVRSB that implemented KRC;
    b. Spoke English and read at grade-level;
    c. Participated in KRC during the 2014-15 year or were participants from the previous year who no longer participated;
    d. Provided informed, parental/guardian consent to participate;
    e. Provided informed assent to participate in the study.
2. Coaches at schools from the HRSB or CBVRSB who had implemented KRC for at least two years who agreed to participate in and assist with the study.

The inclusion criteria for this study identify several criteria for girls who were eligible to participate. The reasons for selecting girls in Grades 4-6 was explained in Chapter 1 and are related to gaps in the literature regarding this age-group and the fact that the initial decline in PA occurs during this time. As study materials were only available in English, only students who were attending English schools were recruited. Grade-level reading ability was required by all participants as they were responsible for reading and responding to the questionnaires. Because the study sought to gather feedback from girls who were actively participating and those who no

longer took part in KRC, both current and past participants were recruited. As coaches were responsible for identifying past participants, only those who had coached KRC for at least two years were recruited as they would be in a better position to identify girls who no longer took part in the program.

Measurement Tools

The data collection method used in this study was paper and pencil questionnaires which are a commonly used in research and evaluation due to their low cost, convenience, ease of implementation, and high response rates (Cancela, Ayan & Castro, 2013; Loprinzi & Cardinal, 2011). Although electronic questionnaires can result in easier data analysis and fewer incomplete questions, their response rates tend to be lower than the pencil-paper format and they require access to various electronic devices (Kongsved, Basnov, Holm-Christensen, & Hjollund, 2007). Previous KRC evaluations have used paper-pencil questionnaires and resulted in fairly large numbers of completed questionnaires (Doctors Nova Scotia, 2012, 2013), contributing to the decision to use this format for data collection in this study.

Compared to focus groups and/or interviews, paper-pencil questionnaires offer more anonymity, which may result in respondents feeling more comfortable expressing their views (Ontario Centre of Excellence for Child and Youth Mental Health, n.d.). Considering participants in this study were asked to share what they liked and disliked about KRC, this was an important quality for data collection.

Three separate questionnaires were developed for this study: one for current KRC participants (Appendix E); one for past KRC participants (Appendix F); and one for KRC coaches (Appendix G).

Questionnaire development. Research shows that from the age of seven years, children possess the necessary maturation to complete properly constructed questionnaires (de Leeuw, 2011). The development of the questionnaires for this study was guided by best-practices such as using plain, simple, age-appropriate and clear language; avoiding questions that contain double negatives and those which are ambiguous, leading or those that contain more than one question; providing clear instructions; and ensuring all questions were related to the purpose of the evaluation (Bryman, 2012; Converse & Presser, 1986; Hayes, 1992; Schwarz & Oyserman, 2001). The participant questionnaire layout was designed for the age-group by using a font of 14, avoiding cluttered questions, providing adequate space for responses and incorporating clear spaces between questions.

Keeping the questionnaire length as short as possible was a priority in order to avoid respondent fatigue and increase completion rates (Bryman, 2012). A doctoral thesis conducted to develop an evaluation for a nutritional program targeting children aged 8-12 years included a literature review of existing questionnaires. Of the 15 questionnaires examined, most included more than 40 items, used mainly multiple choice response options and ranged in completion times, half of which were more than 30 minutes (Hernandez-Garbanzo, 2011). This 40-item, 30 minute length was used as a guideline when developing the questionnaires for the current study.

The majority of data in this study were quantitative and gathered using closed-formatted questions which increase ease of completion and coding for analysis as well as enhance the comparability of data (Bryman, 2012). One of the more common types of closed question formats is the Likert-type question. Likert scales have been shown to be an effective method of gathering information from children aged seven years and older and have been shown to provide more detailed information than binary response options (Chambers & Johnston, 2002). The

advantage to a Likert-type scale compared to a dichotomous response format such as "yes" or "no" is that the respondent is given the opportunity to express the degree of their opinion (Hayes, 1992). Children seven years and older are capable of comprehending three and five answer options (Chambers & Johnston, 2002; de Leeuw, 2011). Response formats for Likert-type questions can include an odd number of items where a neutral response option is provided or an even number which forces the respondent to indicate a certain degree of a direction to their response, such as agree or disagree. Research shows that formats which include midpoints can deflect positive and negative responses toward the neutral middle point (Converse & Presser, 1986; Dolnicar & Drun, 2013; Hayes, 1992) and that many respondents who choose the neutral response do in fact have an opinion but for various reasons, choose not to express it (Bryman, 2012). Bryman, therefore, suggests not including a neutral option unless absolutely necessary or if it is expected that some respondents may not actually have an opinion on the topic being measured. When developing the questionnaires for the current study, midpoint answer options were avoided when appropriate (e.g., questions regarding participants' level of enjoyment of KRC and PA) in order to limit neutral responses. Questions regarding participants' views and opinions about KRC did not include a neutral or midpoint answer options as it was important to gather specific views from participants in order to determine factors that most likely influence participation in KRC.

Difficulty with memory in children who are being surveyed can create challenges when trying to answer questions related to views or behaviors that occurred in the past (de Leeuw, 2011). For the past participant questionnaire, it was anticipated that lack of memory regarding program details might play a role in respondent answers so a "don't remember" option was provided for questions related to specifics about their experiences in KRC the previous year.

Disadvantages to closed-formatted questions include that they do not allow for answers which are unique or spontaneous to the individual and can result in responses that are suggested and might not otherwise have been provided (Kumar, 2005). This was of particular concern regarding past participants' reasons for not taking part in KRC. To counter these potential disadvantages and in order to obtain genuine, unprompted answers to this question, the open-ended question appeared first followed by a multiple choice option (questions #2 and #3 in Appendix F). Although respondents might read ahead and, therefore, be influenced by the multiple choice answers, it was assumed that providing the open-ended format first might increase the likelihood of obtaining unique responses. The other strategy used for increasing the likelihood of obtaining responses unique to the participants was to offer "other" answer options where multiple choice options were offered (e.g., question #10 in Appendix E).

The participant questionnaires were tested for grade level readability using the Flesch-Kincaid Grade Level readability test conducted at www.readability-score.com The questionnaires scored grade-level readability of 3.2 for current participants and 3.6 for past participants. Pre-testing is also an important step to determining the suitability of questionnaires and can help detect problems related to level of comprehension, sensitivity, ambiguity, and misinterpretation of questions, as well as length of questionnaire and general layout (Presser et al., 2004). The participant questionnaires were pre-tested with two youth of the same age as the target population in order to identify potential problems. Ironically, the only question identified as being somewhat confusing during the pretest was the only question that had proven validity and reliability (question 32, Appendix E, p. 136). The question was changed from "On how many of the last 7 days were you physically active for 60 minutes or more" to "Thinking back on the last 7 days, how many days were you physically active for 60 minutes or more?"

The participant questionnaires (Appendices E and F) were designed to gather information that could be used to improve KRC in order to increase recruitment and retention of girls in the future. Participants were asked to share information regarding their experiences in and views about KRC. Questions included general demographics such as school, grade, and years in KRC; the girls' reasons for joining or leaving KRC; and how much they liked to program in general as well as various aspects such as stretching, increasing their distance, the *Runner's Handbook* and training for a fun run. In an effort to learn more about the intrapersonal and interpersonal factors associated with participation, girls were also asked questions about their level of enjoyment of PA and ability to be active; their rates of PA and those of their friends; whether they had friends in the program; and whether they received support for participation from their parents and coaches. Recognizing that leaving KRC does not necessarily represent withdrawal from all types of PA, participants were also asked to indicate other types of PA they took part in at least once per week. The girls were also asked to share their ideas for improving the program.

The coach's questionnaire (Appendix G) was designed to gather information about KRC implementation as well as coaches' ideas for recruiting and retaining girls from Grades 4-6 in KRC. School name was requested on the questionnaire responses in order to be able to match these results with those of the girls. As a result, the responses were not anonymous as the school name would be a direct link to the coach who completed the questionnaire. It was not anticipated that providing this identifiable information would impact coaches' response rate or responses as the information being requested was not sensitive. Coaches were surveyed in order to gather additional insight into the experiences of their participants and details about steps they take to create a fun and supportive experience for their participants. These questionnaires also provided an opportunity for coaches to share new ideas for improving KRC.

Procedures

The following section describes the procedures that were undertaken to obtain ethics approval from Dalhousie University, the HRSB and the CBVRSB; recruit study participants; obtain parental consent and participant assent; protect participant identity and anonymity; and compensate participants. This process began in January 2015 and was completed in June 2015.

Ethics. An application for ethics approval was submitted to the Dalhousie University Research Ethics Board (REB) in January 2015. Because this study was a program evaluation, it was exempt from the ethics approval process as per section 2.5 of the Tri-Council Policy Statement (TCPS) which states that program evaluations "do not constitute research for the purposes of this Policy, and do not fall within the scope of REB review" (Canadian Institutes of Health, 2010, p. 21). Requests to conduct research were submitted to the HRSB and CBVRSB in January and approval was granted by both boards with the stipulation that no research activities take place in the schools during the month of June.

Recruitment. Recruiting schools and participants proved to be more challenging than anticipated. The main barrier was the very late start to KRC due to extended winter conditions in Nova Scotia. In previous years, the majority of schools have begun KRC by mid-March. With most schools still dealing with snow-filled school grounds well into April, few were able to start their program until late April. Overall numbers for participation in KRC were down significantly (Doctors Nova Scotia, 2015) and as a result, the pool of schools to recruit from was smaller. The late start also meant a shorter timeframe to complete the study in accordance with the school boards' requirements that no research activities take place during the month of June.

Recruitment consisted of two stages: recruiting KRC coaches who would assist with recruitment of girls and provide feedback through questionnaire completion; and recruiting girls

who were current or past KRC participants. The initial timeline projected that the sample would be successfully recruited by the end of April, allowing for distribution and collection of all study materials during the month of May. With the late start to KRC, recruitment was significantly delayed and required additional steps in order to achieve satisfactory numbers.

The initial recruitment of KRC coaches targeted those who had been coaching KRC for at least two years in the HRSB and CBVRSB. A list of 91 coaches meeting this criterion was compiled from KRC participation lists provided by Doctors Nova Scotia. All were sent a letter (Appendix H) via email at the end of March, 2015 containing information regarding the study purpose, responsibilities of the coaches and expectations for the girls. Six coaches expressed an interest in participating in the study; five from HRSB and one from CBVRSB. As the goal of 10 schools was not achieved, a second email was sent in mid-April targeting coaches from both boards who have been involved in the program for several years. It was thought that these coaches would be more at ease implementing KRC and therefore less stressed by taking on the additional challenge of facilitating this study; they would likely be more familiar with past KRC participants which could assist with recruitment; and they might be more invested in KRC due to long-term involvement, possibly increasing the chances of their agreeing to participate. This second call for study participants resulted in three additional coaches stepping forward, all from the HRSB. All coaches were provided with study documents including information for principals (Appendix I); coaches' instructions (Appendix J); and parental consents/participant assents (Appendices K and L).

Coaches played a critical role in several study procedures including recruitment of participants, and distribution and collection of study materials. Steps to recruit girls included having coaches provide parental consent/participant assents to all girls in Grades 4-6 who were

participating in KRC at participating schools. Girls who were past KRC participants were identified by the coaches and invited to take part in the study. Those who expressed an interest were provided with parent consent/participant assent forms.

Despite multiple efforts by the researcher to follow-up with coaches regarding progress made to recruit participants and have questionnaires completed, progress was very slow. Three of the nine coaches who had expressed initial interest in participating in the study, including the lone coach from CBVRSB, did not follow through with successfully recruiting participants and/or having questionnaires completed. Another coach misunderstood and did not recruit past participants and was only able to recruit one current participant. Another coach indicated the number of consents/assents required but did not communicate any further bringing the number of confirmed coaches to four.

In late May, due to concern regarding low participant numbers and a very tight timeline, two additional coaches were approached and asked to participate in the study. One was a teacher in HRSB who has been with KRC since 2004 and runs very successful programs at two schools; and the other a teacher at a private school in HRM who is also an experienced KRC coach and has a very big club each year. Although students from private schools were not identified in the original inclusion criteria, the decision to include them was approved by the study supervisor and did not require further application to the Dalhousie REB with the study having been exempt. The addition of these two schools brought the final number of schools/coaches to six, all within HRM.

The total number of consent/assent packages distributed was 140 to girls at eight schools. The final sample was drawn from six schools within the HRM and consisted of 109 girls, including 82 who participated in KRC during the evaluation period and 27 who were past

participants. Six KRC coaches assisted fully with the data collection, but only four provided completed coach's questionnaires.

Consent and participant assent. In order to meet the standards of practice for ethics in research defined in the TCPS (Canadian Institutes of Health, 2010), girls interested in taking part in the study were provided with parental consent (Appendix K) and participant assent (Appendix L) forms which included information about the study. Coaches were also asked to complete a consent form (included with their instructions in Appendix J) regarding their participation in the study, which included completion of a questionnaire.

Data collection. Data from KRC participants and coaches were gathered during the spring of 2015 using pencil-paper questionnaires. Coaches were provided with instructions (Appendix J) for facilitating the study including having participant questionnaires completed. These instructions included a checklist in an effort to simplify the process and ensure all steps were taken. Coaches were reminded that only girls who provided signed consents and assents were to complete a questionnaire. Coaches were encouraged to have current participants complete their questionnaire at school, during their KRC time period. For past participants, coaches were advised to make every effort to ensure these girls had an opportunity to complete the questionnaire in a comfortable manner, either with other past participants at a pre-arranged time, or at their own convenience, returning the completed questionnaire, sealed in the envelope within a specified timeframe. In order to increase the number of completed questionnaires by past participants, the former method was preferred and suggested. Coaches were not asked to report back details on when and where participants completed their questionnaires.

At five of the six schools, questionnaire completion was coordinated by the KRC coach as outlined in Appendix J. The lead investigator coordinated this process at one school where the

coach was unavailable. The coach had collected completed consents and assents from 14 girls and had asked them to report to the gym during KRC period. As the girls entered the gym, the lead investigator confirmed verbally that they had given their consent/assent forms to the coach and then provided the appropriate questionnaire. Being involved in this capacity allowed the lead investigator to make three observations: the girls did not seek clarification on questions being asked in the questionnaires; several girls seemed to be chatting about their answers as they sat on the gym floor beside one another; and without the completed consents/assents handy, it was difficult to confirm that those completing the questionnaires had provided the necessary forms. When comparing the number of completed questionnaires with consents/assents, it was discovered that two girls had completed questionnaires but had not provided consent/assent forms. Using the list of names entered for the draw prize, the lead investigator was able to determine which girls had not returned their forms and made arrangements to obtain them. This experience reinforced the necessity to ensure steps for coordinating study materials are clear and easy to implement.

The coach's questionnaire (Appendix G) was shared in hard copy and electronically. The original study design projected the participation of 10 schools and, therefore, 10 coaches who would provide data by completing coach's questionnaires. The final number of completed questionnaires was significantly less due to only six schools/coaches participating and only four providing completed questionnaires. Although the remaining two coaches were made aware of the questionnaire, they were not pursued as the researcher was obliged to abide by the HRSB requirement that no study activities occur in the schools during the month of June.

Data management. The lead researcher was responsible for distributing study materials to participating coaches which included parental consents and participant assent forms; past and

current participant questionnaires; envelopes for completed questionnaires; the coach's questionnaire; a list to gather participants' names for the draw prize; and a large envelope for all study materials. Once all the documents were gathered, the coaches notified the lead researcher who gathered the packages. The data was compiled, coded and entered into SPSS by the lead researcher. At the conclusion of the study, all study documents were placed in a locked cabinet in the office of the study supervisor where they will remain for five years after which time they will be destroyed.

Confidentiality and anonymity. Protecting participants' anonymity is important for ethical purposes, to reduce the social desirability bias, and to encourage honest responses (Brener, Billy & Grady, 2003; King & Bruner, 2000). None of the data collected from the girls participating in this study included identifiable information. Their answers were kept confidential from other study participants including coaches through the provision of envelopes for completed questionnaires. At the point of data entry, each questionnaire was assigned a code number. At no time, were names attached to questionnaire results. Coaches who completed questionnaires were asked to indicate their school so that the process information they provided regarding KRC implementation could be matched with participant experiences. This information could result in their questionnaire answers being linked to their identity, particularly by the lead researcher who is familiar with the coaches. It was determined that because the information being provided was not controversial or of a personal nature, the risk of harm to coaches resulting from this link was very low. Coaches' confidentiality was protected by assigning a code number to the information they provided.

In keeping with Dalhousie University's REB guidelines, all study documents will be retained and protected by the study supervisor in a locked cabinet for five years after which they will be destroyed.

Risk/Benefit assessment. It is possible that some study participants may have been uncomfortable answering certain questions such as why they did not join KRC or how their ability to be active compares to their peers. Participants may have also been uncomfortable providing negative feedback about KRC or their coach. Steps taken to reduce the chance of participants feeling uncomfortable included telling them that participation was voluntary and could be stopped at any time; protecting their identity by not asking for names on the questionnaires; and providing envelopes for completed questionnaires. A benefit of study participation was the knowledge that all participants contributed to helping evaluate and improve KRC and providing information that can be shared with other PA programs and research related to PA in girls.

Compensation. Compensation for participation included the opportunity to be entered into a random draw for a $50 gift certificate from a sports store or recreation facility, chosen by the winners. One prize was available to the winner from the group of coaches and one for the winner drawn from the group of girls who completed questionnaires. The winners were selected using an online random number generator.

Available resources. This study was supported by existing resources at Doctors Nova Scotia, including time spent by the lead investigator conducting the evaluation within the scope of her role as KRC Coordinator. The funds for the two $50 draw prizes were provided by Doctors Nova Scotia. As previously mentioned, KRC coaches assisted with distribution, collection and return of study materials.

Quality and Rigor of Study

There are several aspects of this study which threaten its quality and rigor. The use of self-report measures and the potential influence of the social desirability bias threaten the credibility and validity of the study findings. Two factors limit the generalizability of the results beyond the current sample: all of the girls came from schools within HRM and therefore do not necessarily reflect experiences elsewhere in the province; and the programs they participated in can be considered exceptional due to their size, number of coaches and use of optional components (see p. 90), and therefore may not be representative of the 'average' KRC.

The small number of past participants compared to current participants meant the strength of some of the analytical tests, such as crosstabs, was compromised. However, the large number of significant results and the fact that many showed a medium to large effect size would indicate that this disparity did not impact the integrity of the study results.

An additional threat to the quality of this study was the fact that the measurement tool was created using questions that have not been tested for validity and reliability. Efforts to address this threat included using best practices in creating the questions and conducting a pre-test with two youth from the sample age-group.

The objectivity of the lead researcher was also threatened due to possible bias resulting from her dual role as researcher and KRC coordinator. As suggested by Creswell (2014), several validity strategies were implemented to address this issue including continuous consultation with the study supervisor, regular consultation with the thesis committee, peer debriefing with other KRC staff and self-reflection regarding potential bias.

Data Analysis

As the majority of data gathered for this study were quantitative, most of the analysis was conducted using the Statistical Package for Social Sciences (SPSS v. 21.0). Descriptive, comparative and inferential analyses were conducted to learn more about the two groups of girls in terms of variables associated with program participation and any significant differences that exist between them.

Before completing any analysis, a general frequencies analysis was run to uncover any missing and/or incorrect data. Once corrections were made, various analyses were conducted to examine the data.

Descriptive statistics were compiled to summarize frequencies and percentages related to variables such as participation status, grade level, number of years girls have participated in KRC, their reasons for joining KRC, and what they liked and disliked about KRC. Crosstabulation analysis and Pearson's chi-square tests were performed to explore frequency distributions and differences (Field, 2013) between the current and past participants' responses across several variables. As the majority of data were categorical, the test used to compare independent variables by participation status was the non-parametric Mann-Whitney U test (Field, 2013). Effect sizes were calculated for Mann-Whitney U tests with significant results.

As the SEM reveals, individual behaviors are influenced by a complex set of interactions between individual, social and environmental factors (CAAWS, 2012; Elder et al., 2007). In an effort to create a more sophisticated measure of complex constructs (intrapersonal and interpersonal), two composite measures were created. The use of composite measures is a practice utilized in health promotion research when single variables do not provide reliable and valid measures of complex constructs (Jupp, 2006). Two studies examined in the literature

review utilized composite measures to represent several constructs (Public Health Agency of Canada, 2011; Springer et al., 2012). The selection of the factors included in each composite variable for the current study was guided by the research regarding correlates of PA as well as the correlation of each factor and participation status determined using the Kendall Tau_B, Spearman's rho and Pearson's correlation tests (Field, 2013). The composite measure for intrapersonal factors consisted of four variables: participants' self-reported rate of PA during the previous seven days; rate of confidence they have in their ability to be active; how much they enjoy being active; and whether their PA level has declined in the past year. The composite measure for interpersonal factors consisted of four variables: whether participants' closest friends were active and involved in KRC; whether they identified their KRC coaches as an aspect of KRC they liked; and whether their parents encouraged them to join KRC. Data from the four factors were converted and combined to result in a maximum score of 4, with four representing the highest result. For example, a girl who had a combined intrapersonal score of 3 had higher values for their rates of PA, rate of perceived ability to be active, and rate of enjoyment of PA than a girl with a score of 2. An independent t-test was conducted to compare the means of the composite measures by participation status and logistic regression was conducted to determine if any associations existed between the composite variables and participation status (Field, 2013).

All three questionnaires included open-ended questions, which were included to gather un-prompted and additional information such as participants' reasons for not taking part and their ideas for making KRC better. Conventional content analysis was conducted on the qualitative data obtained from open-ended questions on all questionnaires. Coding categories were derived directly from the text through an iterative process of reading then re-reading all responses from

each open-ended question (Creswell, 2014; Hsieh & Shannon, 2005). Similar responses were then grouped under these categories. The past participant questionnaire also included a multiple choice question regarding reasons for not taking part which followed the open-ended question asking the same thing. Triangulation was conducted to compare and contrast the two types of data for this question in order to see if common responses were provided and to validate the findings regarding girls' reasons for not participating in KRC (Creswell, 2014).

Process data regarding the implementation of KRC were gathered from four coach's questionnaires. Due to the small number of questionnaires returned (n=4), statistical analysis was not possible and data were manually recorded and reviewed. Coaches also provided information and ideas in long-answer format regarding how to motivate KRC participants and attract and retain older participants. This information was reviewed for overall content resulting in the emergence of two common responses. Due to the small sample size and limited number of schools, analysis comparing the six schools was not conducted in order to protect the anonymity of coaches and participants.

The goal of the analysis for this project was to determine which factors were related to participation in KRC; which aspects of the program the girls like/dislike and are more likely to attract and retain girls in Grades 4-6; reasons girls stop participating; whether termination of KRC participation is associated with a general decline in PA; and whether those who drop out might have continued if a girls-only option was available.

Summary

This chapter summarized the methodological approach and the procedures used to conduct this study. Details regarding the recruitment of 109 girls and KRC coaches from six schools who participated in this program evaluation were presented. This chapter also provided information

regarding the development of the format and content of questionnaires used to gather mostly quantitative information. The final section provided details regarding data analysis and the quality and rigor of the study. The following chapter provides a summary of the study results.

Chapter 4: Results

The main purpose of this study was to conduct a formative evaluation using a social-ecological lens in gathering information from girls in Grades 4-6 who were current or past KRC participants to learn more about factors that are associated with participation that may inform future program development to attract and retain more girls. This chapter provides a review of the findings including participant demographics; individual, social and environmental factors found to be associated with participation; and feedback regarding various aspects of KRC provided by participants and coaches along with their suggestions for enhancing and improving the program.

Participant Demographics

The study sample consisted of 109 girls in Grades 4-6 from six schools within the HRM. As displayed in Table 1, 27 (25%) of the girls were past participants in KRC attending five out of six schools, while 82 (75%) were actively participating in the program at all six schools. Grade-level data (see Table 2) were analyzed using crosstabulation and the Pearson's chi-square test of independence. While the majority of girls from the overall sample were in Grade 5, the Pearson's chi-square test revealed that girls who no longer participated in KRC were more likely to be in higher grades and current participants were more likely to be in lower grades (χ^2 (2, n=101) = 12.212, p = 002). In terms of years experience in KRC, the data in Table 3 reveal that current participants have taken part in KRC for longer than past participants. Small units in cells prevented a chi-squared test but the Mann-Whitney U test revealed a significant difference between years of experience by the two groups (U = 509.000, z = -3.702, p = .000, r = -.3702).

Table 1

Distribution of Study Participants by School and Participation Status

School	Past Participants	Current Participants	Total
#1	4	5	9
#2	9	7	16
#3	3	23	26
#4	1	13	14
#5	10	22	32
#6	0	12	12
Total	27	82	109

Table 2

Participant Grade Level by Participation Status

Grade	Past Participants	Current Participants	Total
4	5	24	29
5	9	41	50
6	12	10	22
Total	26	75	101*

Note. *Eight participants did not answer the corresponding question regarding grade level.

Table 3

Years Experience in KRC by Participation Status

Years in KRC	1	2	3	4	5	6	7	Total
Past Participants	5	12	6	3	0	0	0	26
Current Participants	5	12	30	21	2	3	1	74
Total	10	24	36	24	2	3	1	100*

Note: *Nine participants did not answer the corresponding question regarding years in KRC.

Findings related to SEM factors

As previously discussed, the use of the SEM in the field of PA provides a lens for understanding and addressing the complex interaction of factors that facilitate and constrain individuals' activity levels (CAAWS, 2012; Elder et al., 2007). This model was used as a foundation for this study and informed the selection of variables being examined in connection with participation in KRC. This section presents findings related to the research question regarding the exploration of factors associated with participation in KRC and has been organized by the three levels of the SEM used in this study: intrapersonal, interpersonal, and environmental. Figure 4 provides a visual display of the factors found to be associated with KRC participation using the Mann-Whitney U test.

Intrapersonal factors. A full display of the frequencies and percentages for distributions regarding the intrapersonal variables by participation status can be found in Appendix M. Overall, the majority (84%) of girls who responded (n=100) reported enjoying PA 'a lot.' Although none of the respondents reported disliking PA, the Pearson chi-squared test revealed that past-participants were significantly more inclined to report liking PA 'a little' versus 'a lot'

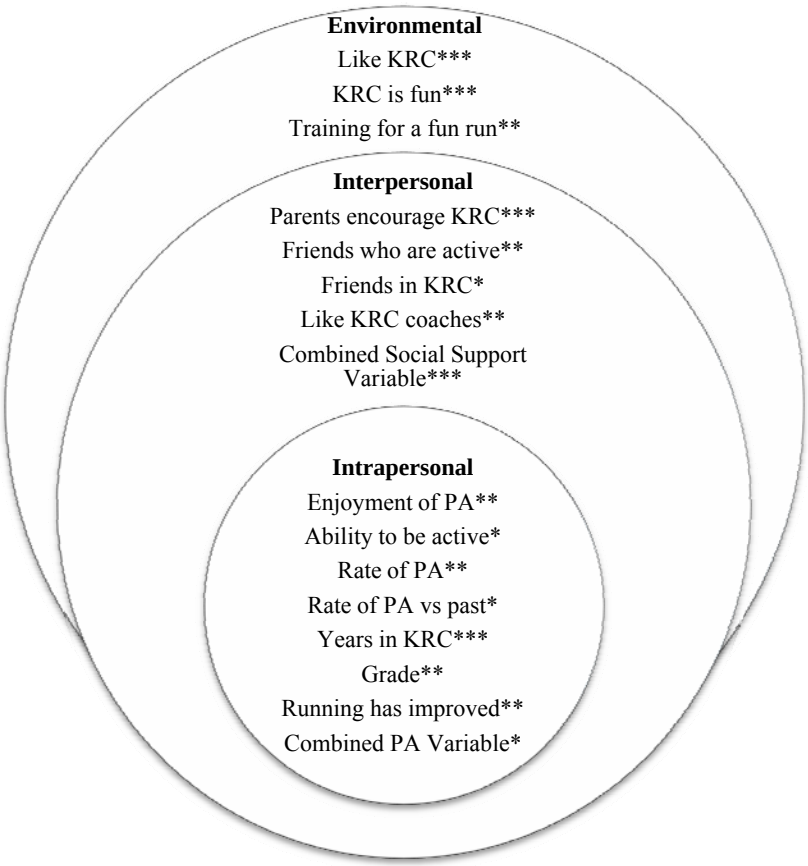

Figure 4. Study findings of SEM variables found to be associated with participation in KRC using the Mann-Whitney U test. All have a positive relationship other than grade, which has a negative relationship. $*p < .05$ $**p < .01$ $***p < .001$

(χ^2 (1, n=100) = 9.059, p = 003, OR = .7222). In terms of the girls' self-perceived ability to be active, the majority (56.6%) of those who responded (n=99) reported being good at most types of PA, with fewer (23.2%) reporting they being good at all types of PA, and even less (20.2%) reporting being good at some types of PA. None of the respondents selected the "Not good at any types of PA" response. The chi-squared test was not appropriate due to cells with fewer than 5 units so the Mann-Whitney U test was conducted and revealed that current participants were more likely to report higher rates of confidence in being active (U = 726.000, z = 1.985, p = .047, r = .1995) than past participants. Past participants were more than twice as likely to report being good at only 'some' types of PA versus 'many' than current participants. When comparing

themselves to peers in terms of their ability to be active, the majority (60%) of those who responded (n= 97) reported their ability to be active as similar to their peers. Small cell units prevented chi-squared analysis and the Mann-Whitney U test did not reveal a significant difference when comparing this variable by participation status.

In terms of rates of PA, 88% of the total sample (n=108) reported being active on 6 or 7 days of the previous week and 82.3% reported being more active now than during the past year. Comparisons by participation status reveal that current participants reported significantly higher rates of PA both during last seven days (U = 1,488, z = 2.98, p = .003, r = .286) and when comparing activity levels now versus the past year (U = 706.500, z = -2.529, p = .011, r = -.258). The median for the number of days being active during previous seven for current participants was 6.36 days versus 5 out of 7 days for past participants. Study participants were asked to identify types of PA they participate in at least once per week. The most popular activities reported by those who replied (n=102) were running (72.5%), playing at the playground (70.6%), walking (55.9%), doing intramurals (52.9%), and dancing (47.1%).

A composite variable was created to represent the intrapersonal variables related to PA in general and included perceived ability to be active, enjoyment of PA, and rate of PA (current and past). As shown in Table 4, the Pearson correlation test revealed that these factors were significantly related to participation status. Logistic regression revealed that the composite intrapersonal variable was significantly related to participation status at the $p < .01$ level. Current participants were 2.3 times more likely to achieve a higher score on the intrapersonal composite measure (OR = 2.276, see Appendix O). An independent sample t-test conducted on data from the total sample revealed that current participants had a significantly higher score on the composite variable, $t(93) = -3.314$, $p < .05$ (M = 3.26) than the mean score for girls who no

longer take part in KRC ($M = 2.64$). In other words, current participants reported a higher overall score for rates of PA, ability to be active and enjoyment of PA.

Table 4

Correlation of Factors in Composite Intrapersonal Variable

		Ability to be active	Enjoyment of PA	Rate of PA during past 7 days	Rate of Current PA vs. past	Participation status
Ability to be active	Pearson Correlation	1	.362**	-.368**	.424**	-.202*
Enjoyment of PA	Pearson Correlation	.362**	1	-.456**	.382**	-.301**
Rate of PA during past 7 days	Pearson Correlation	-.368**	-.456**	1	-.553**	.303**
Rate of current PA vs. past	Pearson Correlation	.424**	.382**	-.553**	1	-.231*
Participation status	Pearson Correlation	-.202*	-.301**	.303**	-.231*	1

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

An additional intrapersonal variable examined in this study was whether the girls' running had improved while in KRC. The majority of girls (83.2%) who responded (n=107) reported that their running had improved while in KRC. The Mann-Whitney U test revealed a significant difference in improvements in running between the two groups ($U = 1{,}319$, $z = 3.326$, $p = .001$, $r = .322$) with 90.2% of current participants reporting an improvement in their running versus 60% of past participants.

In terms of motivation for joining KRC, both groups of girls were asked to indicate their reasons for joining KRC from a multiple choice list of items, choosing all that applied. When

comparing the results by participation status, the Mann-Whitney-U tests revealed four of six measures with significant differences between the two groups. Current participants were more likely to report joining KRC because it was fun ($p = .002$), to improve their running ($p = .004$), because they like running ($p = .000$), and to train for a fun run ($p = .012$). The top reasons past participants reported joining KRC the previous year were because running is good for them (59.3%) and because they had friends in KRC (55.6%). The percentage of current participants who selected these measures was 75.5% and 37.8% respectively. The top reasons current participants indicated for joining KRC were because they like to run (86.6%), to improve their running (80.5%), and because KRC is fun (79.3%). Results for the two groups combined indicate the top reasons for joining were because they like to run (76.1%), to improve their running (73.4%), because KRC is fun (71.6%), and because running is good for them (71.6%). Thirteen girls provided open-formatted answers for other reasons they joined KRC. Content analysis revealed two subtle categories: one regarding variables related to social support and the other regarding achieving health benefits while participating in KRC. Four girls' "other" reasons for joining KRC referenced social support factors including liking their coach, being a part of a group, and having a parent who runs or wants them to run. Three girls' responses referenced health-related reasons including thinking they should exercise, to get fit, and because they believe PA is very important.

Girls who were past participants of KRC were asked to identify their reason(s) for not taking part in KRC this year, first in an open-formatted question and then through a multiple choice option. All but one of the 27 past participants provided responses to the open-formatted question. Content analysis revealed two main categories of responses regarding reasons for not taking part: lack of time referenced by 17 girls; and not liking running and/or KRC referenced by

nine girls. Triangulation using the answers from the closed-formatted, multiple choice question asking the same thing, confirmed these as the top reasons with 65.4% identifying not having time and 38.5% identifying not enjoying running as their reasons for not taking part.

Interpersonal factors. The sources of support examined in this study include friends, parents and KRC coaches and are discussed individually below. A full display of the frequencies and percentages for distributions regarding the interpersonal variables by participation status examined in this study can be found in Appendix N.

Support from peers. Several questions were included in the questionnaires to gather information regarding support from peers including how many of their friends participate in KRC; whether having friends present in KRC makes it more fun or influences participation; and how active their friends are. Findings related to support provided by peers were mixed. Although 99% of current participants (n=80) said having friends with them in KRC made it more fun and 85% of the total sample (n=100) identified being with friends as one of the aspects they like about KRC, only 42% identified being with friends as a reason for joining KRC and only 11.5% of past participants (n=26) identified lack of friends in KRC as a reason for not taking part. The non-parametric Mann-Whitney U tests revealed that current participants reported having significantly more friends who participate in KRC (U = 1,413, z = 2.285, p = .022, r = .219) and who are active (U = 1,419.500, z = 2.952, p = .003, r = .284).

Support from parents. Three questions were included in the questionnaires to gather information regarding support provided from parents. Both participant groups were asked if their parents encourage them to be active and join KRC and whether anyone in their family started running with them when they started KRC. Once again, the findings are mixed. Overall, 90.7 % of the girls (n=108) reported that their parents encourage them to be active and 66.4% (n=107)

stated that their parents encourage them to join KRC. Although no significant difference exists between the two groups in terms of parents encouraging them to be active, current participants were significantly more likely to report that their parents encouraged them to take part in KRC (U = 1,484.500, z = - 4.133, p = .000, r = -.3995). Forty percent of the total population of girls (n=107) reported that someone in their family started running when they joined KRC (23/41 identified mothers as the family member) but Mann-Whitney U tests did not reveal a significant difference (p = .305) between the current and past participants for this measure.

Support from coaches. Three questions addressed potential support from KRC coaches. The first question was included in a set of questions asking girls to rate how much they liked different aspects of KRC such as the water bottle, *Runner's Handbook*, getting sweaty, and the KRC coaches. Of the overall sample, 87.5% reported liking their coaches 'a lot' and 10.4% 'a little'. When comparing this variable by participation status using the Mann-Whitney U test, current participants reported higher ratings of liking their coaches than the non-participants (U = 649.500, z = -3.463, p = .001, r = .354). The other two questions asked whether their coach made KRC more fun and encouraged them while they were running. Non-parametric Mann-Whitney U tests did not reveal a significant difference between the two groups in terms of how much their coach made KRC fun (p = .244) or encouraged them (p = .295).

A composite variable was created to represent the interpersonal factors shown to be most strongly related to participation in KRC and included the proportion of participants' closest friends who are active and involved in KRC; the degree to which they liked their KRC coaches; and whether their parents encouraged them to join KRC. The inclusion of these factors in the composite variable was based on the results of the Pearson correlation test, which revealed a

significant relationship with participation status (see Table 5). Logistic regression revealed that the composite interpersonal variable was significantly related to participation status at the $p < .001$ level (see Appendix O) with an odds ratio of 5.721. An independent sample t-test conducted on data from the total sample revealed that current participants had a significantly higher score, $t(88) = -5.750$, $p < .001$ ($M = 3.26$) on the composite interpersonal variable than the mean score for girls who no longer take part in KRC ($M = 2.29$). In other words, current participants reported a higher overall score for how much they liked their KRC coaches, the number of friends who are active and in KRC, and having parents who encourage KRC participation.

Table 5

Correlation of Factors in Composite Interpersonal Variable

		Liked KRC Coaches	Friends who are active	Friends in KRC this year	Parents encouraged KRC	Participation status
Liked KRC Coaches	Pearson Correlation	1	-.032	-.002	-.209*	-.370**
Friends who are active	Pearson Correlation	-.032	1	.231*	.187	.294**
Friends in KRC this year	Pearson Correlation	-.002	.231*	1	.205*	.205*
Parents encouraged KRC	Pearson Correlation	-.209*	.187	.205*	1	.401**
Participation status	Pearson Correlation	-.370**	.294**	.205*	.401**	1

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Comparison of the two composite variables. A reverse step-wise logistic regression was performed to compare the relationships between the two composite variables and participation status (Table 6). Although each composite variable was found to be significantly related to participation in KRC when examined independently, when the two variables were analysed together using the step-wise logistic regression, the strength of the composite interpersonal variable resulted in the composite intrapersonal variable no longer being significantly related to participation status. This reinforces the finding that the interpersonal variables play a stronger role in influencing girls' participation in KRC.

Table 6

Reverse Step-Wise Logistic Regression of Composite Variables

Variables in the Equation		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Composite intrapersonal variable	.287	.395	.526	1	.468	1.332
	Composite interpersonal variable	1.694	.430	15.486	1	.000	5.440
	Constant	-4.354	1.606	7.346	1	.007	.013
Step 2[a]	Composite interpersonal variable	1.744	.423	17.009	1	.000	5.721
	Constant	-3.601	1.148	9.835	1	.002	.027

a. Variable(s) entered on step 1: Composite Intrapersonal Variable, Composite Interpersonal Variable

Environmental factors. Factors from this category that were examined in this study and are summarized below are measures of the program quality represented by how much participants liked it; their preferences for timing, frequency and length of runs; training for a fun run; aspects of the program they liked/disliked; and whether a girls-only option was of interest.

Girls' views on KRC. Overall 74% of the girls (n=100) indicated they liked KRC 'a lot' and that it was 'a lot of fun'. Mann-Whitney U tests revealed that current participants reported

significantly higher rates of fun (U = 427.500, z = -6.022, p = .000, r = - .6022) and liking KRC (U = 473.000, z = -5.213, p = .000, r = - .5213). In terms of what they like about the program, the top responses were the KRC coaches (87.5%), being with friends (85%), running (77.2%), training for a fun run (75%), playing games (74.4%), and increasing their running distance (71.4%). Feedback on program materials indicated that although the majority of girls (91.7%) liked the water bottle provided as a finisher's prize, only 10% of current participants indicated the bottle as one of the reasons they joined KRC. The *Runner's Handbook* had moderate popularity with 36.7% indicating they liked it 'a lot' and 38.9% 'a little'. Participants were asked to share additional ideas for aspects of KRC that they liked or disliked in an open format response. Thirty-one girls responded and content analysis was conducted but did not reveal consistent categories that resulted from similar responses. Responses regarding aspects they liked included comments about the coaches, prizes, increasing distances run, and the running route. Negative comments included not liking sweating, running up hill, or KRC members who are competitive, particularly boys.

Current participants were asked to indicate their preferences for program scheduling, frequency, and length. Of those who responded (n=74; n=73; and n=80 respectively) 43.2% said after school, 23% said lunch time; 46.6% said twice a week, 30.1% said 3 times; 42.5% said 15-30 mins, 41.3% said 31-45 mins. In an effort to keep questionnaire length as short as possible and because they were not currently taking part in KRC, past participants were not asked these questions.

KRC participants are encouraged to participate in a final fun run to help motivate them to keep running and to celebrate their training (Doctors Nova Scotia, 2014a). There are a variety of potential barriers preventing girls in this sample and other KRC participants from across the

province to take part in a fun run including accessibility related to cost, transportation and location; conflicts with other activities; and lack of support from parents. The current study explored whether there was a relationship between participating in a fun run and KRC participation. Findings reveal a significant difference (Mann-Whitney U = 1,428, z = 2.980, p = .003, r = .287) between the two groups in terms of plans to participate in a run during the 2014-15 school year with 68.3% of current participants indicating plans to participate versus 34.6% of past participants. Results regarding fun run participation during the prior (2013-14) school year, when all girls in the sample were actively participating in KRC, revealed that 64.4% and 46.2% of current and past participants took part in a fun run. The difference between the two groups was not significant. Study participants were also asked to rate how much they like training for a fun run as part of KRC and 75% chose 'a lot' as their response. Coaches in this study who completed questionnaires (n=4) reported a range in the percentage of participants who take part in fun runs from 35-75%.

With research indicating that girls-only PA interventions can provide a positive experience for girls and have a positive impact on rates of PA (Biddle et al., 2014; CAAWS 2009, 2012), the current study explored whether participants would prefer a girls-only KRC. Past participants were asked if they would have joined a girls-only KRC if it had been offered. Of those who responded (n=26), 38.5% chose 'yes', 34.6% chose 'I don't know' and 26.9% chose 'no'. Current participants were asked if they would prefer a girls-only KRC. Of those who responded (n=81), 43.2% indicated they would prefer this option, while the rest of the group were equally split between the 'no' and 'don't know' responses. The responses from both questions were combined into one variable and revealed that of the overall group (n=107), 42.1% indicated a preference for a girls-only KRC with the rest of the group being almost equally split between not

wanting this option (28%) and not knowing if it was their preference (29.9%). Neither the Mann-Whitney (p = .653) nor chi-square tests (χ^2 (2, n=107) = .829, p = .375) revealed a significant difference between the two groups in terms of their preference for a girls-only KRC.

With research indicating that one of the barriers to PA in girls is a lack of PA options that are of interest to them (CAAWS, 2009), past participants were asked if there was another type of PA program they would have participated in but was not offered at their school. Of those who responded (n=26), 51.9% said no. Of those who said yes (48.1%), 12 provided answers when asked to specify of which the top answers were swimming and gymnastics (n=3), and soccer and volleyball (n=2).

Girls' Ideas for Improving KRC

As one of the main goals of formative evaluation is to improve the program being examined (Fitzpatrick et al., 2004), this study sought to gather participants' ideas for improving KRC with the goal of increasing recruitment and retention of girls in the future. The questionnaires asked "If you could change one thing about KRC to make it better, what would it be?" A total of 98 comments were provided including 20 from past participants and 78 from current participants. Five categories emerged through the process of content analysis and are summarized in Table 7. The most common suggestions for improving KRC were related to the distance run. Twenty-six of 29 girls indicated a preference for longer runs. They shared comments such as "Longer runs. More times a week"; "Probably longer running time" and "A longer route would make it more fun." All of the responses suggesting longer run distances came from current participants. Two past participants indicated preferring shorter runs and one for having a choice of distance run. The second most prevalent category that emerged was related to factors that might make KRC more fun such as prizes, treats during/after runs, and playing games. Eighteen girls provided

Table 7

Categories from Participant Feedback Regarding Improving KRC

Category	Number of Comments	Sample Quotes
Alter run distance	29	"A longer route would make it more fun" " Make us do more laps around the trail" " I would add more days and longer distances" " I would make KRC twice a week"
Make KRC more fun (Prizes, treats during KRC, games, etc)	18	"Improve/increase the prizes" " Having a water cooler or a Gateraid cooler" "At the end of the year the school congratulates the runners for working hard" "Water balloons!" "I would make it so you could chose between games or running" "Have a how many km did you run sheet for each month"
Consider running route	13	"Change up the running routes" "Running on the pavement the whole time" " The conditions so maybe have a nicer place to run; Improve the course"
Consider social factor (Friends, family, and coaches)	13	" I just [wish] my friends were in it" "... and that the parents could get off work earlier so they could run with us" "To encourage more girls to run" "Have a girls only KRC so boys don't make fun of (our) running speed and we don't feel like we aren't good"
Consider group composition	11	"If it could only be grade 6's" "We could have a junior KRC for the younger grades" "I would change it to have 4 or 5 kids run in a group"

suggestions within this category such as "Improved prizes", "Water balloons!", and "More games." The fourth category consisted of comments regarding the running route with 13 girls providing either negative remarks about the route they ran or ideas for varied or improved routes.

Suggestions included “Change up the running route”; “Have a better spot to run”; and “Run on flatter ground.” The fifth category also had 13 comments and was related to social support provided by friends, parents and coaches with comments such as “Maybe do a girls only because I find that mostly the boys try to make it a race, which I find annoying”; “A better coach that actually teaches you how to RUN!!”; and “That we run for a longer time and that the parents could get off work earlier so they could run with us.”

The final category consisted of comments related to the composition of the KRC group and included 11 remarks. Suggestions included “We could have a junior KRC for the younger grades”; “To encourage more girls to run”; and “I would make it an all girls and an all boys run club. I would make sure the little kids wouldn’t get in the way.”

Feedback from Coaches

The initial study design projected participation from 10 schools and therefore 10 coaches. Questionnaires were developed to gather information regarding how coaches implement KRC and their ideas for recruiting and motivating participants. With only four of six coaches completing questionnaires, only descriptive analysis was possible. Details regarding aspects of each coach’s program are provided in Table 8. The majority of clubs ran twice per week for an average of 14.75 weeks. In regards to participation numbers, the average group size was 118 participants and approximately 14 coaches. All four groups incorporated several program qualities recommended in the KRC *Coach’s Handbook* (Doctors Nova Scotia, 2014b) including encouraging walking breaks, having coaches run with participants, providing prizes and using a final fun run as a goal event for participants at the conclusion of their program. The percentage of participants who took part in these final runs ranged from 35-70% with an average of 52.5%. Three of four schools also reported playing games during their KRC. Time of day and location

of KRC varied among the four schools.

Table 8

Data from Coaches Regarding KRC Implementation

	Coach #1	Coach #2	Coach #5	Coach #6
Grades included	3-6	P-6	P-6	P-6
Number of participants	50	120	200	100
Coach/Participant ratio	1:5	1:15	1:10	1.5:10
Coaches who run	Yes	Yes	Yes	Yes
Time of KRC	Lunch/after school	Morning	After school	Lunch time
Number of runs/week	2	2	1	2
Number of weeks	21	22	8	10
Run location	Local neighbourhood	School grounds,	Gym, school grounds, local trails	Gym, local trails, local neighbourhood
Encourage walking breaks	Yes	Yes	Yes	Yes
Use counting tokens	Yes	No	No	No
Track distance	Yes	Yes	No	No
Use prizes	Yes	Yes	Yes	Yes
Play games	Yes	Yes	Yes	No
Train for final fun run	Yes	Yes	Yes	Yes
Percentage who do fun run	55	50	35	70

Note: Coach number corresponds with code assigned to each school/coach.

Qualitative feedback from coaches. Despite the limited number of completed coach's questionnaires received, content analysis did reveal two major categories of responses regarding ideas for motivating participation in KRC: the importance of creating a supportive environment for PA; and the use of prizes. All four coaches referenced the importance of creating supportive, positive environments surrounding the KRC experience. One coach described his KRC as "a social club supported by the entire school and that after 10 years of it [KRC], the club has its own reputation." Another coach referenced having created "a culture of participation in school activities (physical and otherwise)" and gave examples of receiving support from local businesses and the HRM Counsellor who donate prizes. Support from parents in creating a sense of community around KRC was referenced by one coach who stated that "having the parents run with the young students motivates them more to participate and develops a greater sense of community." Acknowledging KRC participation at a school-wide level was referenced by one coach who presents participation awards during "Student of the Month" assemblies. The teacher explained that this also provides an opportunity to promote KRC with younger students who are not yet able to participate in the program.

The second category of responses that emerged from the data regarding motivating participation in KRC was the use of prizes. All four coaches reported using prizes in their KRC including participation awards and draw prizes, both weekly and grand prizes.

In terms of motivating older students to take part in KRC, one coach suggested having older students take on leadership roles and offering those students incentives such as extra gym time or special events. Another teacher acknowledged the challenge of recruiting older students to KRC and reiterated the importance of creating a culture of participation from a young age by offering a variety of activities so that the "more students participate in a variety of activities, the

greater [their] comfort level [becomes] with being active." One teacher provided examples of barriers to participation that he sees in his older students such as "issues with hygiene, timing, [and] other pressures" and explained that he intended on meeting with older students to gather their ideas for making the club "work" for them.

Summary of Findings

The findings from this study include mainly quantitative data gathered from a sample of 109 girls who were past and current participants in KRC and four coaches who implemented the program. Study participants also provided some qualitative data that were reviewed and analysed using content analysis.

Statistical analysis reveals that current and past KRC participants differ significantly in the majority of intrapersonal, interpersonal and environmental factors identified within the context of the SEM. Current participants are significantly more likely to be younger students who have participated in KRC for a longer period of time; report higher rates of PA, and enjoyment of KRC, PA and running; have more friends in KRC and who are active; like their KRC coaches; and have parents who encourage them to join KRC. Although both intrapersonal and interpersonal composite variables were significantly related to participation status, it was those related to social support that had stronger predictive values. The top reasons given by the girls for taking part in KRC included because it is fun, enjoying running, to improve their running, and because running is good for them. Those who no longer participate in KRC reported lack of time and no longer enjoying running as their top reasons for leaving the program.

Content analysis conducted on data regarding girls' ideas for improving KRC revealed five categories of suggestions related to: the distance run during KRC; aspects that make KRC fun such as prizes and playing games; the running route; social support provided by peers, coaches

and family; and the composition of the KRC group. Feedback from coaches regarding ideas for motivating participation in KRC emphasized the importance of creating a culture that is supportive to PA and the use of prizes to encourage and reward participants.

The final chapter discusses the findings, limitations of the study, study implications, and plans for disseminating the study results.

Chapter 5: Discussion

This chapter provides a commentary on the key study findings as they relate to the original evaluation purpose and questions; limitations of the study; implications for future implementation of KRC and health promotion practice and research; and plans for disseminating the results.

The findings from this evaluation demonstrate that there are many individual, social, and environmental factors that are associated with KRC participation by girls in this study. Many of these results mirror those found in the literature on PA in girls. Although the main reasons given by past participants for not joining KRC were lack of time and no longer enjoying running, the findings would indicate that other factors may have influenced their decision.

Intrapersonal Variables Associated with Participation in KRC

Grade/Age. The fact that current participants were more likely to be in lower grades (4-5) is supported by the evidence that shows younger girls having higher rates of PA (Colley et al., 2011; Thompson & Wadsworth, 2012) and is a trend that has been observed in a previous KRC evaluation (Doctors Nova Scotia, 2012). The decline in participation in KRC by girls as they age is one of the factors that lead to the development of this study and reinforces the need to find ways to alter the program so that it is more attractive to girls in this age-group.

Self-perceived ability to be active. Feeling good about one's ability to be active has been linked to PA in girls in many studies (Allison, Dwyer, & Makin, 1999; Carroll & Loumidis, 2001; Vander Ploeg et al., 2013). Research has also shown that higher rates of self-efficacy regarding PA result in lower rates of decline in PA in girls aged 10-18 years (Craggs, Corder, van Sluijs, & Griffin, 2011). It would seem natural that girls who believe they have a higher level of ability would be more likely to participate in a program such as KRC. The majority of

the total sample (56.6%) ranked themselves as being good at most types of PA, however, past participants were more than twice as likely to rank themselves in the lower (but not lowest) category of being good at "some" types of PA compared to the current participants. Although it is possible that feeling less competent at running contributed to the decision to leave KRC, the fact that no past participants selected the "not good at any types of PA" response may suggest this variable did not play a significant role in their decision.

Enjoyment of PA. The correlation between enjoyment of and participation in PA has been well documented in the research on PA in girls (CAAWS, 2009; Girls Action Foundation, 2012). When examining various findings from this study related to the impact of overall enjoyment on participation in KRC, the results are inconsistent. While the majority of the total sample reported high levels of enjoyment of PA, past participants were significantly more likely to report a lower rate of enjoyment, but none indicated a total dislike of being active. When asked if there was another type of PA program they might have participated in had it been available at their school, less than half the past participants said "yes", suggesting that lower rates of enjoyment of PA may not have played a significant role in the girls' decision to leave KRC.

In terms of enjoyment of running, there was a significant difference between the two groups of girls with current participants reporting higher overall rates of enjoyment. Although no longer enjoying running was the second most common reason (38.5%) given for leaving KRC, only 19% of past participants reported not liking running when asked to rate various aspects of KRC (question 9 in Appendix F). It is difficult to make conclusions about this inconsistency in the findings other than perhaps the social desirability bias influenced some of the responses given by past participants.

Improved running/experiencing success. Achieving a sense of mastery and success in PA has been shown to be related to increased rates of PA (CAAWS, 2011, 2012; Girls Action Foundation, 2012) so it is not surprising that current participants were more likely to report an improvement in their running while taking part in KRC. It is also possible that seeing improvements in running abilities results in increased enjoyment of KRC, reinforcing continued participation. These findings support the importance of KRC providing opportunities for participants to experience success and improvement by ensuring progression of running is gradual in terms of distance and run/walk intervals. Perhaps some of the girls who stopped participating might have continued had they experienced more success.

Rates of PA, current and past. The findings regarding rates of PA by study participants were somewhat surprising and inconsistent with current evidence. Research on PA in girls consistently shows that only a small percentage of girls aged 5-17 years meet the PA guidelines of 60 minutes per day of MVPA and that their rates of activity decline after Grade 3 (Colley, 2011; Public Health Agency of Canada, 2011; Thompson & Wadsworth, 2012). Of the 108 girls who responded to the question regarding the number of days they achieved 60 minutes of MVPA during the past week, 81.5% selected 5 or more days. Data from the Keeping Pace study (Thompson & Wadsworth, 2012), which examined rates of PA by grade and gender in Nova Scotia youth, revealed that approximately 80% of girls in Grade 3 reported reaching this standard but by Grade 7, only 13% where as active. As more than 70% of the girls in this study were in Grades 5 and 6, their reported rates of PA exceeded what would be expected and those documented in Keeping Pace. Also surprising was the fact that 82% of girls said they were more active now than last year, which contradicts the research that consistently demonstrates a decline with age (Colley, 2011; Public Health Agency of Canada, 2011; Thompson & Wadsworth,

2012). The fact that this study was based on self-reported measures of PA, which are subjective, may have resulted in inaccurate responses. Evidence suggests that self-reported measures of PA in children tend to result in over-estimations and inaccuracy due to difficulties with memory (Loprinzi & Cardinal, 2011). The results from this study indicating such high rates of PA and increased PA during the last year far exceed the self-reported findings reported by Loprinzi and Cardinal. Another probable explanation for these inconsistencies is the social desirability bias, which occurs when respondents feel compelled to provide the 'right' or most acceptable answer (Brener et al., 2003; King & Bruner, 2000; Loprinzi & Cardinal, 2011).

Despite concern over the accuracy of the reported rates of PA of study participants, the data revealed a significant difference when comparing activity levels by participation status. Current participants reported higher rates of PA during the previous seven days and were more likely to report maintaining or increasing their rates of PA over the last year. These results are supported by evidence which shows that previous experience with PA is associated with higher rates of activity (Sallis et al., 2000; Sterdt et al., 2014), leading one to conclude that those who are active are more likely to continue to be active and therefore report higher rates of activity. Other findings demonstrate that school-based PA interventions can result in higher rates of PA in participants (Beets et al., 2009; Dobbins et al., 2013; Kahn et al., 2002). Although the design of this study prevents causal conclusions from being made, it is possible that participation in KRC is contributing to higher rates of PA in its participants. However, it is also possible that girls who are more active are simply more likely to participate in the program. Future evaluations of the program using a summative approach and more objective measures such as pedometers and a control group could be conducted to explore this further.

Composite intrapersonal variable results. The composite intrapersonal variable was introduced to try to create a more comprehensive representation for a complex construct. The composite variable created to represent intrapersonal factors was found to be related to participation in KRC with current participants scoring significantly higher than past participants. This result supports the conclusion that factors other than lack of time and no longer enjoying running may have influenced girls' decision to participate in KRC. In other words, the fact that current participants reported higher rates of PA, enjoyment of PA and perceived ability to be active may have contributed to their decision to continue participating in KRC. For those girls who left the program, the lower ratings regarding these factors may have contributed to their decision to withdraw from KRC. The use of composite measures in future research on this issue is suggested as it may be unlikely or difficult for girls to identify and/or acknowledge intrapersonal factors as influencing their rates of PA. Future use of composite measures in health promotion can be supported by research examining their use and development including, for example, creating guidelines regarding how to determine which factors are suitable for inclusion in composite measures.

Girls' motivation for joining KRC. When considering the results for girls' reasons for joining KRC using a SDT lens, what is remarkable is that the top three reasons for joining KRC given by girls who no longer participated (past participants) were extrinsic forms of motivation: to achieve health benefits; to be with friends; and to improve their running. Two of the top three reasons given by current participants were intrinsic and autonomous: because they like to run and because KRC is fun. This supports the SDT which states that forms of motivation which are intrinsic and autonomous are more likely to result in the desired behavior and to sustain that behavior (Gillison et al., 2012). These results should be considered when trying to attract more

girls to KRC in the future. While continuing to ensure KRC is fun and socially supportive, it may also be important to find ways to educate potential members about the health benefits of running and to ensure they have the opportunity to see improvements in their running.

The overall findings regarding girls' reasons for joining KRC such as enjoying the activity (running), being able to see improvement, doing an activity which improves health, and having fun supports what is seen in the literature regarding factors which are associated with PA in girls. In a qualitative study conducted with adolescent girls by CAAWS in 2009, all of these factors were identified as reasons for taking part in PA. As is described in the KRC logic model (Appendix C), providing these experiences for participants is at the foundation of KRC and something that all coaches are encouraged to keep in mind. These findings reinforce the importance of ensuring KRC is implemented in such a way that is fun, provides an opportunity for participants to experience success, and educates about the connection with PA and good health.

Girls' reasons for leaving KRC. As with the decline in PA in general, there are many factors that may influence girls' decisions to leave KRC. The data provided by past participants reveal that their main reason for no longer taking part was lack of time. A secondary reason, although to a much lesser extent, was no longer enjoying running. Research demonstrates that lack of time and loss of interest are common reasons given by girls for not taking part in PA (CAAWS, 2009; Dwyer et al., 2006; Sterdt et al., 2014) and therefore these responses are in line with other findings. Despite this fact, there is concern as to whether participants' open format answers were influenced by the wording of the question regarding reasons for not participating. This potential bias is discussed further in the limitations section, but the fact that the study findings reveal significant relationships between numerous intrapersonal, interpersonal and

environmental factors and participation, may indicate that participants' reasons for not participating extend beyond those provided.

Findings Related to Interpersonal Variables

With research showing that support from significant others such as friends, family, coaches and teachers can lead to increased participation in PA by girls (Bauer et a., 2011; Camacho-Minano et al., 2011; CAAWS, 2009; Humbert et al., 2006; Salvy et al., 2009; Vander Ploeg et al., 2013; Yungblut et al., 2012), one of the goals of this study was to examine these interpersonal factors to determine if they are associated with participation in KRC. Several questions were included on the questionnaires to obtain information regarding the extent to which this factor was associated with participation in the program and examined support from peers, family and KRC coaches.

Support from peers. As was described in the previous chapter, the findings regarding support provided by peers were mixed. Although 99% of current participants said having friends with them in KRC made it more fun and 85% of the total sample identified being with friends as one of the aspects they like about KRC, only 42% identified being with friends as a reason for joining KRC and only 11.5% of past participants identified lack of friends in KRC as a reason for not taking part. With research showing that support from peers is closely related to rates of PA in girls (Barkley et al., 2014; Camacho-Minano et al., 2011; MacDonald-Wallis et al., 2012; Yungblut et al., 2012), it was surprising that more girls did not identify being with friends as a reason for joining and lack of friends as a reason for not continuing. One possible explanation is that the wording of this answer option in the questionnaires ("My friends are taking part" and "None of my friends are taking part") impacted the number of girls who selected it. Something

to be considered for future evaluations to explore this hypothesis would be to change the wording to “To be with my friends” and “I didn’t have any friends in the club”.

In terms of comparisons between past and current participants, those who were taking part in KRC were significantly more likely to report having friends who were also taking part. This result supports findings in the literature (CAAWS, 2014; McLeroy et al., 1988; Stokols, 1992; Yungblut et al., 2012) and was expected. As KRC is a non-competitive program that tends to attract fairly large groups at elementary schools (Doctors Nova Scotia, 2015), it is not surprising that it attracts groups of friends who want to take part together. These findings support the importance of continuing to encourage KRC coaches to promote KRC in such a way that it attracts large proportions of their students. This can be done by reinforcing the fun, non-competitive aspect, using prizes, and having final fun runs to use as grand finales to the program. Coaches can also be strategic in recruiting participants by ensuring students seen as leaders by peers are included, by encouraging a ‘bring a friend’ approach to recruitment.

Support from parents. The findings regarding support from parents demonstrate that the majority of study participants were encouraged by their parents to be active (90.7%) and to take part in KRC (66.4%). Although no significant difference exists between the two groups in terms of parents encouraging PA, current participants were significantly more likely to report that their parents encouraged them to take part in KRC. The fact that parents can play a significant role in their children’s PA by being encouraging has been consistently demonstrated in the literature (Bauer et al., 2011; CFLRI, 2015; Molt et al., 2007; and Vander Ploeg et al., 2013) so was not surprising to see as a significant factor in this study. In this case, however, it would appear that the significant difference in terms of parental support was that girls who no longer take part in KRC were less likely to receive encouragement to take part in the program. This suggests that

finding ways to engage parents in encouraging and supporting their children's involvement in KRC may lead to increased participation and retention of girls in the future. This can be done in partnership with KRC coaches to deliver messaging to parents about the importance of their support and possibly inviting them to be directly involved in the program at school.

One final interpersonal factor that was explored in this study was whether family members began running when the participants joined KRC. This factor was explored not only because it may indicate an additional aspect of support from family members, but also because if provides information about a secondary impact of KRC. The findings reveal that 40.2% of total sample reported having a family member who started running when they joined KRC, however, testing did not reveal a significant difference when comparing results by participation status. There is evidence in the literature that modeling and engaging in PA by parents can have a positive impact on rates of activity in their children (Bauer et al., 2011; Griffith et al., 2007; Vander Ploeg et al., 2013), so it is surprising that study results did not show a difference for this measure between the two groups of girls. When reflecting on this result further, it was determined that this question was not an accurate measure of whether parents model PA but rather whether they began running at the same time as their child began KRC. Future KRC evaluations can better address this factor by asking participants about parents' rates of running and overall PA in order to obtain results which better reflect rates of modelling. One final note of interest from the results regarding family members starting running was that of those who reported having family members start running, 56% identified their mothers as that person. This higher percentage of mothers being involved in PA with their kids has been documented in the literature (Griffith et al., 2007) and observed by the researcher when visiting participating KRC schools. Parents are often encouraged to assist with KRC and anecdotal observations suggest that mothers outnumber

fathers. Based on the evidence cited that documents the positive impact parents' participation can have on children's rates of PA, KRC coaches could make an effort to engage them in the program as volunteers in a number of ways including running with the group, standing on street corners for safety and encouragement, or handing out popsicle sticks used for tracking laps run. As seen as some schools, including parent volunteers can not only enhance to program for participants, but can also lighten the organizational load for coaches.

Support from coaches. As explained in the previous chapter, the findings regarding potential support from KRC coaches indicate that participants like their coaches, believe they make the program more fun and offer encouragement. The only significant difference between the two groups of girls across these three factors was that current participants report higher ratings of liking their coaches. Although only two of three of these factors show a significant relationship with KRC participation, the findings do reinforce the importance of the role the coach can play in participation by girls. With evidence indicating that girls' PA rates are associated with having fun, feeling welcome, having a sense of comfort and experiencing success (CAAWS, 2012), the role the coach plays in providing these opportunities during KRC is crucial. Anecdotal observations of KRC programs across the province made during school visits confirm that coaches who are more energetic, enthusiastic and encouraging tend to attract larger groups of kids. Although Doctors Nova Scotia cannot mandate these characteristics for KRC coaches, it can continue to reinforce the important role coaches play in making KRC fun and provide ideas for how they can enhance their programs and promote participation.

Composite interpersonal variable. As with the intrapersonal variables, a composite variable was created to represent multiple interpersonal factors related to social support for PA and KRC participation. Once again, the findings indicate that current participants recorded a

higher score for this combined measure, indicating higher degrees of perceived social support from parents, peers and coaches. This result also supports the conclusion that participation in KRC is influenced by a multitude of factors. Although neither current nor past participants indicated the presence of friends, support from coaches or parents as being their main reasons for taking part in or leaving KRC, it would appear that these factors play an important role in influencing their participation. Finding ways to incorporate these sources of support in KRC and similar interventions may contribute to increased participation by girls.

Comparison of Intrapersonal and Interpersonal Variables

A reverse step-wise logistic regression was performed to compare the relationships between the two composite variables and participation status. Although each composite variable was found to be significantly related to participation in KRC when examined independently, when the two variables were analysed together using the step-wise logistic regression, the strength of the composite interpersonal variable resulted in reduced significance of the composite intrapersonal variable. These results indicate that the variables related to social support have stronger predictive values for KRC participation than those related to intrapersonal factors. This is interesting as one might conclude that girls who are currently active and have a sense of confidence in being active might still participate regardless of the degree of social support they receive. The strength of social support influences over rates of PA was shown in a 2009 study with adolescent girls where even those girls who reported high rates of PA self-efficacy showed a decline in PA if they perceived low rates of social support for being active (Dishman et al., 2009). The fact that the interpersonal variables demonstrated stronger predictive values for KRC participation than those related to intrapersonal factors might be explained by the fact that KRC is a non-competitive program that attracts girls of all abilities. Previous experience with running,

rates of activity and self-perceived ability to be active are not prerequisites for participating in KRC and because it is a club as opposed to team, the social climate created by peers, parents and coaches may play a more significant role in influencing participation.

Findings Related to Environmental Variables

Factors examined from this category include measures of the program quality represented by how much participants liked it; their preferences for timing, frequency and length of runs; training for a fun run; aspects of the program they like/dislike; and whether a girls-only option is of interest.

The majority of the girls in this study identified liking KRC a lot as well as liking most aspects of KRC. The relatively low rating of the *Runner's Handbook* was not a surprise as similar results were seen in a previous KRC evaluation (Doctor Nova Scotia, 2012). It's possible that while girls like receiving a prize, such as the water bottle, they are not interested in being 'educated' by the information provided in the handbook. Although the majority of girls indicated joining KRC to achieve health benefits, this does not necessarily translate into an interest in receiving information related to that topic. However, it does warrant future exploration as to whether there are types of information girls may be interested to determine if continuing to produce the *Runner's Handbook* is a good use of Doctors Nova Scotia resources.

The feedback on timing and frequency for KRC was only gathered from current participants so the lack of feedback from past participants prevents any comparative analysis. The results reveal that girls' preferences are for an after school club that runs twice a week for anywhere between 15 and 45 minutes. Although specifics regarding program implementation were not included in the literature review, interactions with KRC coaches reveal that there are some challenges with the after school time period including transportation difficulties and

conflicts with other activities. Interestingly, none of the past participants identified these factors as reasons for not taking part in KRC. With research identifying the after school period being as being a critical determinant of PA in children (AHKC, 2011), further efforts should be made to explore ways to incorporate PA opportunities during this window including solutions for overcoming barriers identified by KRC coaches. Offering KRC at lunch time can address some of the challenges mentioned above but presents its own challenges such as inadequate time and having to run after eating lunch due to the school's schedule.

Another environmental factor examined in this study was participants' involvement in community-based fun runs. KRC coaches are encouraged to find a final run for their participants to train for and as a way to celebrate all their training. During the 11 years of KRC, coaches, participants and parents have provided feedback regarding the impact this fun run experience can provide for participants, not only for a sense of satisfaction in having accomplished a goal, but for encouraging participation in KRC the following year. The findings from this study confirm the popularity of these events and reinforce the importance of encouraging schools to find local events they can use as finales to their KRC and helping them find ways to reduce the barriers to participation such as registration fees and transportation.

A common barrier to PA identified by adolescent girls is getting sweaty (CAAWS, 2009; Tucker Center for Research on Girls & Women in Sports, 2007; Vu et al., 2006) and therefore participants in this study were asked to rate their views on getting sweating during KRC. Surprisingly, only 39% said they didn't like getting sweaty while 42% said they liked it 'a little' or 'a lot'. While past participants were twice as likely to report not liking getting sweaty, the overall findings may indicate that sweating is less of an issue for this age group than it is for adolescent girls as reflected in the literature. Feedback from girls who have never participated in

KRC regarding sweating would be helpful in determining the extent to which it is a deterrent for participating in KRC.

With research indicating that adolescent girls report liking girls-only programs (CAAWS, 2009; Tucker Center for Research on Girls & Women in Sports, 2007; Vu et al., 2006), and that girls-only programs are associated with positive outcomes for girls aged 5-11 years (Biddle et al., 2014), this study sought to examine this program option to see if participants would identify it as a more desirable option than the traditional KRC which is co-ed. It is surprising that less than half of the girls surveyed in this study indicated a preference for a girls-only KRC. An evaluation conducted with participants of the girls-only KRC in junior and senior high schools in 2013 provided very positive feedback about the girls-only setting (Doctors Nova Scotia, 2013). The findings from this study may indicate that the girls-only setting is not as important for this age-group as it is for teenage girls and reinforce the need for further exploration, both for KRC and research on PA interventions for girls in general.

Findings Related to Feedback on KRC and Ideas for Improvements

Being a formative evaluation, one of the most important outcomes of this study was to produce findings that may inform changes to improve the program in the future. Both the girls and coaches who participated in this study were asked to provide information and feedback about their KRC. Students were also asked to rate different aspects of the program such as the *Runner's Handbook* and water bottle, and how much they liked increasing their run distance, stretching, their coaches and training for a fun run. With only six schools taking part in this study, it is possible the results do not reflect the average KRC being offered across the province. It is worth noting some differences in these programs compared to the typical KRC seen during school visits and documented in previous KRC evaluations (Doctors Nova Scotia, 2012).

Looking at KRC data provided by Doctors Nova Scotia (2015), five out of six schools included in this study have groups larger than the average KRC of approximately 70 participants. Of the four coaches who provided completed questionnaires, all reported implementing their programs for longer than the recommended minimum of eight weeks and having significantly more coaches than at most participating schools. All four groups also incorporate several suggestions included in the KRC *Coach's Handbook* (Doctors Nova Scotia, 2014b) to enhance the program including encouraging walking breaks, having coaches run with participants, providing prizes and using a final fun run as a goal event for participants at the conclusion of their program. Three of four schools also reported playing games during their KRC. Based on observations made by the researcher during school visits throughout the province, the schools that participated in this study are exceptional and differ from the average school in terms numbers of participants and coaches and use of optional components which enhance the experience for students. This reduces the likelihood that the study results can be generalized to the total KRC population.

Participants' ideas for improving KRC. The most common suggestion for improving KRC was to run longer distances. This result was not expected as research shows girls being less likely to enjoy vigorous forms of PA (Clark, Spence, & Holt, 2011), of which running certainly qualifies. As none of the past participants recommended longer distances, and in fact two suggested shorter distances, it may be that this feature is not something girls who are reluctant to participate in KRC would enjoy. One explanation for this unexpected result is that there is a possibility that girls who completed the surveys together, as was witnessed by the researcher at one school, may have shared ideas for some of the open formatted questions such as this one, resulting in an artificially high number of responses. Regardless, providing distance alternatives

to KRC participants is something that may result in higher rates of enjoyment for all and will be considered for addition to the KRC *Coach's Handbook*.

The second largest category was related to factors that contribute to fun in KRC. Several girls made suggestions regarding prizes and playing games. Keeping PA interventions for girls fun is an important factor identified in the literature (CAAWS, 2009, 2012) and is at the foundation of KRC (Doctors Nova Scotia, 2014a). These findings support the importance of ensuring PA interventions such as KRC focus on fun rather than competition.

The categories regarding group composition and social support overlapped somewhat in regards to how different compositions might provide different amounts of support and enjoyment. Several girls suggested girls-only groups or groups where different ages were separated. Although less than half of the overall sample indicated a preference for a girls-only KRC, the suggestions made under ideas for improvement reinforce the need to continue exploring the need for a girls-only program at the elementary level. The suggestions regarding group composition point to the fact that girls have preferences for how the group is composed. This topic warrants future examination by both Doctors Nova Scotia and individual coaches at schools who can solicit feedback from participants regarding their preferences.

Comments regarding the running route were varied as well but for the most part seemed to suggest ideas about where to run that would make the program more enjoyable such as avoiding running on hills and pavement and varying the route. Although some schools are limited as to options for running routes, offering suggestions that may help them keep variety and reduce difficulty in their routes may contribute to increased enjoyment by all participants.

Coaches' ideas for motivating participants. Although only four coaches provided completed questionnaires, their feedback was valuable. As mentioned above, five out of the six

coaches in this study have been successful at creating KRCs that attract large numbers of participants. As KRC is an extra-curricular program, large numbers likely reflect a program that is popular with students. The main ideas provided by coaches regarding ways to recruit and motivate participants were related to creating a culture of participation within the school and using prizes. Two coaches spoke of how KRC has become part of the culture of the school and some of the ways they promote that culture. As stated above, it is the researcher's view that the coaches who participated in this study are, for the most part, exceptional. They incorporate many optional qualities that make KRC more fun and have energetic, friendly and enthusiastic personalities making them popular and well-liked by their students. Although it is clear that the coach plays a vital role in KRC success, it is impossible to control this aspect of program implementation as coaches are volunteers with varying personalities and amounts of time and energy. The information provided by coaches in this study will be helpful to share with other coaches when providing tips on implementing the program in the future.

Limitations of the Study

Several limitations were identified including potential bias by the lead researcher, various weaknesses with the sample and shortcomings in the questionnaires. The following section discusses these limitations as well as potential strategies for addressing them.

Limitations of the role of the researcher. As previously mentioned, the lead researcher for this study is also the coordinator of KRC and has been involved with the program since its inception in 2004. In the field of evaluation, the use of an internal evaluator, such as in this case, can result in increased bias and reduced objectivity (O'Connor-Fleming et al., 2006). The high degree of familiarity with KRC and vested interest in the program had the potential to result in a biased view by the lead researcher. Ongoing reflection, consultation with the study supervisor,

thesis committee, Doctors Nova Scotia staff and KRC stakeholders assisted with limiting this potential bias.

The dual role of the lead researcher also had the potential to provide some benefits to the study. In-depth knowledge in the field of study can be strength in terms of providing background knowledge and is referenced as a strategy by Creswell (2014) when discussing ways to address threats to validity. Long-term involvement with KRC provided the lead researcher with a familiarity of the program, coaches and participants. This experience, along with the results from previous evaluations including the one done on the girls-only KRC, provided the researcher with information about the issues related to girls taking part in KRC. Experience in visiting hundreds of KRC programs since 2004 provided an overview, although anecdotal, for what the norms are for program implementation. Lastly, being able to use established relationships to assist with recruitment of coaches was an asset, particularly when faced with the challenges that occurred due to the weather-related delayed start of the program. It is quite possible that several of the coaches agreed to support this study because of the existing relationship with the lead researcher.

In summary, although the dual role of the lead researcher had the potential to result in some limitations for this study, strategies were implemented to minimize their impact and positive outcomes resulted as well.

Limitations of the sample. Several limitations of this study are related to the sample. The use of a non-probability, convenience sample means the results cannot be generalized to the entire KRC population, nor the population of girls in Grades 4-6 in KRC or in general (Field, 2013; Taylor-Powell, 1998). Although this type of sample does create limitations in terms generalizability, the results do provide data from participants regarding their specific experiences

with and views of KRC that may be helpful understanding factors that support or deter participation in KRC. The relatively small size of the sample (n=109) and the fact that all six schools were located in HRM were also limitations of this study. The Halifax and Cape Breton boards were selected due to their high KRC participation numbers and proximity to KRC staff that could assist with distribution and collection of study materials. The lack of schools/coaches from the CBVRSB resulted in a smaller and less diverse sample than had been projected in the research proposal, which was created prior to the KRC season. If there had been advanced knowledge of the recruitment challenges, other boards could have been included in the study resulting in a more robust sample.

Another potential limitation with the sample is the imbalance of current and past participants. Of the total sample of 109 girls, only 27 are past participants. As anticipated, recruiting past participants for this study was challenging and although a better balance would have been preferred, past participants are represented by approximately 25% of the sample drawn from five different schools (one coach recruited only current participants). The small number of past participants also had a negative impact on data analysis, particularly crosstabulations of certain variables, which included cells containing fewer than five units, preventing the use of Pearson chi-squared test. Although this unbalanced representation of participation was not ideal, the large number of significant results and effect sizes indicate that it did not impact the integrity of the study.

A significant limitation related to the sample is the absence of girls who have not participated in KRC. The research proposal identified this population in the delimitations of the study as including them was beyond the scope of the project. After reviewing the data, it became clear that these girls may be able to share additional information regarding reasons for not

joining KRC and potential barriers for girls in senior elementary school. Including this population will be considered for future evaluations of KRC.

The fact that study participants came from schools that have been accessed through KRC coaches who volunteered to assist with the study has been identified as a potential limitation. As discussed above, the coaches in this study do have clubs which are exceptional. There is a possibility that the coaches who volunteer to participate in the study are those who are more engaged with KRC and are positively biased towards the program. It is possible these coaches are more invested in the program and put more effort into making it fun, non-competitive, and accessible to all. It is, therefore, possible that the experiences of girls in this study are different from those who attend schools with coaches who are not as engaged. Despite this potential limitation, the feedback provided from the study participants is still relevant and valuable in determining how KRC can be improved.

Limitations of the measurement tool. The final limitations identified with the current study are related to the measurement tools being used to gather data. Both the girls and coaches were asked to provide their feedback using self-completion questionnaires. Although the literature review included extensive searches for existing questionnaires and previous program evaluations with proven validity and reliability, the nature of the evaluation required the development of unique and specific questions related to KRC. In an effort to improve reliability and validity, the questionnaire development was guided by best practices defined in the literature and was pretested by two youth prior to general distribution.

Social-desirability bias is a common source of bias effecting research (King & Bruner, 2000) and may have impacted the results of this study. Although steps to protect participants' anonymity were taken to reduce this effect, the results suggest that social desirability impacted

answers given by the girls. The fact that a very small percentage of the overall sample indicated not liking KRC (2.8%) or that it was not fun (2%) may indicate that girls' answers were influenced by what the girls' thought their coaches and the researcher wanted to hear. Another example of this was the fairly high rates of self-reported PA, both current (last seven days) and compared to the last year. The majority of girls indicated rates that significantly exceed those seen in the research on self-reported rates of PA (Garriguet & Colley, 2014; Public Health Agency of Canada, 2011). Although it is possible that the girls in this study are simply more active than average girls, these results suggest that they may have been providing answers they considered more desirable.

The use of self-reported measures for rates of PA is also a limiting factor of this study and one that has known disadvantages documented in the literature (CFLRI, 2013). Had the overall goal of this study been to measure the impact of KRC, particularly in regards to rates of PA, a more objective measure such as accelerometry might have been utilized. For the purposes of this study, it was determined that the self-reported data might provide some information for comparing PA rates of the two groups of girls.

As previously indicated, all questionnaires included open and close formatted questions. The reason for this was to ensure that respondents had an opportunity to provide information that was unique and unprompted. This was particularly important when gathering girls' reasons for not participating in KRC. To ensure that genuine responses were provided an open formatted question regarding their reasons preceded a multiple choice option (see questions 2 and 3 in Appendix F). When creating the questions, the researcher hypothesized that the girls might struggle to find answers to the question and that the social desirability bias might result in some girls being uncomfortable stating that they didn't like to run. To address these concerns, the

question was worded "It's important for us to know why you didn't join KRC this year. It may be as simple as not having time or because you no longer like to run. Please share your reason(s) for not joining this year". Although this format may have put some girls at ease in terms of being honest about their reasons, the results suggest it may have also influenced their answers. Although the fact that triangulation demonstrated very similar answers to the same question in multiple choice format may indicate that these responses were genuine, there is also a possibility that the suggestions provided in the first question influenced their selections in the multiple choice option as well. The responses regarding girls' reasons for not participating may have been very different had the two examples not been given. Careful consideration needs to be given to the development of future questionnaires with this population to avoid this from occurring.

Study Implications for KRC

One of the most important outcomes of this study was to gather data to improve KRC so that more girls can be recruited and retained in the future. Results showed that interpersonal/social factors played the biggest role in predicting participation in the KRC by girls. The primary implications for KRC are to discover ways the program can be enhanced in terms of its social environment and climate.

Feedback from participants and coaches demonstrates the importance of creating a KRC experience that is fun, supportive, flexible, and enticing. Various practices that can help create this kind of experience are included in the *Coach's Handbook* (Doctors Nova Scotia, 2014b) but realistically require extra time and energy many coaches do not possess. Based on the findings of this study, several new recommendations regarding the importance of social support can be made that may not require much additional work by coaches. Emphasizing the importance of

having parents support their children's participation either by encouraging them to take part or volunteering to help out may result in more girls joining and remaining in the program. Having increased participation by parents may also lessen the load of responsibility for coaches and help them to create a better program. Another fairly easy suggestion for coaches is to reinforcing the non-competitive aspect of KRC, which may result in an experience that is more enjoyable for girls.

Whether or not Doctors Nova Scotia should introduce and encourage a girls-only program for elementary schools remains unanswered. Although approximately 40% of the girls indicated a preference for such a program, the majority did not. Doctors Nova Scotia has been successful at getting the traditional, co-ed version of KRC into many schools across the province with an average of 70 boys and girls taking part. Recommending that some of those schools start to turn away boys so that an all-girls club could be established does not make sense. It may be that the girls-only option is better suited for adolescent girls than for those who are younger. Further research is required with girls of this age to determine the effectiveness of girls-only programming.

Another important finding for KRC is the need to review the usefulness of producing hard copies of the *Runner's Handbook*. This issue has been on the radar for Doctors Nova Scotia since 2011 when a previous evaluation revealed less than 50% of participants reported reading the handbook (Doctors Nova Scotia, 2012). Doctors Nova Scotia continued producing the book as just over 50% of participants indicated showing it to their parents. The findings from this study reinforce the fact that the handbook may not be meeting the needs or expectations of participants and needs to be revisited. An important impact of the handbooks that should not be lost in the event the decision is to no longer provide them to participants is the potential sharing

of messaging with parents. As shown in the literature, parents can play an important role in influencing, supporting and modelling PA for their children (Vander Ploeg et al., 2013; Yao & Rhodes, 2015). Because of this, Doctors Nova Scotia should consider providing some form of messaging to participants that can be shared with parents reinforcing the important role they play in supporting their children's PA.

The results of this study reinforce the importance of encouraging KRC coaches to consider various ways of improving their program to better meet the needs of participants. Some of the suggestions coming from this study that will be reinforced with future KRC coaches are to create a culture of participation by involving the whole school community; varying the running route; breaking their group up by age group and possibly gender; providing distance options; including parents; and using prizes to reward participation.

Finally, as KRC evolves in response to changing populations and needs (such as the addition of the girls-only junior high program introduced in 2013), the program logic model (Appendix C) will need to be revisited and revised to ensure the activities and objectives continue to be relevant and aligned with desired outcomes.

Study Implications for Health Promotion Practice

The findings of this study, although specific to implementing a program involving running, provide some insight into aspects of PA interventions that are important to girls, regardless of the activity. Sharing information about the stronger predictive values for interpersonal factors over those that are intrapersonal may assist other practitioners in creating programs that are more effective at promoting participation by girls. The importance of creating a culture of PA within schools and other settings should be considered by other practitioners. Understanding that social norms can influence health behaviors such as PA (Ball, Jeffrey, Abbott, McNaughton, &

Crawford, 2010), attention should be given to ways to create a social climate that is supportive to PA which may then increase the effectiveness of future PA interventions.

Finding ways to engage more individuals in the implementation of school-based PA programs such as other school staff, family members and community members has the potential to not only improve effectiveness of PA programs (Naylor & McKay, 2009), but to assist with creating a culture of PA, lighten the load of responsibility for teachers, and extend the impact of the program (i.e. the opportunity to be active through running) to those individuals. The findings of this study and a previous KRC evaluation (Doctors Nova Scotia, 2012), demonstrate the potential for parents to engage in running when their children participate in the program. Coaches have also indicated that they run with the participants. Future PA interventions and evaluations may want to explore these potential secondary impacts of school-based interventions further.

The findings from this study regarding participants' views about girls-only programming leave more questions for health promotion practice and research such as "At what age do girls benefit most from girls-only programs?" and "Are less active girls better suited for girls-only programs?" It is important that future practice and research address these questions if we are to provide effective PA interventions for girls.

Although the majority of girls in this study indicated enjoying running, 38% of those who left the program reported not liking running as one of their reasons for no longer participating. Forty-eight percent of those girls also stated that there are other types of activities they would participate in such as swimming and gymnastics that are not offered at their schools. Based on these results and the fact that girls' participation in KRC declines as they approach senior elementary grades, there may be other activities that provide a more positive experience for girls

of this age. It is important that other practitioners share information about the types of activities that are popular with girls in their programs.

The current study examined the association of participation in KRC with three levels of the SEM: intrapersonal, interpersonal, and environmental. Although policy level factors were not included, it is important that they be considered in future practice and research. As schools have been identified as critical settings for PA interventions for children and youth (CFLRI, 2009), efforts should be made to support their implementation in all aspects, including through policy. Research by Naylor and McKay (2009) shows that interventions at the policy level such as increased physical education, incorporating activity breaks during class time, and funding to support enhanced physical structures that support PA such as equipment, can result in increased PA. Policies can also be implemented to ensure that teachers who implement extra-curricular PA programs for students be given adequate support and compensation. Policies designed to ensure vulnerable populations of children and youth, such as Aboriginal and African Nova Scotian as well as lower socio-economic neighbourhoods, should also be explored and introduced in an effort to address the disparities that exist in regards to opportunities to be active.

This study demonstrated the value of using the SEM, both as a foundation for program development and for evaluation in health promotion practice. The SEM provides a comprehensive lens for examining and addressing health issues in individuals and at the population level. Incorporating this model may assist in the development of more effective and sustainable health promotion interventions in the future.

Finally, a significant implication for health promotion practice revealed by this study is the importance of evaluation. Although this practice may be undervalued and avoided by many practitioners, it is a crucial aspect of ensuring program quality and helping those who provide

programs to determine when and how programs need to evolve to meet clients' needs. Without evaluation, practitioners will only be making educated guesses about the effectiveness of their programs.

Study Implications for Research

Although this study did provide significant amounts of data regarding the experiences and views of the sample population, an important missing voice is that of girls who have never participated in KRC. As both groups of girls in this study were at one time KRC participants, the perspectives they provide represent those from girls who had some interest in the program. In order to better understand the factors that prevent girls from taking part, the views of those who have never participated in the program need to be explored.

Some of the findings in this study did not support those found in the literature. They include PA rates, girls' desire to run longer distances, and views on a girls-only program and sweating. These conflicting results along with the shortage of research regarding factors that contribute to girls' decline in PA during the pre-teen years indicate the need for additional studies on PA with this age group.

One of the factors examined in the current study was participants' motivation for joining and/or leaving KRC. There is a need to examine this factor further, particularly in regards to girls who have never participated in KRC. Future, theory-based research using, for example, the Social Determination Theory (Ryan and Deci, 2000), could contribute to a better understanding of pre-teen girls' motivation for engaging in PA and PA interventions.

A factor that needs to be explored further but was beyond the scope of the current study is the impact the coach can have on participant experiences. Learning more about the qualities of coaches and program leaders who are successful in recruiting girls may identify areas for future

training for those implementing PA programs. Although the policy level of the SEM was not examined within the scope of the current study, and because school-based interventions have the potential to increase rates of PA in children and youth, future research should also examine the impact formal and informal policies can have on the provision of extra-curricular programs.

The use of composite measures in this study provided interesting findings regarding combined intrapersonal and interpersonal factors in study participants. This practice may be of value as health promotion struggles to address many complex health behaviors such as eating, physical activity and sedentary behavior. However, more work can be done to develop an evidence-based approach to their use including the creation of guidelines regarding how to determine which factors are suitable for inclusion in composite measures.

Lessons Learned

Ironically, the biggest lesson learned was that using a SEM to investigate an issue or program has the potential of increasing its scope so much that it becomes very challenging to complete. As this project progressed, it became increasingly difficult to adequately address the multitude of factors that had been identified as being associated with KRC participation using the SEM. This challenge became apparent at the stage of data analysis and is reflected in the length of this document. Future evaluations may want to use a more refined approach such as separating the examination of factors associated with participation and feedback on the program.

Another lesson learned through this study was the importance of ensuring that data are gathered in such a way that will support analysis. For example, being more careful about creating variables that have consistent measures might have resulted in more possibilities for analysis. Also trying to produce results that are continuous or ordinal rather than categorical would have provided more options for analysis beyond those used in this study.

During the initial stages of this project, one of the struggles was staying focused on the evaluation goals of the study and avoiding the curiosity to want to find out more about the girls who participated. Perhaps this curiosity is partly to blame for asking too many questions which resulted in an amount of data that became challenging to manage.

As previously mentioned, this study along with previous KRC evaluations have been conducted using paper/pencil questionnaires. One of the challenges of this survey method is managing all the paper including consents, assents, and questionnaires. This task was difficult not only for the researcher but also for the teachers who volunteered to assist. Although electronic surveys may lead to a reduction in the number of surveys that are completed, they should be explored for future KRC evaluations along with methods for encouraging evaluation participation.

Dissemination Plan

Results from the study will be shared initially internally at Doctors Nova Scotia and will assist the organization in determining whether KRC can be altered to recruit and retain more pre-teen girls. The results will also be shared with participating school boards and principals who expressed an interest and provided contact information during initial contact. A summary of the results will be shared with the participating coaches via email. Parents who expressed an interest in receiving a summary of the study results on their consent forms will receive either a hard or electronic copy, depending on their preference. A summary of results will also be shared with a Halifax-based committee called Girls Soar, whose mandate is to increase PA in girls the region as well as WomenActiveNS, a provincial organization tasked with increasing PA in women and girls.

The decision to share study results beyond stakeholders directly involved in the study and/or KRC will remain with Doctors Nova Scotia. These stakeholders include all KRC participating schools and coaches, members of Doctors Nova Scotia, KRC sponsors, other Provincial/Territorial medical associations, other health promotion practitioners working with girls and the general public. Although the findings cannot be generalized to the overall population of pre-teen girls in Nova Scotia, they may add some value by contributing information regarding factors associated with participation in PA by girls, possibly informing future research and practice.

Conclusion

The use of the SEM in this study provided a useful framework for examining the complex assortment of variables that are associated with participation in KRC by girls in Grades 4-6. Although the majority of girls who no longer participate in the program indicated lack of time and no longer enjoying running as their reasons for leaving, the results also indicate that interpersonal variables, including support from peers, parents and coaches, played a strong predictive role in participation. This suggests the need to further explore the barriers to participation in order to properly address the decline in girls as they enter senior elementary grades. Including girls who have not participated in KRC in future evaluations may provide more insight into the barriers to participation.

The results of this study reinforce the importance of the social climate in creating PA interventions. Ensuring girls receive social support for participation from not only peers but significant adults in their lives is an important factor in helping to increase their involvement in PA programs. Exploring ways to encourage parental engagement may result in higher rates of participation by girls in PA interventions like KRC and should be pursued further. The addition

of parent helpers to KRC may also enhance the program in several ways and provide support for the coaches who tend to be teachers. Providing ongoing support and training for KRC coaches will be important avenue for not only enhancing KRC, but also for improving program fidelity and contributing to program sustainability. Finally, continued evaluations of KRC will be important to ensure the program is meeting its objectives and for discovering ways it can be improved.

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Appendix A: 2011-12 Kids' Run Club Participation by Gender and Grade

Table 9

Kids' Run Club Participation by Gender and Grade (n=1896)

	Primary	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Total
Male	26	28	124	263	222	142	85	890
Female	30	32	131	241	259	193	120	1006
Total	56	60	255	504	481	335	205	1896

Note. From Kids' Run Club participant and coach survey, Doctors Nova Scotia, unpublished raw data, 2012.

Appendix B: Kids' Run Club Participation by Gender and Grade

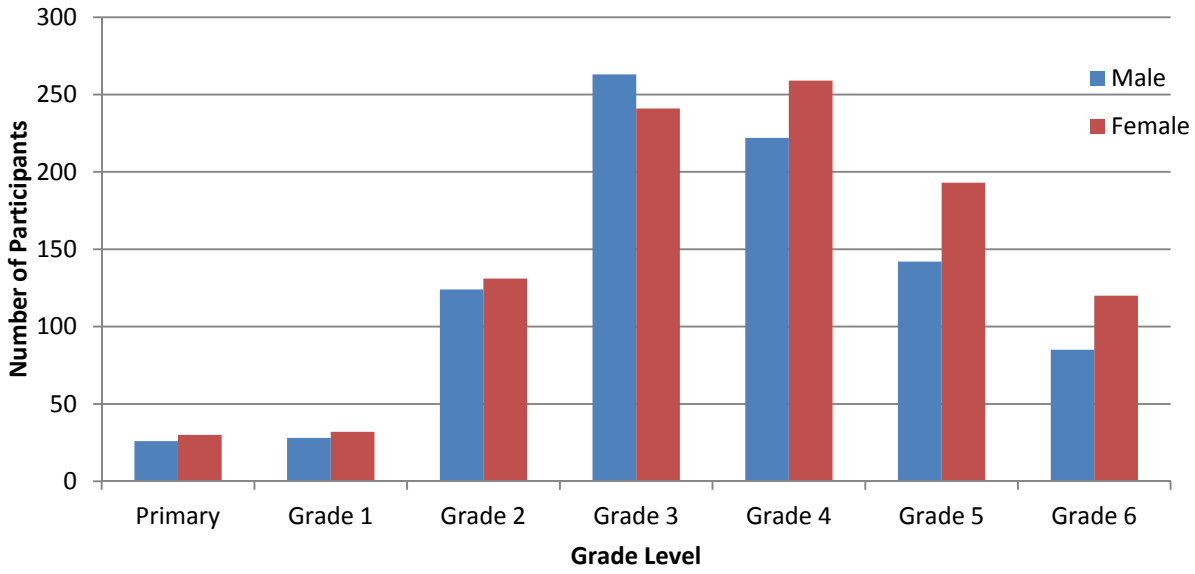

Figure 5: Distribution by gender and grade of a Kids' Run Club sample (n=1896) gathered for an evaluation during the 2011-12 school year (Doctors Nova Scotia, 2012).

Appendix C: Kids' Run Club Logic Model

Table 10

Kids' Run Club Logic Model

	Outputs		Outcomes		
Inputs	Activities	Participation	Short	Medium	Long
• Doctors Nova Scotia (DSN) staff time • DNS Support staff time • Coaches' time • KRC materials • School visits • Community-based runs	DNS: • Promote KRC • Recruit coaches • Provide KRC info to coaches • Distribute KRC materials • Assist coaches in planning and implementing KRC • Visit schools to promote KRC, do running clinics, support coaches, motivate participants • Support coaches in locating a final run	• DNS staff • School staff/vol coaches • Program participants	• Coaches will implement KRC for at least 8 weeks, helping students improve their running • Coaches will help provide a positive, enjoyable physical activity experience for participants • Participants will have an opportunity to be active by combining running and walking, 1 – 3 times per week	• Participants will experience improved running and fitness • Participants will experience improved confidence in being active • Participants will experience increased interest in and motivation to being active • Participants will experience better appreciation for their physical abilities	• Participants' increased confidence and interest in being active will result in their ongoing efforts to be active • Participants' increased knowledge re healthy living will motivate them to make changes in behaviors re to physical activity, eating and screen time

Inputs	Outputs		Outcomes		
	Activities	Participation	Short	Medium	Long
	• Assist coaches in registering for run • Distribute and collect KRC evaluations to/from coaches and participants Coaches: • Promote KRC and recruit participants • Determine KRC details with support from DNS staff • Distribute KRC materials to participants • Plan weekly running sessions • Introduce participants to KRC emphasizing fun, non-competitiveness, inclusiveness and supportive environment		• Participants will learn about the importance of healthy living • Participants will have the opportunity to train with their peers, benefitting from their support and encouragement • Participants will enjoy taking part in KRC with their peers • Participants will learn about the importance of leading active, healthy lives • Participants will experience improved running (improved endurance, comfort, technique and enjoyment while running)	• Participants will have improved knowledge about healthy living (physical activity, healthy eating and reduced screen time) • Participants will experience the benefits of PA such as stress release, improved mood, improved fitness and a sense of accomplishment • Completion of the community-based fun run will provide participants with a sense of accomplishment regarding their running	• Participants will experience the physical, emotional and mental health benefits of regular PA

	Outputs		Outcomes		
Inputs	Activities	Participation	Short	Medium	Long
	• Design training so all can progress, improve and succeed • Share info with participants re running and healthy living contained in handbooks • Promote and help register participants for a final fun run • Distribute and collect participant questionnaires • Complete coach's questionnaire		• Participants will have the opportunity to participate at a community-based run	• Coaches will feel supported by KRC staff and believe that KRC is a positive, fun and worthwhile program • Schools will begin to create a culture that celebrates physical activity and healthy living	

Appendix D: Examination of Similar PA Program Evaluations

Table 11

Examination of Similar PA Program Evaluations

Organization and Program	Location	Audience	Type of Evaluation/ Tool	Website/Contact
G.I.R.L. Run Club	St. John's, Newfoundland and Labrador	Junior High girls	Formal process evaluation on trainers' training – questionnaire. Annual post-program participant questionnaires	www.girlrunclub.com
Just Run	San Francisco, USA	Elementary -aged children	Informal participant and parent surveys	www.justrun.org
Kids Running America	USA	School-aged children and youth	No formal evaluations	www.kidsrunningamerica.ca
Marathon Kids	USA	School-aged children	Declined sharing any evaluation tools	www.marathonkids.org
New York Road Runners – Mighty Milers and Young Runners	New York, USA	School-aged children and youth	Formal impact evaluation – mixed methods	www.nyrr.org
Trappers' Running Club	Newfoundland and Labrador	Adults and teens	Formal evaluation	www.trappersrunningclub.com
Heart and Stroke – OneStep Program	Nova Scotia	Junior high girls	Process evaluation - Focus groups	www.walkaboutns.ca

Appendix E: Current Participant Questionnaire

EVALUATION OF KIDS' RUN CLUB: EXPERIENCES OF GIRLS IN GRADES 4-6 CURRENT PARTICIPANTS

Principal Researcher: Kerry Copeland
School of Health and Human Performance
Dalhousie University
Telephone: (902) 483-XXXX

Research Supervisor: Dr. Laurene Rehman
School of Health and Human Performance
Dalhousie University
Telephone: (902) 494-XXXX

Introduction: This study is being done to get information from girls in Grades 4-6 who are taking part in Kids' Run Club or who took part last year. We want to hear what you think about the program and get your ideas for making it better.

Some important reminders:

- Your participation is voluntary
- You don't have to answer all questions and can stop at anytime
- Don't put your name on this questionnaire
- Seal your finished questionnaire in the envelope provided
- Remember to sign up for a chance to win a prize of a $50 gift certificate to a sports store or recreation center of your choice

FEEDBACK FROM GIRLS IN GRADES 4-6

Thank you for sharing your thoughts and experiences regarding Kids' Run Club (KRC). The purpose of this questionnaire is to hear from girls like you in Grades 4-6 to find out what you like and dislike about KRC. Your feedback will help us improve the program so we can get more girls to join KRC in the future. There are no right or wrong answers.

School: _____ Grade: _____

1. **How many years have you been in KRC, including this year?** (Circle one)

   1 2 3 4 5 6 7

2. **How often does your school group run?** (Check one)

   ☐ Once ☐ Twice ☐ 3 times ☐ More than 3 times

3. **How often would you like to run with your school group each week?**

   ☐ Once ☐ Twice ☐ 3 times ☐ More than 3 times

4. **What time of day does your school group run?** (Check all that apply)

   ☐ Before school ☐ Recess ☐ During class time ☐ Lunch time

   ☐After school ☐ Other time: _____

5. **What time of day would be your favorite time to run with your school group?** (Check one)

   ☐ Before school ☐ Recess ☐ During class time ☐ Lunch time

   ☐ After school ☐ Other time: _____

6. How long do you run for during KRC? (Check one)

☐ Less than 15 mins ☐ 15- 30 mins ☐ 35-45 mins ☐ More than 45 mins

7. If you could choose, how long would you like to run for? (Check one)

☐ Less than 15 mins ☐ 15- 30 mins ☐ 31-45 mins ☐ More than 45 mins

8. How many of your friends are in Kids' Run Club? (Check one)

☐ None ☐ Some (1-3) ☐ Many (more than 3) ☐ Most

9. Do you think having friends in KRC makes it more fun? ☐ Yes ☐ No

10. Why did you join KRC? (Check all that apply)

☐ I like to run
☐ It's fun
☐ My friends are taking part
☐ To improve my running
☐ Because being active is good for me
☐ Other reason(s). Please explain:
_____

☐ To get the KRC water bottle
☐ To train for a fun run
☐ Because someone told me I had to

11. How much do you like KRC?

☐ I like KRC a lot ☐ I like KRC a little bit ☐ I don't like KRC at all

12. How much fun is KRC?

☐ KRC is a lot of fun ☐ KRC is a little bit fun ☐ KRC is not fun at all

Please tell us what you like or dislike about KRC?

(Check the appropriate box)

	Like a lot	**Like a little**	**Don't like**	**Don't care either way**
13. Running				
14. Increasing how far I run				
15. Getting sweaty				
16. Being with friends				
17. KRC coaches				
18. Runner's Handbook				
19. KRC water bottle				
20. Playing games				
21. Stretching				
22. Training for a fun run				

Anything else you like or dislike?

_____

Please tell us more about your experiences in KRC

(Check the appropriate box)

CHECK THE APPROPRIATE BOX	YES	NO	DON'T KNOW
23. Do you take walking breaks during your KRC runs?			
24. Has your running improved since starting KRC?			
25. Do you plan to take part in a fun run like Blue Nose or Fiddlers?			
26. Did you take part in a fun run last year?			
27. Does your coach help make KRC more fun?			
28. Does your coach encourage you while you are running?			
29. Will you join KRC next year if it's offered at your school?			
30. Would you prefer to participate in a girls-only KRC?			

31. If you could change one thing about KRC to make it better, what would it be?

_____

_____

_____

To help us gain a better understanding of the girls who participate in KRC, please answer the following questions about physical activity in general.

"Physical activity" is moving your body in a way that increases your heart rate and makes you breathe more heavily some of the time. It can happen while doing sports, during gym class, playing with friends or walking places. Being active includes activities like sports and exercise, playing games like tag, walking, raking leaves, dancing and running.

32. **Thinking back on the last 7 days, on how many days were you physically active for 60 minutes or more per day?** (Add up all the time you spent in any kind of activity each day).

☐ 0 days
☐1 day
☐2 days
☐3 days
☐4 days
☐5 days
☐6 days
☐7 days

33. **Compared to last year, are you:**

☐ More physically active ☐ Less physically active ☐ About the same

34. **Please check off any types of activity you do at least once per week:**

☐ Sports
☐ Going to the gym
☐ Doing exercise videos
☐ Dancing
☐ Walking for exercise
☐ Walking to get places
☐ Running
☐ Intramurals at school
☐ Other: _____

35. Please check the statement that best describes how you feel about your ability to be physically active (see definition and examples of physical activity above):

☐ I am good at all types of physical activity

☐ I am good at most types of physical activity

☐ I am good at some types of physical activity

☐ I am not good at any types of physical activity

36. Compared to other kids your age, how good are you at being physically active?

☐ Better ☐ About the same ☐ Not as good

37. How much do you enjoy being physically active?

☐ A lot ☐ A little bit ☐ Not at all

38. If being "physically active means" getting at least 60 mins of physical activity every day, please check the box that describes how active your closest friends are:

☐ None of my friends are active

☐ Some of my friends are active

☐ Most of my friends are active

☐ All of my friends are active

35. Do your parents encourage you to be physically active?

☐ Yes ☐ No

36. Did your parents encourage you to join KRC?

☐ Yes ☐ No

37. Did anyone in your family start running with you when you joined KRC?

☐ Yes ☐ No

If yes, who? _____

38. Any other comments you want to share about KRC:

_____

_____

_____

THANK YOU for providing feedback on KRC. Please put the questionnaire in the envelope and return it to your coach. Remember to sign up for a chance to win a prize of a $50 gift certificate to a sports store or recreation center of your choice.

Appendix F: Past Participant Questionnaire

EVALUATION OF KIDS' RUN CLUB EXPERIENCES OF GIRLS IN GRADES 4-6 PAST PARTICIPANTS

Principal Researcher: Kerry Copeland
School of Health and Human Performance
Dalhousie University
Telephone: (902) 483-XXXX

Research Supervisor: Dr. Laurene Rehman
School of Health and Human Performance
Dalhousie University
Telephone: (902) 494-XXXX

Introduction: This study is being done to get information from girls in Grades 4-6 who are taking part in Kids' Run Club or who took part last year. We want to hear what you think about the program and get your ideas for making it better.

Some important reminders:

- Your participation is voluntary
- You don't have to answer all questions and can stop at anytime
- Don't put your name on this questionnaire
- Seal your finished questionnaire in the envelope provided
- Remember to sign up for a chance to win a prize of a $50 gift certificate to a sports store or recreation center of your choice

FEEDBACK FROM GIRLS IN GRADES 4-6

Thank you for agreeing to share your thoughts and experiences regarding Kids' Run Club (KRC). If you never participated in KRC or are participating this year, please STOP and return this questionnaire. The purpose of this questionnaire is to gather information from girls in Grades 4-6 who used to participate in KRC. We'd like to learn more about what you liked and disliked in KRC and your reasons for not joining this year. Your feedback will help us improve the program so we can get more girls to join KRC in the future. There are no right or wrong answers.

School: _____ Grade: _____

1. **Please circle the number of years you participated in KRC before stopping:**

   1 2 3 4 5 6

2. **It's important for us to know why you didn't join KRC this year. It may be as simple as not having time or because you no longer like to run. Please share your reason(s) for not joining this year:**

   _____

   _____

   _____

3. **Please check any of the following reasons that made you decide to not take part in KRC this year:**

☐ I don't like KRC

☐ I don't like to run

☐ None of my friends are taking part

☐ I don't have time

☐ I take part in another school program that happens at the same time

☐ KRC is after school and I have to take the bus home

☐ I have a health issue that stops me from participating

☐ None of the above

Thinking back to your experiences in KRC last year, please answer the following questions:

4. **How many of your friends were in KRC last year?**

☐ None ☐ Some (1-3) ☐ Many (more than 3) ☐ Most

☐ Don't Remember

5. **How many of your friends are in KRC this year?**

☐ None ☐ Some (1-3) ☐ Many (more than 3) ☐ Most

☐ Don't know

6. Why did you join KRC last year? (Please check all that apply)

☐ I liked running

☐ I thought it was fun

☐ My friends were taking part

☐ To improve my running

☐ Because being active is good for me

☐ To train for a fun run

☐ Because someone told me I had to

☐ Other reason(s):

_____

_____

7. How much did you like KRC last year?

☐ I liked KRC a lot

☐ I liked KRC a little bit

☐ I didn't like KRC at all

8. How much fun was KRC last year?

☐ KRC was a lot of fun

☐ KRC was a little bit fun

☐ KRC was not fun at all

Please tell us what you liked or disliked about KRC
(Check the appropriate box)

	Liked a lot	**Liked a little**	**Didn't like**	**Didn't care either way**
9. Running				
10. Increasing how far I ran				
11. Getting sweaty				
12. Being with friends				
13. KRC coaches				
14. Runner's Handbook				
15. KRC water bottle				
16. Playing games				
17. Stretching				
18. Training for a fun run				

Anything else you liked or disliked?

_____

_____

_____

Please tell us more about your experiences in KRC last year. (Check the appropriate box)

	YES	NO	DON'T KNOW
19. Did you take walking breaks during your KRC runs?			
20. Did your running improve during KRC last year?			
21. Did you take part in a fun run last year?			
22. Do you plan to do a fun run this year?			
23. Did your coach help make KRC more fun?			
24. Did your coach encourage you while you are running?			
25. Will you join KRC next year if it's offered at your school?			
26. Would you have joined a girls-only KRC if it was offered at your school this year?			

27. If you could change one thing about KRC to make it better, what would it be?

_____

_____

_____

To help us gain a better understanding of the girls who participate in KRC, please answer the following questions about physical activity in general.

"Physical activity" is moving your body in a way that increases your heart rate and makes you breathe more heavily some of the time. It can happen during sports, playing with friends or walking places. Being active includes activities like sports and exercise, playing games like tag, walking, raking leaves, dancing and running.

28. Thinking back on the last 7 days, on how many days were you physically active for 60 minutes or more per day? (Add up all the time you spent in any kind of activity each day).

☐ 0 days
☐1 day
☐2 days
☐3 days
☐4 days
☐5 days
☐6 days
☐7 days

29. Compared to last year, are you:

☐ More physically active
☐ Less physically active
☐ About the same

30. Please check any types of activity you do at least once per week:

☐ Sports
☐ Going to the gym
☐ Doing exercise videos
☐ Dancing
☐ Walking for exercise
☐ Walking to get places
☐ Running
☐ Intramurals at school
☐ Other: _____

31. Please check the sentence that best describes how you feel about your ability to be physically active:

☐I am good at all types of physical activity

☐ I am good at most types of physical activity

☐ I am good at some types of physical activity

☐ I am not good at any types of physical activity

32. Compared to other kids your age, how good are you at being physically active?

☐ Better ☐ About the same ☐ Not as good

33. How much do you enjoy being physically active?

☐ A lot ☐ A little bit ☐ Not at all

34. Is there another type of physical activity program you would like to join but is not offered at your school?

☐ Yes ☐ No

If yes, please list:

_____

35. If being "physically active means" getting at least 60 mins of physical activity every day, please check the box that describes how active your closest friends are:

☐ None of my friends are active ☐ Most of my friends are active

☐ Some of my friends are active ☐ All of my friends are active

36. Do your parents encourage you to be physically active? ☐ Yes ☐ No

37. Did your parents encourage you to join KRC this year: ☐ Yes ☐ No

38. Did anyone in your family start running with you when you joined KRC last year?

☐ Yes ☐ No ☐ Don't remember If yes, who? _____

39. Any other comments you want to share about KRC:

_____

_____

_____

THANK YOU for providing feedback on KRC. Please put the questionnaire in the envelope and return it to your coach. Remember to sign up for a chance to win a prize of a $50 gift certificate to a sports store or recreation center of your choice.

Appendix G: Coach's Questionnaire

KIDS' RUN CLUB - COACH'S QUESTIONNAIRE

Thank you agreeing to share information about how you implement Kids' Run Club (KRC) at your school. This information will assist in gaining a better understanding of the experiences of your participants and for determining whether there are certain aspects of the program that contribute to participation by girls in Grades 4-6. There are no right or wrong answers.

1. School: _____ 2. Grades Included in KRC: _____

3. Approximate number of participants: _____

4. Length of KRC: _____ weeks

5. Usual location of runs (check most common location):

☐ School gym

☐ School hallways

☐ School grounds

☐ Field/outdoor track

☐ Indoor track facility

☐ Wooded trails/Rails to Trails

☐ Local neighbourhood

☐ Other: _____

6. Times per week your group runs:

☐ 1 ☐ 2 ☐ 3 ☐ More than 3 times

7. Time of day your group runs: (Check all that apply)

☐ Before school ☐ Recess ☐ During class time ☐ Lunch time ☐After school

☐ Other time: _____

8. Length of time your group usually spends running?

   ☐ Less than 15 mins ☐ 15- 30 mins ☐ 35-45 mins ☐ More than 45 mins

9. Please check the appropriate statement regarding your use of walking breaks:

   ☐ All participants take walking breaks at regularly scheduled intervals

   ☐ Walking breaks are encouraged for those who need/choose to take them

   ☐ Participants are discouraged from taking walking breaks

10. Do you use any kind of token such as Popsicle sticks to help participants track their run distance? ☐ Yes ☐ No

11. Do you track participants' run distances in a central spot such as on Bristol board?

    ☐ Yes ☐ No

12. Do you include running games in your KRC?

    ☐ Yes, every time

    ☐ Yes, occasionally

    ☐ No, never

13. Including yourself, how many KRC coaches/helpers does your program have? _____

14. Do any of the coaches run with participants? ☐ Yes ☐ No

15. Do you use prizes other than the KRC finisher's prize as motivation for participants?

    ☐ Yes ☐ No If yes, explain:

    _____

16. Do you encourage participants to take part in a final run like the ones at Blue Nose or Fiddlers?

    ☐ Yes ☐ No

17. What percentage of your participants take part in a final fun run? _____ %

18. Please share any strategies you use to recruit and motivate KRC participants:

_____

_____

_____

19. Previous KRC evaluations indicate that after Grade 4, KRC participation starts to decline. Please share any ideas about how to encourage older students to participate in KRC:

_____

_____

_____

THANK YOU very much for taking time to complete this questionnaire. Please place this questionnaire with those completed by your participants and follow the instructions for returning them. Your name will be entered in the draw for a prize (TBD) when we receive the questionnaires from your school.

Appendix H: Request to KRC Coaches for Study Participation

Dear Xxxx,

I am writing to request your assistance with a research study I am conducting for my Masters of Health Promotion at Dalhousie University. The purpose of this study is to conduct a program evaluation on Kids' Run Club (KRC), looking specifically at the experiences and views of girls in Grades 4-6. Study participants will be asked to complete a questionnaire to gather information regarding their reasons for joining or discontinuing KRC; likes/dislikes about the program; and individual aspects regarding their overall physical activity. The goal is to recruit at least 25 current and 25 past participants of KRC from schools within the Halifax Regional and Cape Breton-Victoria Regional School Boards. It is hoped the results of this study will inform potential changes to KRC that will result in the recruitment and retention of more girls in the future.

Your responsibilities, should you agree to participate, include:

1. Acting as the liaison person at your school for the study.
2. Identifying and recruiting approximately of 5 girls in Grades 4-6 who are currently participating in KRC and approximately 5 girls in Grades 4-6 who participated last year but have not joined this year. More girls from each group are acceptable and preferred.
3. Distributing study information packages to interested girls and their parents.
4. Collecting parental consent and student assent forms.
5. Distributing, facilitating completion of, and collecting participant questionnaires.
6. Completing a questionnaire regarding how you implement KRC.
7. Facilitating the return of study documents to Kerry Copeland.

The timeline for recruiting participants and distributing, completing and collecting the study materials is the month of April, 2015. Compensation for study participants, including coaches, is the opportunity to be entered in a random draw for $50 gift certificates to a sports store or recreational facility of their choice. There will be one draw for coaches, and one draw for each school board for girls.

Please do not hesitate to contact me by phone or email if you have any questions or would like to discuss this study and your role in it in more detail. Please let me know your decision regarding participation in this study by XXX, 2015.

Thank you in advance for your consideration.

Sincerely,

Kerry Copeland
902-xxx-xxxx, kerry.copeland@dal.ca
MA(c) Health Promotion

Dr. Laurene Rehman (Supervisor): laurene.rehman@dal.ca, 902-xxx-xxxx
School of Health and Human Performance, Dalhousie University

Appendix I: Principal's Information Letter

Study title: Program Evaluation of Kids' Run Club: Experiences of Girls in Grades 4-6

Degree Program: Master of Arts, Health Promotion

School of Health and Human Performance

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If you have any questions, comments or concerns about the study, please contact Kerry Copeland

Title: **Program Evaluation of Kids' Run Club: Experiences of Girls in Grades 4-6**

Introduction:

You are receiving this document because a teacher at your school has expressed an interest in participating in an evaluation of Kids' Run Club (KRC). KRC is being evaluated as part of a Master in Health Promotion degree at Dalhousie University being done by Kerry Copeland. The study seeks to obtain feedback from girls in Grades 4-6 who have taken part in KRC. As research shows that girls are less active than boys in general, there is an interest in finding ways to attract girls to physical activity programs like KRC. If your school takes part in this study, the teacher who is the KRC coach will assist in the ways described below. This project has been approved by Dalhousie University and the Halifax Regional School Board.

Purpose of study:

The purpose of this study is to conduct a program evaluation on KRC, looking specifically at the experiences and views of girls in Grades 4-6. The goal is to recruit girls from a number of schools from the Halifax and Cape Breton-Victoria Regional School Boards. The results of this study will assist with improving KRC and may lead to more girls taking part in the future.

Who can take part in this study?

This study seeks a minimum of 100 girls in Grades 4-6 who are either current or past participants of KRC. These participants will be recruited from schools within the Halifax and Cape Breton-Victoria Regional School Boards that implement KRC. In order to participate, girls must have informed parental consent, be able to read at a Grade 4 level, understand the purpose of the study and take part voluntarily in the study. The study will also gather information from KRC coaches regarding how they implement the program and any ideas they have for recruiting more girls.

What will my school/staff be expected to do?

The KRC coach at your school will assist in the following ways:

1. Act as the liaison person at your school for the study.
2. Distribute study information packages to Grade 4-6 girls who are current or past participants of KRC.
3. Collect parental consent and student assent forms from girls who agree to participate and parental consent.
4. Distribute, facilitate completion of, and collect participant questionnaires.
5. Complete a questionnaire regarding how they implement KRC.
6. Facilitate the return of study documents to Kerry Copeland.

What will students be expected to do:

Students will be asked to complete a questionnaire that will take about 15 minutes to complete. There is one questionnaire for current KRC participants and one for past participants (see questionnaires included with this document). Students will be asked to complete the questionnaire at school, outside class-time, under the supervision of the KRC coach. It is

recommended that current participants complete their questionnaires during KRC time and past participants during the lunch, recess or after school time.

Possible risks or discomforts for students:

It is possible that some students may be uncomfortable providing negative feedback about KRC or their coach. Past participants of KRC may be uncomfortable providing their reasons for not joining KRC.

Steps taken to reduce the chance of participants feeling uncomfortable include telling them that participation is voluntary and can be stopped at any time, protecting their identity by not asking for names on the questionnaires and providing envelopes for completed questionnaires.

Possible risks or discomforts for coaches:

It is possible that some coaches may be uncomfortable providing negative feedback about KRC. To reduce the chance of coaches feeling uncomfortable, completion of the coach's questionnaire is voluntary and coaches have the option of answering all, some or none of the questions.

Benefits for study participants:

There are no direct benefits for taking part in this study. However, KRC coaches and participants will be providing important information that may help more girls get active in the future.

Compensation:

Study participants will be given the chance to be entered in a random draw for a $50 gift certificate to a sports store or recreational facility of their choice. There will be one draw for students for each board and one draw for KRC coaches.

How will study participant's information be protected?

Coaches' and students' identity will be protected. Documents containing names or identifying information include the parental consent form, coach's consent form and questionnaire results, participant assent form, and ballot for the draw prize. These documents will remain in a locked cabinet under the supervision of the lead researcher's supervisor, Dr. Laurene Rehman. They will be kept for a minimum of five years after which they will be destroyed. To further protect the identity of study participants, questionnaire results will be assigned a code number for the purpose of data analysis.

Voluntary participation and withdrawal:

The participation of coaches and students is completely voluntary. Participation can be ended at any time without penalty. Coaches may choose to assist with gathering student feedback and not complete a coach's questionnaire. They are still eligible to enter into the draw prize without having completed a questionnaire.

Study Results:

A summary of the study results will be provided by email to participating schools and KRC coaches.

Questions:

We are happy to talk to you about any questions or concerns you may have about this study. Please contact Kerry Copeland or Laurene Rehman at any time with questions, comments, or concerns about this study.

If you have any ethical concerns about this study, you may also contact the Director of Dalhousie University's Research Ethics at (902) 494-1462, or email: ethics@dal.ca

Appendix J: Coaches' Instructions

Study Title: Program Evaluation of Kids' Run Club: Experiences of Girls in Grades 4-6

Introduction:

Thank you for agreeing to participate in this study and assisting with recruiting participants. The purpose of this study is to conduct a program evaluation on Kids' Run Club (KRC), looking specifically at the experiences and views of girls in Grades 4-6. The goal is to recruit a minimum of 100 current and past participants of KRC from a number of schools within the Halifax Regional and Cape Breton-Victoria Regional School Boards. The results of this study will inform potential changes to KRC which may lead to increased recruitment and retention of more girls in the future.

Your responsibilities (for quick reference, see attached checklist):

1. Act as the study liaison person at your school.
2. Distribute study information packages to Grade 4-6 girls who are current or past participants of KRC.
3. Collect parental consent and student assent forms.
4. Distribute, facilitate completion of, and collect participant questionnaires.
5. Ensure participants sign prize sheet if they wish to be entered into the draw for a prize.
6. Complete a questionnaire regarding how you implement KRC. Completion of this questionnaire is voluntary. You may choose to answer all, some or none of the questions.
7. Return all study documents to Kerry Copeland.

Criteria for Study Participants: This study seeks to recruit girls in Grades 4-6 who:

1. Are currently participating in KRC or who participated last year but not this year.
2. Can read at a Grade 4 level.
3. Are interested in participating in this study.
4. Have returned signed parental consent and participant assent forms

Recruiting Participants:

The goal is to recruit at least 5 current KRC participants and 5 past participants. You will be asked to distribute study information packages to all girls in Grades 4-6 who are currently participating in KRC. These packages will be provided to you once you have determined the total number of current participants and past participants who are interested in taking part in the study.

To recruit past participants of KRC, you can make an announcement to classes of Grades 4-6 or approach girls in Grades 4-6 who participated in 2013-14. Verbally provide basic information including:

1. Study purpose of gathering feedback from girls to determine if KRC can be changed to help recruit more girls in the future.
2. What will be expected from girls who participate including taking information package home for parents, returning consent/assent forms, completing a questionnaire, and their chance to win a draw prize.
3. Participants' answers will be anonymous and not connected to them in any way. Participation is voluntary and those who decide not to take part will not be penalized in any way in terms of their KRC participation, experiences in PE or grades at school.

Advise Kerry Copeland of the number of study packages you require and distribute them accordingly. Ask the girls to show the study package to their parents and discuss whether they will participate. Ask them to return the signed parental consent and student assent by a specified date.

Study Information Package:

Once you indicate the number of girls in Grades 4-6 who are current and past KRC participants interested in taking part in the study, you will be provided with the study materials including:

1. Information packages for all participants containing parental letters and consents and participant assent forms.
2. Questionnaires for participants.
3. Blank envelopes for completed participant questionnaires.
4. A coach's questionnaire.
5. Participant sign-up sheet for draw prize.
6. A large envelope for the return of all study documents including signed consent and assent forms; completed questionnaires; and prize sign-up sheet.

Questionnaire Completion:

It's important that participants in this study are well informed about the study purpose, their role and the fact their participation is voluntary. You play an important role in insuring this occurs.

Please follow these steps for facilitating the completion of participant questionnaires:

1. Choose two or three opportunities for girls to complete their questionnaires when they will have approximately 20 minutes.
2. It's recommended to have current and past participants complete their questionnaires in separate groups to avoid any discomfort, particularly for those girls who have stopped participating in KRC.
3. Make sure you have adequate space and additional pens/pencils for participants.

4. Distribute the questionnaires and read the instructions (see below) out loud before asking the girls to complete their questionnaire. Ask the girls to review their questionnaires before sealing them in their envelopes to make sure no questions have been missed.
5. Collect envelopes containing completed questionnaires.
6. Ensure participants complete sign-up sheet if they wish to be entered in draw prize.

Instructions for Questionnaire Completion for Participants:

Please read the following to participants before they complete their questionnaires:

"The purpose of this study is to get feedback from you about Kids' Run Club. Your participation is voluntary. You may choose not to answer all questions or stop at any time. Would anyone like to withdraw from the study?"

For all study participants who decide to continue:

"Don't put your name on the questionnaire. When you are finished, place your questionnaire in the envelope you've been given and return it to me. If you want your name entered in the draw, please fill out the ballot and place it in the ballot envelope. Please let me know if you have any questions."

Return of Study Documents:

Once all the study documents have been completed and collected, place them in the large envelope provided and contact Kerry Copeland to arrange their return.

Questions:

If you have any questions or concerns regarding this study, please contact the principal investigator or her supervisor at any time.

Principal Investigator:

Kerry Copeland
School of Health and Human Performance
Dalhousie University
(902) 483-XXXX
Kerry.copeland@dal.ca

Supervisor:

Dr. Laurene Rehman
School of Health and Human Performance
Dalhousie University
(902) 494-XXXX
laurene.rehman@dal.ca

Kids' Run Club Program Evaluation – Coach's Checklist

☐ Determine number of girls in Gr 4-6 currently participating in KRC

☐ Recruit at least 5 girls in Gr 4-6 who took part in KRC last year but not this year

☐ Let Kerry know total number of study packages required for both groups of girls

☐ Send study packages home with date for return

☐ Ensure you receive signed parental consent and student assent forms

☐ Notify Kerry of final number of girls who will be completing questionnaires

☐ Arrange dates/times for girls to complete questionnaires

☐ Provide participating girls with verbal instructions re questionnaire completion

☐ Distribute questionnaires and envelopes

☐ Collect completed questionnaires in envelopes

☐ Ensure participants sign sheet for draw prize eligibility

☐ Complete coach's consent, questionnaire and prize ballot

☐ Place all study documents in envelope and notify Kerry they are ready for pick-up

Appendix K: Parental Information and Consent

DALHOUSIE UNIVERSITY
Inspiring Minds

Title: Program Evaluation of Kids' Run Club: Experiences of Girls in Grades 4-6

Introduction:

You are receiving this package as your daughter is either a current or past participant of Kids' Run Club at her school. Kids' Run Club is being evaluated as part of a Master in Health Promotion at Dalhousie University being done by Kerry Copeland. The study seeks to obtain feedback from girls in Grades 4-6 who have taken part in Kids' Run Club. As research shows that girls are less active than boys, there is an interest in finding ways to attract girls to physical activity programs like Kids' Run Club. If your daughter takes part in this study, she will be asked to complete a questionnaire regarding her experiences in Kids' Run Club. This study has been approved by Dalhousie University, the Halifax Regional School Board and the Cape Breton-Victoria Regional School Board. Kids' Run Club is shortened to "KRC" below.

Purpose of Study:

The purpose of this study is to conduct a program evaluation on KRC, looking specifically at the experiences and views of girls in Grades 4-6. The goal is to recruit girls from a number of schools from the Halifax and Cape Breton-Victoria Regional School Boards. The results of this study will assist with improving KRC and may lead to more girls taking part in the future.

Who can take part in this study?

This study seeks a minimum of 100 girls in Grades 4-6 who are either currently taking part in KRC or who took part last year. Girls who take part in this study must be able to read at a Grade 4 level, understand the purpose of the study and be taking part voluntarily.

What will my daughter be asked to do?

If your daughter takes part in this study, she will be asked to complete an informed assent form, included in this package. Once consent and assent are provided, your daughter will complete a questionnaire regarding her experiences in KRC. It will take about 15 minutes to complete. Your daughter will complete the questionnaire at school, outside of class-time, under the supervision of her KRC coach.

Possible Risks or Discomforts for my Daughter:

It is possible that some students may be uncomfortable providing negative feedback about KRC or their coach. Past participants of KRC may be uncomfortable providing their reasons for not joining the program.

Steps taken to reduce the chance of participants feeling uncomfortable include telling them that participation is voluntary and can be stopped at any time; protecting their identity by not asking for names on the questionnaires; and providing envelopes for completed questionnaires.

Benefits:

There are no direct benefits to your daughter for taking part in this study. However, she will be providing important information that may help more girls get active in the future.

Compensation:

Your daughter will be given the chance to be entered in a random draw for a $50 gift certificate to a sports store or recreational facility of her choice.

How will my daughter's information be protected?

Your daughter's identity will be protected. The only documents containing your daughter's name will be the consent and assent forms and the draw prize ballot she may choose to provide. The consent/assent forms will remain in a locked cabinet under the supervision of the lead researcher's supervisor, Dr. Laurene Rehman. They will be kept for a minimum of five years after which they will be destroyed. Draw prize ballots will be destroyed once a winner is identified.

Fellow study participants and the KRC coach at your daughter's school will be aware that she is taking part in this study. Your child's name will not be associated with her questionnaire results and she will be provided with an envelope in which she can seal her completed questionnaire. To further protect information regarding your child, her questionnaire results will be assigned a code number for the purpose of data analysis.

Voluntary Participation and Withdrawal:

The participation of your child is completely voluntary. She can withdraw from the study at any time, for any reason, without any penalty.

Study Results:

A summary of the study results will be made available by email or regular mail to those who request a copy by indicating so at the bottom of this form.

Questions:

We are happy to talk to you about any questions or concerns you may have about this study. Please contact Kerry Copeland or Laurene Rehman at any time with questions, comments, or concerns about this study.

If you have any ethical concerns about this study, you may also contact the Director of Dalhousie University's Research Ethics at (902) 494-1462, or email: ethics@dal.ca

Title: Program Evaluation of Kids' Run Club: Experiences of Girls in Grades 4-6

Consent:

☐ My child reads at a Grade 4 level

☐ I have read this consent form and understand the procedures of this research project. I understand the participation of my child is completely voluntary and she may withdraw from the study at any time without penalty. My signature indicates my consent for my child to participate.

_____

Name of Child (Please Print)

_____

Name of Parent (Please Print)

_____

Signature of Parent/Guardian

_____

Date

☐ I understand some of my child's answers may be quoted in the final report without any information that will identify her. I give my permission for the use of these quotes.

_____ _____

Signature of Parent/Guardian Date

Please indicate if you would like to receive a summary of the study results:

☐ Yes ☐ No

If yes, please provide email address. If you do not have an email address, please provide your home mailing address, including postal code below.

PLEASE RETURN THIS FORM ALONG WITH YOUR CHILD'S ASSENT FORM ONCE COMPLETED TO SCHOOL
Thank you

Appendix L: Participant Assent Form

Study Title:

Program Evaluation of Kids' Run Club: Experiences of Girls in Grades 4-6

Introduction:

This study is being done to get information from girls in Grades 4-6 who have taken part in Kids' Run Club. We want to hear what you think about the program. We also want your ideas for making it better. This study is being done as part of a university degree by Kerry Copeland. Kids' Run Club is called "KRC" below.

What will you be expected to do?

You will be asked to answer questions on a questionnaire. It will take about 15 minutes to complete. You will complete it at school with other girls and your KRC coach.

You will be asked questions like:

- Why did you join KRC?
- What do you like or dislike about KRC?
- How much time do you usually spend running during your group runs?
- Do you think having friends in KRC makes it more fun?
- If you could change one thing about KRC to make it better, what would it be?
- Compared to last year, are you more physically active, about the same or less active?
- Do your parents encourage you to be physically active?

Taking part in this study is voluntary. You don't have to answer all questions. You may stop at anytime.

Your answers will not be connected to your name

You will not put your name on the questionnaire. Your answers will not be connected to your name. You will be given an envelope to put your questionnaire in before returning it to your KRC coach.

Do you get anything for taking part in this study?

You will not receive anything directly for taking part in this study. You will be given a chance to be entered in a random draw. The prize is a $50 gift certificate to a sports store or recreational facility of your choice.

What if you have questions about this study?

You can ask your parent or KRC coach. You can also contact the lead researcher, Kerry Copeland, if you have any questions. Phone: (902) 483-XXXX or email: kerry.copeland@dal.ca

PLEASE SIGN THE FORM ON THE NEXT PAGE

Study Title:

Program Evaluation of Kids' Run Club: Experiences of Girls in Grades 4-6

Assent:

Signing your name below shows you understand what you read about the study and agree to take part.

_____
Print your name

_____
Your signature

_____
Date

Some of your answers may be used in the final report for this study. You will not be identified if we include your answers. Please sign below to show that you give permission to include your answers.

_____
Your signature

_____
Date

PLEASE COMPLETE AND RETURN THIS FORM WITH THE PARENTAL CONSENT TO YOUR KIDS' RUN CLUB COACH.

THANK YOU

Appendix M: Distribution of Intrapersonal Variables by Participation Status

Table 12

Distribution of Intrapersonal Variables by Participation Status

Variable	Participant Status				Valid Total	
	Past Participants		Current Participants			
	n	Percentage	n	Percentage	n	Percentage
Enjoy PA**	26	26	74	74	100	91.7
A lot	17	65.4	67	90.5	84	84
A little	9	34.6	7	9.5	16	16
Not at all	0	0	0	0	0	0
Missing					14	12.8
Ability to be active*	26	26.3	73	73.3	99	90.8
Good at all types	4	15.4	19	26	23	23.2
Good at most types	13	50	43	58.9	56	56.6
Good at some types	9	34.6	11	15.1	20	20.2
Not good at any types	0	0	0	0	0	0
Missing					10	9.2
Ability versus peers	26	27.4	69	72.6	95	87.2
Better	7	26.9	21	30.4	28	29.5
About the same	13	50	44	63.8	57	60
Not as good	6	23.1	4	5.8	10	10.5
Missing					14	12.8

Variable	Participant Status				Valid Total	
	Past Participants		Current Participants			
	n	Percentage	n	Percentage	n	Percentage
Rate of PA – last 7 day**	27	25	81	75	108	99.1
1	2	7.4	2	2.5	4	3.7
2	1	3.7	1	1.2	2	1.9
3	3	11.1	3	3.7	6	5.6
4	5	18.5	3	3.7	8	7.4
5	5	18.5	13	16	18	16.7
6	3	11.1	16	19.8	19	17.6
7	8	15.7	43	53.1	51	47.2
Missing					1	0.9
Rate of PA – last year*	26	27.1	70	72.9	96	88.1
More active	17	65.4	62	88.6	79	82.3
As active	3	11.5	1	1.4	4	4.2
Less Active	6	23.1	7	13.5	13	13.5
Missing					13	11.9

Mann-Whitney U test significance *** $p < .001$ ** $p < .01$ *$p < .05$

Appendix N: Distribution of Interpersonal Variables by Participation Status

Table 13

Distribution of Interpersonal Variables by Participation Status

Variable	Participant Status				Valid Total	
	Past Participants		Current Participants			
	n	Percentage	n	Percentage	n	Percentage
Friends who are active**	26	24.1	82	75.9	108	99.1
All	3	11.5	26	31.7	29	26.9
Most	16	61.5	51	62.2	67	62
Some	7	26.9	5	6.1	12	11.1
None	0	0	0	0	0	0
Missing					1	0.9
Friends in KRC*	27	24.8	82	75.2	109	100
Most	4	14.8	39	47.6	43	39.4
Many	6	22.2	34	41.5	40	36.7
Some	12	44.4	7	8.5	19	17.4
None	1	3.7	2	2.4	3	2.8
Don't know	4	14.8	0	0	4	3.7
Missing					0	0
Parents encourage PA	26	24.1	82	75.9	108	99.1
Yes	23	88.5	75	91.5	98	90.7
No	3	11.5	7	8.5	10	9.3
Missing					1	0.9
Parents encourage KRC***	25	23.4	82	76.6	107	98.2
Yes	8	32	63	76.8	71	66.4
No	17	68	19	23.2	36	33.6

Variable	Participant Status					
	Past Participants		Current Participants		Valid Total	
	n	Percentage	n	Percentage	n	Percentage
Missing					2	1.8
Family members run	25	23.4	82	76.6	107	98.2
Yes	7	28	36	43.9	43	40.2
No	17	68	45	54.9	62	57.9
Don't know	1	4	1	1.2	2	1.9
Missing					2	1.8
Coach makes KRC Fun	26	24.1	82	75.9	108	99.1
Yes	18	69.2	74	90.2	92	85.2
No	5	19.2	3	3.7	8	7.4
Don't know	3	11.5	5	6.1	8	7.4
Missing					1	0.9
Coach encourages	24	22.6	82	77.4	106	97.2
Yes	22	91.7	75	91.5	97	91.5
No	2	8.3	4	4.9	6	5.7
Don't know	0	0	3	3.7	3	2.8
Missing					3	2.8
Coaches as 'liked' aspect of KRC**	25	26	71	74	96	88.1
Liked a lot	17	68	67	94.4	84	87.5
Liked a little	6	24	4	5.6	10	10.4
Didn't like	2	8	0	0	2	2.1
Missing					13	11.9

Mann-Whitney U test significance *** $p < .001$ ** $p < .01$ *$p < .05$

Appendix O: Correlation of Composite Variables and Participation Status

Table 14

Correlation of Composite Variables and Participation Status

		Combined PA Variable	Combined Support Variable	Participation status
Combined PA Variable	Pearson Correlation	1	.258*	.325**
	Sig. (2-tailed)		.016	.001
	N	95	87	95
Combined Support Variable	Pearson Correlation	.258*	1	.523**
	Sig. (2-tailed)	.016		.000
	N	87	90	90
Participation status	Pearson Correlation	.325**	.523**	1
	Sig. (2-tailed)	.001	.000	
	N	95	90	109

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).