Process Evaluation of the Family Healthy Living Program Pilot (FHLP): Exploring Implementation from the Family and Program Delivery Levels

by

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B.A. Recreation & Health Education, University of Victoria, 2015

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Supervisory Committee

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Abstract

Introduction: The prevalence of childhood overweight and obesity has steadily increased in recent decades, presenting a serious risk to public health and significant burden on individuals, healthcare systems, and society more broadly. Early intervention family-based lifestyle programs are an efficacious intervention for addressing childhood obesity. However, many studies have not included a process evaluation which can limit future scale-up of efficacious interventions. The Family Healthy Living Program (FHLP), an evidence-based, stakeholder-informed family-based healthy living intervention for children with a BMI-for-age $\geq 85^{th}$ and their families was developed and piloted in British Columbia. The free 10-week program, based on the multi-process action control theory, utilized a blended delivery model consisting of 90-minute weekly group sessions plus online lessons, four community-based activities and four maintenance sessions. Topics included healthy eating, physical activity, sleep, screen-time, positive mental health, food and physical literacy, and behavior change techniques. Eleven programs ran in seven BC communities (September 2018-April 2019).

Purpose: To evaluate the recruitment, intervention content, delivery, and implementation of the FHLP for quality improvements and to inform decisions about potential scale-up.

Methods: A mixed-methods concurrent triangulation process evaluation design with equally-weighted qualitative and quantitative data was used and represented one component of a Type I hybrid effectiveness trial for the FHLP Study. Implementation was evaluated at both family and program delivery levels. Family measures were reach, recruitment, dose received, satisfaction, and facilitators and barriers to participation. Program delivery measures were adoption, fidelity, acceptability, feasibility, compatibility, and facilitators and barriers to program implementation. Qualitative data was collected through interviews and focus groups with parents, program leaders, recreation centre managers, and program support team. Quantitative data was collected from parent and child satisfaction surveys, weekly program leader surveys, attendance forms, and online lesson analytics. Quantitative descriptives were generated using SPSS.

Qualitative interviews were recorded and transcribed using Transcriptive™ software, and analysis conducted using NVIVO. A framework analysis approach was applied.

Results: 132 families were eligible (n=211 enquiries), and 79 families (88 children) registered (42%). 55 families (63 children) started the program and 80% completed. Of those, 82.5% of families attended 70% of sessions.
26% of families accessed 30%+ of core online lesson content. Average contact time was 17.7 hours (range 12.78-25.02).

Family participation facilitators were: free of cost, location, sibling inclusion, and complimentary recreation passes. Participation barriers were: other commitments, illness, transportation, and scheduling. Program acceptability/satisfaction across parents and children was high, with satisfaction ratings over 4/5 for all measures.
Seven of the nine (78%) communities originally identified as pilot sites implemented the program. Fidelity was 73.5% across program components (range 42-95%). At the delivery-level, implementation facilitators were high compatibility and feasibility, context (support from recreation centre, having qualified staff), and resources (room availability, manual, equipment, grant funding). Barriers to implementation were recruitment, small group size, attendance, and limited time to deliver material. Interviews showed program leader acceptability/satisfaction across all sites.

Conclusions: The FHLP was acceptable and feasible for families and program delivery partners, but recruitment, attendance, and on-line engagement were implementation challenges. Program adjustments are recommended prior to scale-up.

Table of Contents

List of Tables

List of Figures

Author Contributions

This is a manuscript-based thesis composed of two chapters. Chapter Two will be submitted as a peer-reviewed manuscript. The specific author contributions are outlined below.

I, Bianca DeSilva, was responsible for conducting the process evaluation components of the study. This included:

- *Post-program interviews:* scheduled, conducted, and transcribed interviews; cleaned and analyzed data; interpretation and presentation of results
    - Interviews with parents and/or caregivers, program leaders, recreation centre staff managers, COF team

- *Satisfaction surveys:* sent and tracked survey responses and incentives; cleaned and analyzed data; interpretation and presentation of results
    - Surveys for parents and/or caregivers and children

- *Weekly program leader feedback surveys:* created, sent and tracked survey responses; cleaned and analyzed data; interpretation and presentation of results

Secondary roles:

In addition to my primary roles, I was also involved as part of the Childhood Obesity Foundation support team performing screening calls to enroll participants in the overall efficacy study. I was also hired as a program leader in one Family Healthy Living Program site. This meant I participated in all the program leader training and tracking and had prolonged engagement with the program and with participants at some sites. I did not conduct the program leader interviews at my site.

Acknowledgments and Dedication

Thank you to my supervisor, Dr. Patti-Jean Naylor, who took me on as “one last student” and provided endless support with her passion, expertise, encouragement, and laughter. I am so grateful for her guidance throughout this thesis and entire degree. I would also like to thank Dr. Sam Liu for his support and guidance, especially with SPSS. To some key members of the FHLP and COF team: Dr. Karen Strange, Teresa Hartrick, Meg Perdew, Dimas Adiputranto, Carol Tickner, and Tiffany Patterson— thank you for everything!

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To my wonderful friends and family, thank you for everything. Also, for reminding me not to take life so seriously all the time!

I would like to dedicate this thesis to my grandparents and parents who never had the education opportunities I did, but who gave everything they could so that I could follow my dreams and passions.

CHAPTER ONE: Introduction and Review of the Literature

1.1 Introduction

The prevalence of childhood overweight and obesity has steadily increased in recent decades in nearly all countries for which data is available, with a more dramatic increase in economically developed countries and urbanized populations (WHO, 2016; Wang & Lobstein, 2006). As of 2019, it is estimated that more than 150 million children worldwide are obese and that this will rise to 206 million by 2025 (World Obesity Federation, 2019). This issue presents a serious risk to public health and a significant economic burden to health care systems as well as society more broadly (Tremmel, Gerdtham, Nilsson, & Saha, 2017). In Canada, the combined prevalence of overweight and obesity among those ages 5 to 17 is roughly 30% (Ng et al., 2014). In British Columbia specifically, more than 26% of youth ages 12 to 17 are overweight or obese (Statistics Canada, 2005). Furthermore, the rate of increase in prevalence of obesity is greater in children than adults (Willms, Tremblay, & Katzmarzyk, 2003).

Health care, school, and community leaders worldwide have recognized that the growing prevalence of childhood obesity was for concern (Ng et al., 2014; Andersen, 2000). Research shows that overweight and obese children are at an increased risk for developing a variety of adverse physical health and social consequences, which can lead to psychological issues. Physical health consequences can be immediate, intermediate and long-term in nature; these include hyperlipidemia, hypertension, insulin resistance, abnormal glucose tolerance, poor pulmonary function, and sleep apnea (Must & Strauss, 1999; Weiss et al., 2004; Reilly et al., 2003). Social consequences associated with overweight and obesity include discrimination, teasing, and victimization (Must & Strauss, 1999). These physical health and social consequences often lead to several psychological issues including depression, anxiety, low self-

esteem, emotional problems, body dissatisfaction, and disordered eating symptoms (Russel-Mayhew, McVey, Bardick & Ireland, 2012; Erickson, Robinson, Haydel & Killen, 2000).

Of further concern, is that childhood obesity tracks into adolescence and adulthood (Daniels et al., 2005; Clarke & Lauer, 1993). In a systematic review by Singh et al. (2008), all of the studies reported an increased risk of overweight and obese children and adolescents becoming overweight adults. Similarly, research indicates that obese children have an 80% or higher probability of becoming obese adults (Tirosh et al., 2011).

Fortunately, when obesity is treated at an early age, the potential for height growth means that a relatively small weight loss can have a significant impact (Goldschmidt, Wilfley, Paluch, Roemmich & Epstein, 2013). Additionally, preventing weight gain and maintaining weight have been shown to improve cardiovascular risk factors in children, but not in adolescents (Reinehr, 2013), which further highlights the importance of early intervention.

These findings have led to the development of a variety of prevention and treatment programs. However, there remains a need for childhood overweight and obesity programs focused on early lifestyle intervention that are innovative in terms of scalability (e.g. representing stakeholder needs, cost-efficient delivery, potential for broad reach and alignment with the implementation context), flexibility/localized adaptation for families and program delivery organizations through blending face-to-face and on-line programming, and incorporating emerging health and behavioural issues and theories (e.g. multi-process action control theory; positive mental health and resilience, sleep, physical literacy) (Liu et al., 2019).

Establishing healthy habits at a young age is critical given the challenges of changing physical activity and eating behaviours later on (Ash, Agaronov, Aftosmes-Tobio, & Davison, 2017) and parents are a key influence on lifestyle behaviour during this time period (Rhodes &

Lim, 2018; Golan, 2006). Furthermore, parental support as an influence of significant and positive change is highest between ages 6-12 years (Trost & Loprinzi, 2011).

The goal of these programs is to provide intervention as early as possible to improve the probability of long-term successful outcomes. Consequently, early intervention is one of six elements in BC's Continuum for the Prevention, Management and Treatment of Health Issues Related to Overweight and Obesity in Children and Youth (Bradbury, Day, & Scarr, 2015).

There are several settings in which early intervention family-based programs for overweight or obese children have been shown to be effective including medical, community-based, school, home, and multi-setting (Ash et al., 2017; Danielsen, Nordhus, Júlíusson, Mæhle, & Pallesen, 2013; Avery et al., 2012; Chahine, Potter, & Freeman, 2010; Grimes-Robison & Evans, 2008; Edwards, Nicholls, Croker, Van Zyl, Viner, & Wardle, 2006). Likewise, there are several program components that have been shown to be effective. While core content components of obesity early intervention programs are typically physical activity, healthy eating, and behaviour modification and include a combination of parent-only, child-only and family-based discussion or activities, many interventions are moving towards an interdisciplinary approach (Golley et al., 2007; Summerbell et al., 2003). There is also increasing evidence that suggests positive mental health, screen time, and sleep play an important role (Ash et al., 2017 & Pinard et al., 2012). Regardless of the chosen intervention setting and specific program components, research suggests that parent or caregiver involvement is critical as they are the gatekeepers for healthy behavior in this age group (Golan, 2006; Golan & Crowe, 2004; Lindsay et al., 2006).

This review provides an overview of the literature supporting family-based approaches to childhood obesity and of the evidence about the efficacy and key characteristics of efficacious

family-based interventions. It then identifies a gap in information about implementation of such programs, overviews process evaluation and measurement options, and then provides a detailed description of the findings from family-based intervention process evaluations currently in the literature. Finally, it provides the background to a childhood healthy weights program developed in British Columbia where both outcome and process evaluation were conducted to inform further development and potential scale-up. This program and its evaluation are the foundation of this research.

1.2 Importance of Family Involvement

Childhood obesity intervention research has evolved from child-centered weight-management interventions to family-based behavioral interventions that promote healthy lifestyle behaviors for all family members. This shifts the focus and responsibility from the overweight child to their parents or caregivers to provide encouragement and a supportive environment (Berry et al., 2017). While numerous intervention settings and program components exist, research suggests that parent or caregiver involvement is a critical factor as they are the gatekeepers for healthy behavior (Young, Northern, Lister, Drummond & O'Brien, 2007; Golan, 2006; Golan & Crowe, 2004; Lindsay et al., 2006). Parents can be considered important agents of change in childhood obesity (Hingle, O'Connor, Dave, Baranowski, 2010). For example, parents or caregivers impact their child's energy balance as they manage the foods and beverages brought into the home environment, and influence physical activity, screen time, and sleep behaviors (Ash et al., 2017). Family-based interventions have been shown to be effective in reducing BMI and improving dietary behaviours (Ash et al., 2017; Janicke et al., 2014; Berge & Everts, 2011). As a result, parent participation in obesity treatment has been

increasingly emphasized (Lindsay et al., 2006). A recent systematic review and a further review of the studies helps to identify critical components of family-based interventions.

1.3 Family-Based Interventions

1.3.1 Intervention Content (behavioural and core behaviours)

Behavioural family-based interventions, those that focus on modifying lifestyle behaviors across the whole family, are the most widely studied and successful interventions for treating childhood obesity (Woolford, Sallinen, Clark, & Freed, 2011; Sacher et al., 2010). As stated previously, they typically focus on lifestyle behaviour management involving physical activity and nutrition (Ash et al., 2017). More recently sleep, mental health and screen-time have been added to the mix, although only a small percentage of those reviewed by Ash et al and found in the literature have mentioned addressing these new and emerging issues (Ash et al., 2017; Pinard et al., 2012). A large focus of these interventions is on behavioral modification techniques including goal setting, self-monitoring, and positive reinforcement (Ash et al., 2017).

1.3.2 Intervention Setting and Location

Family-based weight management interventions have been shown to be effective in many settings including medical, community-based, and combination (Danielsen, Nordhus, Júlíusson, Mæhle, & Pallesen, 2013; Avery, et al., 2012; Chahine, Potter, & Freeman, 2010; Grimes-Robison & Evans, 2008; Edwards, Nicholls, Croker, Van Zyl, Viner, & Wardle, 2006). The most common settings are primary care centres, pediatric clinics, and community recreation centres. (Ash et al., 2017). Other intervention settings include elementary schools (Sacher et al., 2010) or families' homes (Stark et al., 2018).

Program location impacts participants' ability to enroll in family-based interventions (Woolford et al., 2011). Furthermore, program location is a critical factor in determining regular attendance and parents have identified travel time as a major barrier to attending weight management programs (Staiano et al., 2017; Woolford et al., 2011). In a 2017 study, parents identified local schools, recreation centres, and clinics as the most convenient program locations (Staiano et al.). The use of technology for blended or online programs can provide a new method and greater flexibility for reaching families that are unable or unwilling to attend regular in-person sessions due to transportation or location difficulties, or a lack of time (Bala, Price, Horan, Gerber, & Taveras, 2019). As a result, programs using online or mobile platforms are becoming increasingly popular. When applied to the prevention and treatment of obesity, potential advantages include a larger reach, convenient data collection, and the capacity to offer interactive and tailored interventions to participants in their everyday environment (Turner, Spruijt-Metz, Wen, & Hingle, 2015). Blended programming is not yet common in the literature; the use of e-technology was in the form of email and text-based reminders.

1.3.3 Intervention Length and Frequency

The length of family-based interventions varies greatly and may include follow-up or maintenance program sessions. The intervention duration may impact its effectiveness with regards to sustainable outcomes. A recent review found that family-based interventions typically ranged from three to six months in length; however, some were only one month, while others lasted between one to two years (Janicke et al., 2014). Ash et al. (2017) noted that interventions less than three months made it difficult for families to implement sustainable lifestyle changes. Conversely, studies exceeding one year in length often experienced a decline in participant attendance the longer the intervention continued. Therefore, it is critically important to determine

an intervention length that will provide enough time to deliver the content material and implement sustainable lifestyle changes, while not being so long that it results in low attendance. Program length relates to the total amount of potential intervention contact hours.

Along with overall program length, the frequency and length of each program session are also important factors to consider and contribute to contact hours as well. Intervention sessions generally fall between 20 to 90 minutes (Janicke et al., 2014; Whitlock et al., 2010; Wilfley et al., 2007) with some interventions dividing the sessions into two or three shorter activities. For example, a community-based trial, *CATCH,* included a 60-minute block of time divided into nutrition lessons and physical activity (Berry et al., 2017). A meta-analysis of family-based lifestyle interventions reported that interventions which included a minimum of 26 treatment contact hours were largely effective in reducing children's excess weight compared to lower intensity interventions of 10 or less treatment contact hours (Janicke et al., 2014). In 2017, the U.S. Preventative Services Task Force recommended that best practices for family-based childhood obesity treatments should involve at least 26 hours of in-person treatment counselling during a 6-month period (Grossman et al., 2017).

This treatment time may include alternative forms of contact such as the use of telemedicine, websites, applications, and social networking (Gallagher, Davis, Malone, Landrum & Black, 2011). As seen in the *Smart Choices for Healthy Families* study, an automated calling system was used to review the previous session's goals, participant feedback progress, as well as instructions for goal setting (Pinard et al., 2012). Digital communication technology may also serve as a new method to reach families who are unwilling or unable to attend regular program sessions due to a lack of time or transportation challenges (Bala, Price, Horan, Gerber, & Taveras, 2019). It may also be a method to reach families who live in rural or remote

communities (Lim & Janicke, 2013). Challenges to providing childhood weight management interventions in rural communities include transportation difficulties, limited availability and access to healthy foods, a lack of safe places designed for physical activity, and the lower socio-economic status of many rural families (Lim & Janicke, 2013). As well, given the transportation challenges of rural areas, future childhood weight management programs may also benefit from the use technology for training purposes (Lim & Janicke, 2013); contributing to overall scalability.

The complex nature of childhood obesity and the critical need to address this issue has led to the development of numerous prevention and treatment programs. It is clear from Ash et al. (2017) that effective programs had similarities and key characteristics in terms of content and delivery length but that we know less about blended or on-line programs. There is no shortage of programs overall; unfortunately, Wang et al. (2015) highlighted that several unanswered questions remain related to the implementation successes and failures (which challenges scalability), as well as the long-term sustainability of these programs.

While the literature often focuses on outcome evaluations to determine the success of a program, it is also important to conduct a process evaluation to understand the reasons why a program was successful or not (Steckler & Linnan, 2002). Unfortunately, there is currently a lack of family-based interventions that include a process evaluation component (Summerbell et al., 2005). Those that did, included only a handful of measures such as program feasibility and acceptability. A systematic review by Wang et al. (2015) evaluated the effectiveness of childhood obesity prevention programs including 139 interventions in high-income countries across various settings. Based on their review, 10 recommendations for future research in

childhood obesity prevention were provided including the importance of conducting process evaluations.

Therefore, further research on the implementation of childhood obesity interventions using process evaluation is warranted. This includes interventions that are family-based. Understanding the feasibility, implementation issues, areas for improvement, and the scalability of efficacious programs can support extending their reach and ultimately lead to a greater public health benefit (Glasgow, Vogt, & Boles, 1999). Following is a summary of what is known about process evaluation from the early intervention childhood obesity intervention literature.

1.4 Process Evaluation

Process evaluation is used to monitor program implementation and can help researchers understand the relationship between specific program elements and outcomes (Saunders, Evans, & Joshi, 2005). The concept of process evaluation is not new. Several textbooks and articles have addressed this concept using different terms with multiple theories serving as the foundation of implementation science. As early as the 1960s, a textbook on program evaluation included an explanation of process evaluation. It was published as a result of social scientists showing a greater interest in program evaluation as many federally funded social and education programs began to require formal evaluation (Suchman, 1967). In 1980, Green, Kreuter, Deeds, and Partridge defined process evaluation as a means to monitor the quality of practice and claimed the object of interest is professional practice; this later led to the development of the Precede/Proceed model. The mid-1980s saw the beginning of contemporary process evaluation theory and methods (Steckler & Linnan, 2002). Research methods that are frequently used in implementation research include pragmatic trials, quality improvement studies, effectiveness-

implementation hybrid trials, and participatory action research (Peters, Adam, Olakunle, Agyepong, & Tran, 2013). The scope and use of process evaluation has grown in recent years and its importance more widely recognized (Saunders, Evans, & Joshi, 2005).

While many public health interventions focus on outcome evaluations (e.g. BMI z-scores), it is perhaps equally important to conduct a thorough process evaluation to understand the reasons behind *why* a program was successful or not (Steckler & Linnan, 2002). The findings from a process evaluation can be used at several levels; for example, participants, program staff, program coordinators, sponsors, and stakeholders (Fonseca-Baker & Boore, 2008). It can also serve a wider range of users, for example, coordinators of similar intervention programs and policy makers who are looking to design or improve upon a similar program (Weiss et al., 1999).

Process evaluation works to strengthen the program, and may also help to satisfy donor requirements, gain additional funding, or even influence policy (Fonseca-Baker & Boore, 2008). It can be especially important in multi-site trials where the "same" intervention may be implemented, delivered and/or received in different ways. For example, the number of participants at a program site may influence the types of physical activities during sessions, the leaders' adherence to program components, and whether they have enough time to complete all program material during a given session. In recent years, there has been a shift towards combining process and outcome evaluations for complex, real-world interventions (Moore et al., 2014; Oakley et al., 2006). Process evaluations can provide valuable insight into why an intervention is unsuccessful or has expected consequences or why a successful intervention works. Beyond determining *why* a program was successful or not, process evaluation can also be used to determine whether a program is sustainable, if it is able to succeed in the long-term, and if there is the potential for the program to be scaled-up (Craig et al., 2008).

1.4.1 Critical Implementation Issues

The effective and timely translation from research to practice remains one of the major challenges to population health (Glasgow, 2009). There is a significant lag time between new evidence-based findings to reach clinical practice, often taking an average of 17 years (Balas & Boren, 2000). A key feature of implementation research is that it is concerned with determining whether a program works in a specific type of real-world setting, and the types of delivery conditions, participants, and staff that are associated with success (Pawson, Greenlaugh, Harvey, & Walshe, 2005). As interventions involving implementation research are usually complex and often multi-level, this adds evaluation challenges (Glasgow, 2009).

Common challenges to implementation research summarized by Glasgow (2009) include: not including a relevant, high risk, or representative sample or being able to evaluate representativeness (reach); protocols not delivered as intended (implementation); and substantial attrition of settings, delivery staff, and/or participants over time (maintenance).

As well, the field of dissemination and implementation (D&I) research faces its own unique challenges. A recent paper by Koorts et al. (2020) presented barriers and facilitators associated with the uptake of, engagement in, and support for D&I research in the fields of nutrition and physical activity. A variety of individual, organizational, and system-wide factors were identified as hindering academics' engagement with and support for D&I research. Individual level barriers include insufficient D&I training, difficulties obtaining sufficient resources to conduct D&I research, and perceptions that D&I research is 'messy'. Organizational level barriers include a lack of expertise in D&I science in academic institutions and an overemphasis on outcome-oriented metrics. System-wide barriers include academic

funding that is not conducive to D&I science, a lack of D&I expertise on funding review panels, and journal publishing that is not conducive to D&I research.

Nonetheless, in recent decades, there has been a rapid growth in dissemination and implementation research which has led to the creation of a variety of implementation frameworks (> 60) that guide both the design and evaluation of implementation and subsequent scale-up processes (McKay et al., 2019).

1.4.2 Characteristics of Effective Programs Using Implementation

McKay et al. (2019) acknowledge that physical activity and nutrition researchers and practitioners may find it difficult to navigate more than 60 conceptual frameworks (Nilsen, 2015)and more than 70 evidence-based strategies, (Leeman, Birken, Powell, Rohweder, & Shea, 2017), as well as hundreds of indicators developed specifically to guide the implementation and scale-up of health interventions (Tabak, Khoong, Chambers, & Brownson, 2012). As such, McKay et al. sought to recommend a 'minimum data set' of implementation outcome and determinant variables. This data set includes five implementation outcomes: adoption, dose delivered, reach, fidelity, and sustainability (McKay et al., 2019). As well, it included ten implementation determinants: context, acceptability, adaptability, feasibility, compatability, cost, culture, satisfaction, complexity, and self-efficacy (McKay et al., 2019).

1.5 Process Evaluation and Implementation Evidence from the Childhood Obesity Intervention Literature

With the importance of process evaluation highlighted in the literature, it is critical to assess what has been measured specifically in the family-based childhood obesity intervention literature. Thus, critical studies and systematic reviews were overviewed to identify what is

currently known about implementation in the childhood obesity intervention literature, what has been measured, and to identify gaps.

We reviewed a recent systematic review and quantitative content analysis by Ash et al. (2017) that addressed the age group of interest (ages 7-12 years of age). Of the 159 studies reviewed, only 17 included process evaluation measures (11%). However, there are several common measures and findings from the studies reviewed. Following, is an overview of studies from the review by Ash et al., plus additional studies identified from the literature after the review. The overview of the interventions following includes the most important and reproducible program factors such as setting, characteristics including length and contact time, the process evaluation measures used and key process evaluation findings.

A pilot implementation intervention study of the *Healthier Families Program* (Heerman, Schludnt, Harris, Teeters, Apple, & Barkin, 2018) was conducted at three recreation centres in states with different socio-cultural environments (Michigan, Georgia, and Arizona). The program was evaluated both qualitatively and quantitatively using the RE-AIM framework (Glasgow, Vogt, & Boles, 1999) which addresses the program's Reach, Effectiveness, Adoption, Implementation, Maintenance (at both the individual and organizational level). The program was delivered in 12 weekly sessions and aimed to improve health behaviors among child-parent pairs. These health behaviors included the following: choosing healthy foods, selecting healthy snacks and beverages, portion sizes, grocery shopping, being an active family together, limiting screen time, and creating healthy sleep habits. In addition to reporting on reach and site level adoption, implementation challenges were assessed and reported on and included participant recruitment, retention, and attendance.

A 2014 study by Welsby et al. performed a process evaluation of a community-based obesity treatment program, *New South Wales Go4Fun,* for children ages 7 to 13 years with a BMI $\geq 85^{th}$ percentile. Children were accompanied by their parent or caregiver to 20 bi-weekly sessions. Key program components were a physical activity session and a behaviour change session which included goal and reward setting, triggers, problem solving, and role modelling. Reach was reported based on the number of participants and representativeness of the sample. Dose received was based on attendance information. Feedback was collected from parents and children in the form of post-program surveys and addressed satisfaction and implementation information for future programs. Overall, participants' feedback was very positive. 95.5% of parents indicated a "good" or "very good" level of program satisfaction, and 87.1% of children indicated that they were "happy" or "very happy" with the program. However, despite the overall positive program feedback from parents and children, the twice a week time commitment was identified as a major barrier.

Barnes, Plotnikoff, Collins, & Morgan (2015) included process evaluation components in their study of a novel mother-daughter physical activity gender-tailored program, *MADE4Life (Mothers And Daughters Exercising for Life),* in New South Wales, Australia. The 8-week program involved weekly sessions where mothers and daughters had separate 25-minute education sessions, followed by 60-minutes of physical activity together. Feasibility, acceptability, and satisfaction were assessed using recruitment, retention, and attendance information. Acceptability and satisfaction were assessed using a process evaluation questionnaire with a 5-point Likert scale. Mothers also completed 3 open-ended questions asking what they did and did not like about the program and suggestions for improvement. Program attendance was high (82%). For families who completed the program, average attendance was

93%. Acceptability and satisfaction were also high with nearly all parents (95%) and 71% of children rating all program sessions very positively. The most common reasons for missing a session were sickness (50%), family commitments (30%), and work commitments (20%). Measures of fidelity showed that all sessions were implemented as planned (100%). The program was highly feasible and acceptable to both mothers and daughters. Qualitative data from mothers indicated the highlight was spending quality time with their daughters while doing physical activity in a fun and supportive environment with other mothers and daughters.

A pilot childhood obesity prevention program, HOME (Healthy Home Offerings via the Mealtime Environment), based in the United States also tested program feasibility and acceptability (Fulkerson et al., 2010). Attendance data was collected at both the family and individual levels as well as homework completion of five assignments to access dose received. Implementation of each program component was tracked by HOME staff to assess intervention fidelity. A post-program survey measured child and parent satisfaction with each component on a 5-point Likert scale. The program was successful in retaining 100% of families over a 1-year period and had a high attendance rate (86% of families attended at least 4 of 5 sessions). The researchers attributed the high retention rate to incorporating in-home assessments and having convenient neighborhood locations. The completion of family homework had mixed success. However, participants were very satisfied with the program, with 95% of parents and 71% of children rating sessions as “4” or “5” on a 5-point Likert scale.

Another European obesity prevention program, the *WAVES Study*, aimed to test the effectiveness of an obesity prevention program delivered in 24 UK schools for children ages 6 to 7 years (Griffin et al., 2017). There were four intervention factors: increased daily school-time physical activity, cooking workshops for both children and parents, a 6-week healthy lifestyle

promotion program, and posters promoting local physical activity opportunities. The process evaluation data addressed six factors: recruitment, reach, quality, fidelity, context, and participant responsiveness (as observed by teachers). The four intervention factors and six process evaluation measures allowed for the triangulation of data. Overall, the intervention was found to be well-implemented and well-received by children, teachers, and parents. The process evaluation results provided detailed information on implementation of a health intervention in the school setting. The article outlined challenges that needed to be addressed in the design of future interventions and how direction at the policy-level could influence and optimize the implementation and effectiveness of such programs.

A mixed-methods study by Pinard et al. (2012) aimed to evaluate the feasibility of a family-based obesity treatment program for children in low-income families (*Smart Choices for Healthy Families*). Feasibility was assessed using semi-structured interviews for parents, physicians, and program leaders to assess participant perceptions of the program and the feasibility of both recruitment and program delivery. Participants were recruited through physician referral and included 26 children and their parents or caregivers. Inclusion criteria were children aged 8 to 12 years with a BMI-for-age and gender between the 90^{th} and 99^{th} percentile. The intervention included support for parent behavior change, parenting strategies, and role modeling to adopt healthy behaviors. The program included six bi-weekly group sessions divided into two groups, one for parents and one for children. Parent sessions focused on goal setting and the home environment, while child sessions focused on physical activity; each group was facilitated by a trained leader. Every second week, participants received automated telephone-counselling calls. Results from the process evaluation indicated that physicians valued the leaders' ability to provide lifestyle information. Parents indicated they

wanted to become positive role models and found the bi-weekly counselling calls helped them to maintain focus on their goals. Qualitative themes, details, and quotes were summarized. Examples of themes identified included: 1) lay leaders found approach of parent-child dyad novel and beneficial for greater impact, 2) one reason parents sign up for program is to become better role models for children, 3) main barrier to attendance was transportation, 4) favorite program components were hands-on activities and sampling recipes, and 5) automated telephone calling component was accepted.

Kalarchian et al. (2009) evaluated the efficacy of a family-based treatment program for the management of severe pediatric obesity in children ages 8 to 12 years old, however, the process evaluation was limited. The study used a randomized controlled trial. Inclusion criteria were a BMI-for-age $\geq 97^{th}$ percentile and having at least one adult willing to attend sessions; there were 192 participants. The program consisted of 20 group meetings over a 6-month period. The intervention aim was to teach behavioural changes, increase physical activity, reduce sedentary behaviours, and increase healthy eating through weekly goal setting. Parents were expected to model healthy behaviours and set goals for physical activity. Six booster sessions were provided between month 6 and month 12. Assessments were conducted at baseline, 6, 12, and 18 months. The intervention was associated with significant short-term reductions in obesity and improvements in medical assessments. In terms of the process evaluation, only dose response was addressed. Longer-term weight change benefits were shown for children who attended at least 75% of sessions. Findings also suggested that some family-level determinants were important; having a lower baseline percent overweight, greater parent BMI reduction, and higher family income were associated with a greater reduction of overweight in children at six months.

Magarey et al. (2011) conducted a single-blinded randomized controlled trial, *PEACH,* of children ages 5 to 9 years with moderate obesity in Queensland, Australia. The aim of the study was to evaluate the effectiveness of the intervention in reducing adiposity and to determine whether adding parenting skills training would increase this effect. The program was delivered in 10 group sessions over 6 months and targeted parents for implementing family lifestyle changes. Participants were randomized to a parenting skills and healthy lifestyle group or a healthy lifestyle-only group. Measurements and parenting constructs were measured at baseline, 6, 12, 18, and 24 months. Results showed a 10% reduction in BMI and waist z scores from baseline to 6 months; there was no significant group effect. This change was maintained to 24 months with no additional intervention or treatment. The program was later translated to a large-scale community intervention between 2013 and 2015 and delivered to 467 families. The implementation evaluation addressed reach only and showed that program attendance was greater for advantaged families, partnered parents, higher educated parents, and those who self-referred compared to disadvantaged families, single parents, lower educated parents, and those who had a professional referral. These differences are important to consider and address for future programs in order to promote greater program reach and effectiveness (Williams et al., 2017).

In summary, process evaluation in family healthy weights interventions is not common. As highlighted earlier of the 159 studies reviewed by Ash et al. (2017), only 11% included process evaluation measures. However, there were several common process evaluation measures and findings from the studies reviewed. The majority of studies included measures of reach, recruitment, and feasibility. About half included a more comprehensive list of measures including dose received, fidelity, and context. Parent and child satisfaction were measured in

close to half of the studies. Specifically related to the implementation factors that would affect scale-up, the majority of the process evaluations conducted appeared to be at the participant/family level. When preparing for scale-up program delivery level factors are also important (Milat, Bauman, & Redman, 2015) and need to be addressed in ongoing research.

There were several key findings from the process evaluations of the interventions reviewed previously that serve as comparators for the FHLP. For example, program attendance participant engagement was a critical component of intervention effectiveness. Major barriers to attendance were transportation challenges and a program with in-person sessions that were held more than one day per week. Therefore, the purpose of my research was to expand on the process evaluation measures outlined by Steckler and Linnan (2002) and as proposed in the minimum data set by McKay et al. (2019) and to specifically include measures at both the family and program delivery level measures that will contribute to scale-up decisions.

1.5.1 Family-Level Barriers and Facilitators to Participation

There were several factors that emerged from the process evaluations which made it difficult for families to participate in childhood weight management programs or more challenging to attend program sessions. This is important in terms of program design. Staiano et al. (2017) found that barriers to participation included: lack of time, the perceived cost of healthy foods and exercise, and frustration from prior unsuccessful attempts at weight loss. A recent study by Wild et al. (2019), found that barriers were a lack of perceived suitability for the program, a perceived inaccessibility, transportation challenges, or when parents considered other priorities or activities as more important for their families. Additionally, an important finding

was that participants' past experiences of health care influenced their decision to attend. Regarding rates of attrition from childhood weight management programs, a review by Skelton & Beech (2011) found that scheduling issues and the program not meeting the family needs or expectations are consistent reasons given by parents for attrition from the program. Further barriers are the stigma surrounding excess weight as well as the denial of the issue among some parents (Kelleher et al., 2017).

Participants identified facilitators to attend or participate in programs as the motivation to improve the health of their child and/or family (Wild et al, 2019; Kelleher et al., 2017), the perceived accessibility of the program, and ongoing support from program staff (Kelleher et al., 2017). As well, attendance levels were higher when there was a convenient location of sessions (Kelleher et al., 2017). All of these factors highlight the potential of blended and on-line delivery to address these family-level issues.

1.6 Development of the Family Healthy Living Program

Based on the prevalence and incidence of childhood overweight and obesity the government of British Columbia invested in early intervention programs with families beginning in 2013 (Naylor et al., 2020). With support from the British Columbia Ministry of Health, the Childhood Obesity Foundation conducted a provincial stakeholder consultation and reviewed the evidence-based literature (Ash et al., 2017; Wang et al., 2015; Janicke et al., 2014) and past programs as well as existing programs in British Columbia (Naylor et al., 2020; Liu et al., 2019) to identify evidence-based/ efficacious components. The result was a prototype *Family Healthy Living Program*: a free, early intervention childhood healthy weights program for families with children ages 8 to 12 who were off the healthy weight trajectory (BMI-for-age $\geq 85^{th}$ percentile).

The program was designed to meet the needs of stakeholders, to align with existing clinician-driven childhood healthy weights programs currently being delivered in BC, including Shapedown BC and the HealthLinkBC Eating and Activity Program for Kids, and to address gaps in the family-based intervention literature. Specifically, in addition to physical activity, healthy eating, and behaviour management, it addressed screen-time, sleep, and positive mental health, was trauma informed, included way-finding for families to access community resources, and utilized a blended face-to-face and online delivery to enhance accessibility and flexibility for families and community delivery agents.

Intervention Overview:

- Program components: 10 weeks long with 26+ contact hours between participants and trained program staff including 10 weekly in-class and online sessions, 4 community-based group activities, and 4 maintenance group sessions
- Session curriculum topics: healthy eating, physical activity, goal setting, positive mental health, sleep hygiene, screen time, getting active outdoors
- Innovative components: weight bias and trauma-informed practice training for leaders, enhanced positive mental health activities for participants, focus on food and physical literacy, interactive online and gamified content, and way-finding to local community activities and resources

Several implementation strategies and structures were in place to support implementation of the intervention across sites. First, there was a multi-sectoral Provincial Stakeholder Advisory Committee that guided ongoing intervention development, implementation, and scale-up planning. There was also an interdisciplinary Expert Advisory Evaluation group that oversaw the

mixed methods efficacy and process evaluation. The aim of the evaluation was to support course correction and future decisions about scalability.

Researchers and research assistants at the University of Victoria coordinated and implemented all evaluation components. The overall project consultation and implementation including stakeholder group and project staff communication were overseen by a Project Director at the Childhood Obesity Foundation. Central training, operational and program support was provided to all sites. Ongoing operational and program support was provided by the Childhood Obesity Foundation Project Coordinator who was based at the University of Victoria. Their role included the recruitment and screening of study participants, program promotion, providing administrative and program information support to program leaders and recreation centre staff managers across all sites, liaising with parents and/or caregivers, and facilitating data collection for some of the process evaluation components of the study. Technical support for the online Family Portal was provided by a University of Victoria staff member.

As previously stated, a 2015 systematic review by Wang et al. evaluated the effectiveness of 139 childhood obesity prevention programs in high-income countries across various settings. Based on their review, 10 recommendations for future research in childhood obesity prevention were provided. The overall Type I hybrid effectiveness trial for the FHLP Study covered eight of these recommendations: 1) intervention study conducted in a non-school-based settings, 2) innovative study design and intervention approaches, 3) systems science-guided intervention study, 4) potential differential effects of interventions across subgroups, 5) publication of intervention process evaluation results, 6) application of rigorous analytical approaches, 7) exploring potential harms; for example, stigma faced by children being weighed or measured,

and 8) assessment of the intervention cost-effectiveness. The researchers noted that very few of the studies included in the review reported process evaluation results. However, the publication of process evaluation findings in future studies should be encouraged as it is important for the scale-up of public health interventions (Wang et al., 2015).

1.7 Purpose Statement

The purpose of this research was to conduct a process evaluation exploring the implementation of a prototype Healthy Weights Early Intervention Program (EIP), *Family Healthy Living Program* (FHLP), in British Columbia from the perspective of two levels of stakeholders (family and program delivery staff/partners). Specifically, the study addressed the following research questions.

1.8 Research Questions

1) What was the level of reach, recruitment, dose received, satisfaction, and the barriers and facilitators to participation?
2) What was the level of adoption, fidelity, acceptability, compatibility, and the barriers and facilitators to implementing the program?

1.9 Operational Definitions

1) **Context:** aspects of the larger social, political, and economic environment that may influence intervention implementation (Baranowski & Stables, 2000)
2) **Recruitment:** procedures used to approach and attract participants; often occurs at the individual and organizational/community levels (Baranowski & Stables, 2000)

3) **Reach:** Proportion of the intended priority audience (i.e., participants) who participate in the intervention (Farris, Will, Khavjou, & Finkelstein, 2007)
4) **Dose received:** intended units of each intervention component delivered to participants by the delivery team (Saunders, Evans, & Joshi, 2005)
5) **Satisfaction:** examines whether participants were satisfied with and liked the intervention; includes interpersonal, service, and content issues (Hawe, Degeling, & Hall, 1990)
6) **Barriers (family level):** factors that made it more difficult to participate in the program or more challenging to attend program sessions
7) **Facilitators (family level):** factors that made it easier to participate in the program or easier to attend program sessions
8) **Adoption:** proportion and representativeness of providers that deliver the intervention (Glasgow, Vogt, & Boles, 1999)
9) **Fidelity:** degree to which an intervention was implemented as it was prescribed in the original protocol or as intended by program developers (Rabin et al., 2008)
10) **Acceptability:** perceptions among the delivery team that a given intervention is agreeable, palatable, or satisfactory (Proctor et al., 2011)
11) **Feasibility:** perceptions among the delivery team that an intervention can be successfully used or carried out within a given organization or setting (Proctor et al., 2011)
12) **Compatibility:** degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters (Rogers, 2010)
13) **Barriers (program delivery level):** factors that worked against program implementation
14) **Facilitators (program delivery level):** factors that aided program implementation

15) **Implementation:** extent to which a program is delivered as intended; includes both individual and program-level measures (Gaglio, Shoup, & Glasgow, 2013)
16) **EIP:** Early Intervention Program. Early intervention is one of six elements in BC's Continuum for the Prevention, Management and Treatment of Health Issues Related to Overweight and Obesity in Children and Youth (Bradbury, Day, & Scarr, 2015)

1.10 Assumptions

- Responses from participants were honest and accurate.

1.11 Delimitations

- Findings were limited to families with children ages 8 to 12 who are off the healthy weight trajectory (BMI-for-age $\geq 85^{th}$ percentile).
- Findings are delimited to the BC context where for example the government has identified early intervention as a priority and provided funding for free programming from 2013. There were also two clinical programs being delivered in person (for obese children with co-morbidities) and using telehealth.

1.12 Limitations

- As with all intervention studies, recruitment bias and selective drop out may influence the results.
- Researcher bias may have influenced interpretation of qualitative results.

1.13 References for Chapter 1

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CHAPTER TWO

Manuscript for:

Process Evaluation of the Family Healthy Living Program Pilot (FHLP): Exploring Implementation from the Family and Program Delivery Levels

2.1 Introduction

The prevalence of childhood overweight and obesity has steadily increased in recent decades in nearly all countries for which data is available, with a more dramatic increase in economically developed countries and urbanized populations (WHO, 2016; Wang & Lobstein, 2006). As of 2019, it is estimated that more than 150 million children worldwide are obese and that this will rise to 206 million by 2025 (World Obesity Federation, 2019). This issue presents a serious risk to public health and a significant economic burden to health care systems as well as society more broadly (Tremmel, Gerdtham, Nilsson, & Saha, 2017). In Canada, the combined prevalence of overweight and obesity among those ages 5 to 17 is roughly 30% (Ng et al., 2014). In British Columbia specifically, more than 26% of youth ages 12 to 17 are overweight or obese (Statistics Canada, 2005). Furthermore, the rate of increase in prevalence of obesity is greater in children than adults (Willms, Tremblay, & Katzmarzyk, 2003).

Health care, school, and community leaders worldwide have recognized that the growing prevalence of childhood obesity was for concern (Ng et al., 2014; Andersen, 2000). Research shows that overweight and obese children are at an increased risk for developing a variety of adverse physical health and social consequences, which can lead to psychological issues. Physical health consequences can be immediate, intermediate and long-term in nature; these include hyperlipidemia, hypertension, insulin resistance, abnormal glucose tolerance, poor pulmonary function, and sleep apnea (Must & Strauss, 1999; Weiss et al., 2004; Reilly et al., 2003). Social consequences associated with overweight and obesity include discrimination,

teasing, and victimization (Must & Strauss, 1999). These physical health and social consequences often lead to several psychological issues including depression, anxiety, low self-esteem, emotional problems, body dissatisfaction, and disordered eating symptoms (Russel-Mayhew, McVey, Bardick & Ireland, 2012; Erickson, Robinson, Haydel & Killen, 2000).

Of further concern, is that childhood obesity tracks into adolescence and adulthood (Daniels et al., 2005; Clarke & Lauer, 1993). In a systematic review by Singh et al. (2008), all of the studies reported an increased risk of overweight and obese children and adolescents becoming overweight adults. Similarly, research indicates that obese children have an 80% or higher probability of becoming obese adults (Tirosh et al., 2011).

Fortunately, when obesity is treated at an early age, the potential for height growth means that a relatively small weight loss can have a significant impact (Goldschmidt, Wilfley, Paluch, Roemmich & Epstein, 2013). Additionally, preventing weight gain and maintaining weight have been shown to improve cardiovascular risk factors in children, but not in adolescents (Reinehr, 2013), which further highlights the importance of early intervention.

These findings have led to the development of a variety of prevention and treatment programs. However, there remains a need for childhood overweight and obesity programs focused on early lifestyle intervention that are innovative in terms of scalability (e.g. representing stakeholder needs, cost-efficient delivery, potential for broad reach and alignment with the implementation context), flexibility/adaptability for families and local program delivery organizations through blending face-to-face and on-line programming, and incorporating emerging health and behavioural issues and theories (e.g. multi-process action control theory; positive mental health and resilience, sleep, physical literacy) (Liu et al., 2019).

Establishing healthy habits at a young age is critical given the challenges of changing physical activity and eating behaviours later on (Ash, Agaronov, Aftosmes-Tobio, & Davison, 2017) and parents are a key influence on lifestyle behaviour during this time period (Rhodes & Lim, 2018; Golan, 2006). Furthermore, parental support as an influence of significant and positive change is highest between ages 6-12 years (Trost & Loprinzi, 2011).

The goal of these programs is to provide intervention as early as possible to improve the probability of long-term successful outcomes. Consequently, early intervention is one of six elements in BC's Continuum for the Prevention, Management and Treatment of Health Issues Related to Overweight and Obesity in Children and Youth (Bradbury, Day, & Scarr, 2015).

There are several settings in which early intervention family-based programs for overweight or obese children have been shown to be effective including medical, community-based, school, home, and multi-setting (Ash et al., 2017; Danielsen, Nordhus, Júlíusson, Mæhle, & Pallesen, 2013; Avery et al., 2012; Chahine, Potter, & Freeman, 2010; Grimes-Robison & Evans, 2008; Edwards, Nicholls, Croker, Van Zyl, Viner, & Wardle, 2006). Likewise, there are several program components that have been shown to be effective. While core content components of obesity early intervention programs are typically physical activity, healthy eating, and behaviour modification and include a combination of parent-only, child-only and family-based discussion or activities, many interventions are moving towards an interdisciplinary approach (Golley et al., 2007; Summerbell et al., 2003). There is also increasing evidence that suggests positive mental health, screen time, and sleep play an important role but are not yet prevalent in the interventions in the literature (Ash et al., 2017 & Pinard et al., 2012). Regardless of the chosen intervention setting and specific program components, research suggests that

parent or caregiver involvement is critical as they are the gatekeepers for healthy behavior in this age group (Golan, 2006; Golan & Crowe, 2004; Lindsay et al., 2006).

The complex nature of childhood obesity and the critical need to address this issue has led to the development of numerous prevention and treatment programs. There is no shortage of programs; however, there remain several unanswered questions related to the implementation successes and failures, as well as the long-term sustainability of these programs (Wang et al., 2015). While the literature often focuses on outcome evaluations to determine the success of a program, it is also important to conduct a process evaluation to understand the reasons why a program was successful or not (Steckler & Linnan, 2002). Therefore, it is vital to public health impact that childhood prevention and intervention programs include a process evaluation component to determine their feasibility, implementation issues, areas for improvement, and potential for scaling up efficacious programs to increase their reach and population level impact.

Based on the prevalence and incidence of childhood overweight and obesity the government of British Columbia invested in early intervention programs with families beginning in 2013 (Naylor et al., 2020). With support from the British Columbia Ministry of Health, the Childhood Obesity Foundation conducted a provincial stakeholder consultation and reviewed the evidence-based literature (Ash et al., 2017; Wang et al., 2015; Janicke et al., 2014), as well as past and existing programs in British Columbia (Naylor et al., 2020; Liu et al., 2019) to identify evidence-based, efficacious components. The result was a prototype *Family Healthy Living Program (FHLP)*: a free, early intervention community-based childhood healthy weights program for families with children ages 8 to 12 who were off the healthy weight trajectory (BMI-for-age $\geq 85^{th}$ percentile). The program was designed to align with existing clinician-driven childhood healthy weights programs currently being delivered in BC, including Shapedown BC

and the HealthLinkBC Eating and Activity Program for Kids, to meet the needs of stakeholders, and to address gaps in the family-based intervention literature. Specifically, in addition to physical activity, healthy eating, and behaviour modification, the FHLP addressed screen-time, sleep, and had innovative program components including weight bias and trauma-informed practice training for program leaders, enhanced positive mental health activities, interactive online and gamified content, and way-finding to local community activities and resources. The blended face-to-face and online delivery enhanced flexibility for families and community delivery agents.

In order to achieve population-wide health improvement, these family-based childhood obesity intervention programs need to be 'scaled-up'; extending the program reach (Richter et al., 2017). Scaling up refers to the efforts to increase the impact of successfully tested health pilots or interventions to benefit more people, maximize the impact of public health research, and to foster policy and program development on a lasting basis (Simmons & Shiffman, 2007; Milat, Bauman, & Redman, 2015). Programs that are based on stakeholder feedback and are contextually relevant (i.e. have better 'fit') are more likely to be scaled up (Milat, Bauman, & Redman, 2015). The purpose of this research was to evaluate the recruitment, intervention content, delivery, and implementation of the Family Healthy Living Program (FHLP) for quality improvement efforts and to inform decisions about potential scale-up.

2.2 Research Design

This implementation study was one component of an overall Type I hybrid effectiveness trial (Curran et al., 2012) for the Family Healthy Living Study which included a randomized wait-list control trial (Liu et al, 2019). Data from both the family and program delivery levels

were used to assess the reach, recruitment, intervention content, delivery, and implementation of the pilot program for quality improvement and to inform decisions about potential scale-up. The process evaluation study utilized a mixed-methods concurrent triangulation design (Creswell, Clark, & Hanson, 2003) with equal weighting given to qualitative and quantitative data, data analysis occurring separately, and integration during the interpretation phase. Key factors addressed within the process evaluation were guided by Steckler & Linnan (2002), as described by Saunders et al., 2012. Additional measures from the RE-AIM framework (Glasgow, Vogt, & Boles, 1999) were incorporated as well as minimal implementation data set for physical activity interventions proposed by McKay et al. (2019). We used a framework analysis approach (Gale, Heath, Cameron, Rashid, & Redwood, 2013) to identify categories and themes.

2.2.1 Recruitment and Sample

Family and child recruitment has been described by Liu et al. (2019) and summarized below for the overall study and specifically for the process evaluation component. For the Type I hybrid effectiveness study, families were recruited through a wide variety of strategies, both locally and provincially. This included a social media strategy with regular Facebook, Instagram Twitter, and blog posts as well as the development of the FHLP website. Promotion activities also included distributing posters and rack cards within communities, mailouts to physician offices, health clinics and allied health professionals, emails and mailouts to school districts, local newspaper articles and ads, radio interviews, and community presentations. Participants were also reached through referrals from physicians and counsellors and through recommendations from family and friends. Recreation centres also recruited families through information and advertisements on their websites, social media pages, and in their recreation

centre guides. Recruitment was ongoing but based on program delivery cycles— Cycle One from September to December 2018 and Cycle Two from January to April 2019. Recruitment efforts increased approximately two months prior to both delivery cycles.

Participants were children, parents and caregivers, program leaders, recreation centre managers, and COF staff including the Project Director, Project Coordinator, and support team based at the University of Victoria. Children were male and female and represented a variety of ethnicities. Inclusion criteria for children was an age between 8 to 12 years with a BMI-for-age $\geq 85^{th}$ percentile. Screening calls included questions about clinical problems, comorbidities, physical disabilities, injuries, and learning difficulties which might interfere with physical activity or classroom sessions (Appendix B). Inclusion criteria for parents and caregivers was a willingness to have the child and at least one caregiver attend FHLP sessions over 10 weeks. Additionally, at least one family member had to be able to speak and read English.

Parents and children engaged in the outcome evaluation were also involved in the process evaluation through post-program satisfaction surveys and interviews. Program leaders that were directly involved program delivery, recreation centre managers involved in the oversight and administration of program delivery, and COF staff were also recruited for the process evaluation study. Process evaluation measures were completed during and after two program delivery cycles: Cycle One (September to December 2018) and Cycle Two (January to April 2019).

Ethics approval for this study was obtained from the University of Victoria Human Research Ethics Board (Protocol Number BC18-024) (Appendix A). Informed consent was obtained from parents and assent was obtained from children after they were provided with

information about study objectives, by both mail and in person (Appendix C). Program leaders, recreation centre managers, and COF staff completed consent forms (Appendix D and E).

Table 1.
Summary of Family Level Response and Completion Rates by Program and Process Evaluation Measure

Family Participants	**Commenced FHLP**	**Completed FHLP**	**Completed Process Evaluation Measures**	
Parents and caregivers	n=55	n=37 (67%)	n=38 (69%) *Of 55 families who commenced FHLP*	Demographic & population characteristics (from parent questionnaire)
			n=16 (43%)	Parent satisfaction surveys
			n=15 (41%)	Post-program interview & focus groups
			n=5 (36%) *Of 14 families who attended 1 or more maintenance sessions**	Maintenance satisfaction survey
Children	n=63	n=39 (62%)	n=7 (18%)	Child satisfaction survey
Family data			n=37 (100%)	Attendance and e-session analytics data

*Of 23 families who completed FHLP Cycle One

Table 2.
Summary of Program Delivery Level Participation and Response Rates by Process Evaluation Measure

Program Delivery Participants	**Supported FHLP Delivery**	**Completed Process Evaluation Measures**	
Program leaders	n=23	n=23 (100%)	Weekly feedback surveys
		n=20 (87%)	Post-program interviews & focus groups
Recreation centre managers	n=6	n=6 (100%)	Post-program interviews & focus groups
COF staff including: • Project Director • Project Coordinator • Support team	n=4	n=4 (100%)	Post-program interviews & focus groups

2.2.2 Intervention

The prototype *Family Healthy Living Program (FHLP)* was a free, early intervention childhood healthy weights program designed and implemented in British Columbia for families with children ages 8 to 12 who are off the healthy weight trajectory (BMI-for-age $\geq 85^{th}$ percentile). The program was designed to align with existing clinician-driven childhood healthy weights programs currently being delivered in BC, including Shapedown BC and the HealthLinkBC Eating and Activity Program for Kids, to meet the needs of stakeholders, and to address gaps in the family-based intervention literature. Specifically, in addition to physical activity, healthy eating, and behaviour modification, the FHLP addressed screen-time, sleep, and had innovative program components including weight bias and trauma-informed practice training for program leaders, enhanced positive mental health activities, interactive online and gamified content, and way-finding to local community activities and resources. The blended face-to-face and online delivery enhanced flexibility for families and community delivery agents.

Following a systematic review of the evidence, the 10-week intervention included at least 26 contact hours (Janicke et al., 2014; Grossman et al., 2017) through in-person and online activities. The 10-week pilot program contact time consisted of a weekly 90-minute in-person group session, weekly e-sessions on the Family Portal, four community-based group activities, and an additional four 60-minute bi-weekly maintenance sessions. The program targeted lifestyle changes in both children and their parents as well as changes to the home environment. Curriculum topics include healthy eating, physical activity, goal setting, positive mental health, sleep hygiene, screen time, and getting active outdoors. In-person sessions include child-only physical activity sessions aimed at improving enjoyment, confidence, motivation, and fundamental movement skills; parent-only classroom learning and group discussion to identify

barriers and strategies for promoting family healthy behaviours; and family physical and positive mental health activities. The program development was theoretically guided by the M-PAC framework (Rhodes & de Bruijn, 2013; Rhodes, 2018) that emphasizes social cognitive approaches to intention formation, the adoption of action control through self-regulation, and the action control maintenance phase once a behaviour becomes habitual. The M-PAC constructs are reflected in the program curriculum with the aim of introducing and supporting participants in making long-term lifestyle behaviour changes.

The online family portal featured a weekly lesson to be completed by families as well as healthy recipes, parent articles, videos, and suggested healthy eating and physical activity ideas so that families could engage in an additional self-directed healthy lifestyle activity each week. The program also provided four additional community-based group activities to way-find families to existing community resources and activities. Two of these activities were the same for all program locations: a group grocery store tour led by a Registered Dietitian and an outdoor exploration game using an augmented reality mobile application called Agents of Discovery. The remaining two activities were chosen and scheduled by the program leaders at each location based on input from children and parents as well as community availability. Examples of chosen activities were nature walks, geocaching, farmer's markets, badminton, cooking classes, and frisbee golf. The 10-week program was followed by four 60-minute bi-weekly maintenance group sessions which included 30 minutes of family discussion on maintaining a healthy lifestyle and 30 minutes of family physical activity. In-person sessions were delivered by a FHLP group facilitator, a physical activity facilitator, and a program assistant. The intervention also included four 60-minute bi-weekly group maintenance sessions delivered after the 10-week program. However, due to low attendance as well as low maintenance satisfaction survey

response rates, the maintenance sessions were only delivered after Cycle One and not included in this analysis.

2.2.3 Data Collection and Instrumentation

Process evaluation data from a number of qualitive and quantitative sources was collected during and after the 10-week program. Qualitative data was collected through post-program interviews with parents, program leaders, staff managers, and COF staff members. In order to maintain consistency (Bolderston, 2012), the same research assistant conducted all post-program interviews and focus groups; these were conducted in-person where possible, otherwise by telephone. Quantitative data was collected from demographic information and population characteristic questions (on the baseline parent questionnaire), program registration forms, attendance tracking forms, and family portal e-session analytics. Instruments that collected both qualitative and quantitative data include the parent and child satisfaction surveys and weekly program leader feedback surveys.

Table 3 provides a summary of data collection instruments at the family level and Table 4 provides a summary of instruments at the program delivery level. Following is a detailed description of variables addressed by each instrument, all of which are available in Appendix items H-N).

2.2.3.1 Instruments - Family Level

Reach and Recruitment

Reach and recruitment was determined using 6 multiple choice questions on the parent questionnaire which was completed on-line via Survey Monkey prior to the first program session

(Appendix F). Demographic information and population characteristics included cultural and racial background, language(s) spoken at home, employment status, household primary earner income, education level of parents, and size of family. Questions were designed by the program evaluation team in consultation with an Expert Advisory Council.

Dose Received

Dose received was assessed using attendance tracking forms completed by the program leader following each weekly group session and emailed to the Project Coordinator. It also included Family Portal online lesson analytics assessed using the number logins and number of minutes each family engaged with the Family Portal.

Satisfaction, Barriers and Facilitators to Participation

Parent and child satisfaction, and barriers and facilitators to participation were determined using a combination of satisfaction surveys and post-program parent interviews and focus groups. All questions were purposefully designed by the program evaluation team to address the EIP program specifics and process evaluation variables. The parent satisfaction survey included 26 questions (9 using a 5-point Likert scale, 2 multiple choice, 15 open-ended) addressing the satisfaction and usefulness of weekly sessions and program components, online Family Portal components, usefulness and appropriateness of information provided, aspects of program delivery, barriers and facilitators to participation, program impacts on their family, and areas for program improvements. It also asked if measuring their child's BMI at the first and last program sessions had any impact (positive or negative) on their child's mental health. The survey was

completed online after the Week 10 session via Survey Monkey (Appendix G). The child satisfaction survey included 16 questions (2 using a 5-point Likert scale, 6 multiple choice, 8 open-ended) addressing satisfaction and usefulness of weekly sessions and program components, response to program leaders, changes towards living a healthy life, favorite and least favorite parts of the program, and areas for program improvements. The survey was completed during the Week 10 session (Appendix H). The post-program parent interviews and focus groups were semi-structured and included 14 open-ended questions addressing the impact of the program on their family, major lessons learned, 'best and worst' things about the program, areas for program improvement, online Family Portal, four community-based activities, and overall satisfaction. It also asked if measuring their child's BMI had any impact (positive or negative) on their child's mental health. Interviews and focus groups were completed in-person where possible, otherwise by telephone (Appendix J).

2.2.3.2 Instruments - Program Delivery Level

Fidelity, Barriers and Facilitators to Program Delivery

Fidelity as well as barriers and facilitators to program delivery were determined using a combination of weekly program leader feedback surveys and post-program interviews and focus groups with program leaders and recreation centre staff managers. The weekly program leader feedback surveys included 8 questions (3 multiple choice, 5 open-ended) containing a checklist of program components for that specific week's session. As well, for each component they were not able to complete, the survey asked them to indicate why (e.g. ran out of time, group was not engaging in the material). The surveys were completed online after each weekly session via Survey Monkey and addressed (Appendix I). The post-program program leader interviews and

focus groups were semi-structured and included 17 open-ended questions (Appendix K). Interviews and focus groups were completed in-person where possible, otherwise by telephone.

Acceptability, Feasibility, Compatibility, Barriers and Facilitators to Program Delivery

Program acceptability, feasibility, compatibility, and additional barriers and facilitators to program delivery were determined using post-program interviews and focus groups with program leaders, recreation centre staff managers, and the COF support team. The post-program interviews for both program leader and recreation centre staff managers were semi-structured and included 17 open-ended questions (Appendix K). The post-program interviews for both the Projector Director and Project Coordinator, and support team were semi-structured, and each included 12 open-ended questions (Appendix L and M). Both set of questions were purposely created to ask about key implementation issues including barriers and facilitators at both the local and provincial level. Three questions on program acceptability were from the Society for Implementation Research Collaboration (SIRC) (Weiner et al., 2017). All interviews and focus groups were completed in-person where possible, otherwise by telephone.

Table 3.

Instruments Used for Data Collection at the Family Level

Measure	Instrument	Parents	Children	Quantitative	Qualitative
Reach & Recruitment	Demographic & population characteristics (from parent questionnaire)	✓	✓	✓	
Dose received	Attendance forms	✓	✓	✓	
	E-session analytics	✓	✓	✓	
Satisfaction	Satisfaction surveys	✓	✓	✓	✓
	Post-program interviews & focus groups	✓			✓
Barriers	Post-program interviews & focus groups	✓			✓
	Satisfaction surveys	✓	✓	✓	✓
Facilitators	Post-program interviews & focus groups	✓			✓
	Satisfaction surveys	✓	✓	✓	✓

Table 4.

Instruments Used for Data Collection at the Program Delivery Level

Measure	Instrument	Program Leaders	Staff Managers	Support Team	Quan.	Qual.
Adoption	% of service providers to implement FHLP	N/A	N/A	N/A	--	--
Fidelity	Weekly feedback surveys	✓			✓	✓
Acceptability	Post-program interviews & focus groups	✓	✓	✓		✓
Feasibility	Post-program interviews & focus groups	✓	✓			✓
Compatibility	Post-program interviews & focus groups	✓	✓	✓		✓
Barriers	Post-program interviews & focus groups	✓	✓	✓		✓
	Weekly feedback surveys	✓			✓	✓
Facilitators	Post-program interviews & focus groups	✓	✓	✓	✓	✓
	Weekly feedback surveys	✓			✓	✓

2.2.4 Data Analysis

Qualitative, open-ended questions

Qualitative data from post-program interviews was digitally recorded, transcribed using Transcriptive™ software, and general categories and themes identified using NVIVO 12. Qualitative data from surveys was exported from Survey Monkey into Microsoft Excel. Once responses were organized, we used a framework analysis approach (Gale, Heath, Cameron, Rashid, & Redwood, 2013) to identify categories and themes. Themes were then organized based on the process evaluation variables at the family and program delivery levels. Trustworthiness was established through prolonged engagement with sites, audit trails and interview notes, rich program description, member checking with program leaders, data triangulation during analysis, and peer debriefing (Thomas, Nelson, & Silverman, 2015). Two research associates also identified themes from post-program interviews; themes were then compared and discussed until consensus was reached.

Quantitative, close-ended questions

Quantitative data from surveys was exported from Survey Monkey into Microsoft Excel before being analyzed. Data was displayed in tables and graphs. Where needed, data was uploaded into SPSS 22.0 and quantitative descriptives were generated.

2.3 Results

Results were divided into two main sections: those at the family level and those at the program delivery level.

2.3.1 Family Level

2.3.1.1 Reach and Recruitment

The FHLP reached diverse ethnic, educational, and socioeconomic backgrounds. Participants came from both single-parent and two-parent families; 40% were from non-single parent families. Table 5 displays participant demographic information and population characteristics from the parent questionnaire including ethnicities, languages spoken at home, family primary earner annual income, and parent education level. Half of respondents did not disclose their family unit size or composition.

Table 5.

Family Demographic Characteristics of FHLP Participants

Ethnicity	**% of Participants**
Aboriginal	9.6%
White	38.5%
South Asian	15.4%
Black	1.9%
South East Asian, Korean, Chinese	3.8%
Latin American	1.9%
Multiple ethnicities	23.5%
Languages Spoken at Home	**% of Participants**
English	78%
Chinese Languages	2%
Punjabi	6%
Spanish	0%
Bilingual	14%

Family Primary Earner Annual Income	**% of Participants**
Primary earner income below $28,000	10.6%
Primary earner income between $28,000-$34,000	4.3%
Primary earner income between $34,000-$41,000	8.5%
Primary earner income between $41,000-$47,000	6.4%
Primary earner income between $47,000-$53,000	4.3%
Primary earner income between $53,000-$59,000	0%
Primary earner income greater than $59,000	53.2%
Prefer not to answer	12.8%
Parent Education Level	**% of Participants**
Finished grade 10	2.1%
High school diploma	27.7%
Trade certificate or diploma from vocational school or apprenticeship	12.8%
Community college certificate or diploma	21.3%
University certificate below Bachelor's level	4.3%
Bachelor's degree or above	25.5%
Prefer not to answer	6.4%

n = 47 families who commenced the FHLP

Girls and boys participated almost equally in the program. The average age of participating children was 10 years old, with an age range of 8-13 years. Of the 63 children who commenced the program, 26% were overweight and 74% were obese. Table 6 provides a summary of child demographics.

Table 6.

FHLP Child Participant Demographics

Variable	Description	n	%
Females (#)	Total female participants	31	49.2%
Males (#)	Total male participants	32	50.8%
BMI 85-97th * %	Participants with BMI between 85-97th percentile	16	26.3%
BMI >97th * %	Participants with a BMI above 97th percentile	47	73.7%

n = 63 children who commenced the FHLP

*****BMI percentile reported on participants that completed baseline measures (n=38)

Recruitment efforts resulted in 211 inquiries to the centralized screening and registration office at the University of Victoria. More than half of the families (54%) heard about the program through social media. Figure 1 displays the various recruitment strategies.

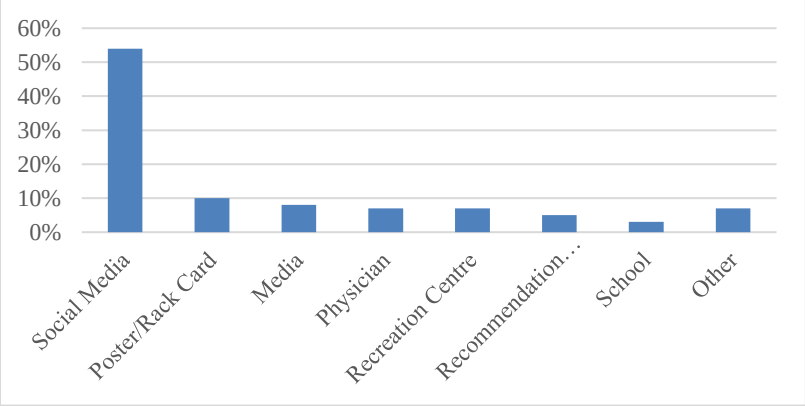

Figure 1. FHLP recruitment response by recruitment strategy

Of the 211 enquiries, a total of 132 families were eligible, and 88 children (79 families) were enrolled into the FHLP. 63 of these children (70%) commenced the program in either Cycle One or Two. The main reason families did not enroll in the FHLP was because a child BMI was too low (30%). Other reasons included a program cancelled due to low enrollment or a scheduling conflict with other commitments.

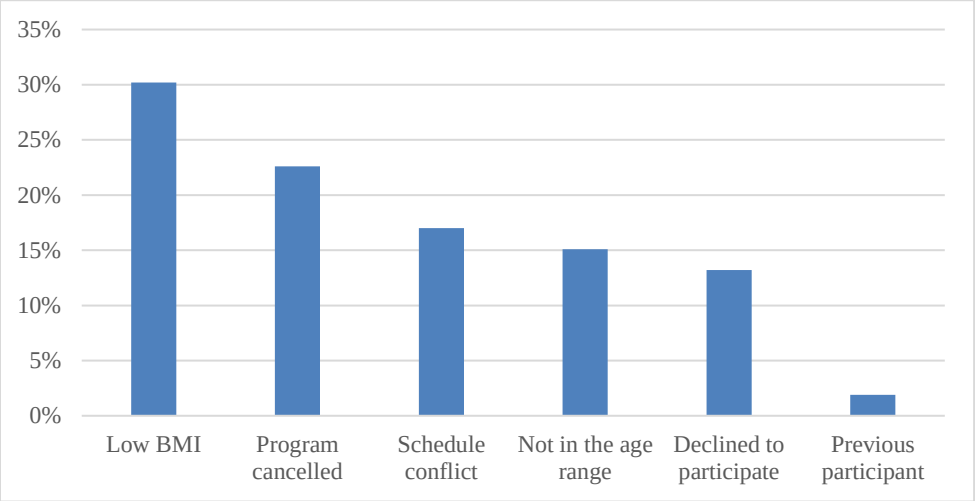

Figure 2. Reasons for not enrolling in FHLP
n = 53 families' documented inquiries that provided reasons for not enrolling

2.3.1.2 Dose Received

In-Person Attendance

The FHLP sessions were well attended by those who completed the program. On average, 84% of children who completed the program attended weekly (see Figure 3). Further, most (85%) children attended 70% of the group sessions or more. Additionally, program retention was high as 80% of the 55 families that started the program completed it. Reasons why families withdrew from the program were due to a time conflict (33%), medical reason or sickness (8%), or lost interest (8%); however, the remaining dropouts were due to an unknown reason (50%).

Family Web-Portal Analytics

The online Family Portal enables participants to complete the weekly e-session and search for recipes and family activity ideas. Over the 10-week intervention, participating families spent an average of 300 minutes on the Family Portal. There was good uptake at the beginning of

the program; however, engagement decreased over time, with a notable drop in engagement after Week 3. 26% of families accessed 30% or more of core e-session content. Figure 3 illustrates that about two-in-five families (42%) were 'super users', one-third (33%) were average users, and one-quarter (25%) were low users.

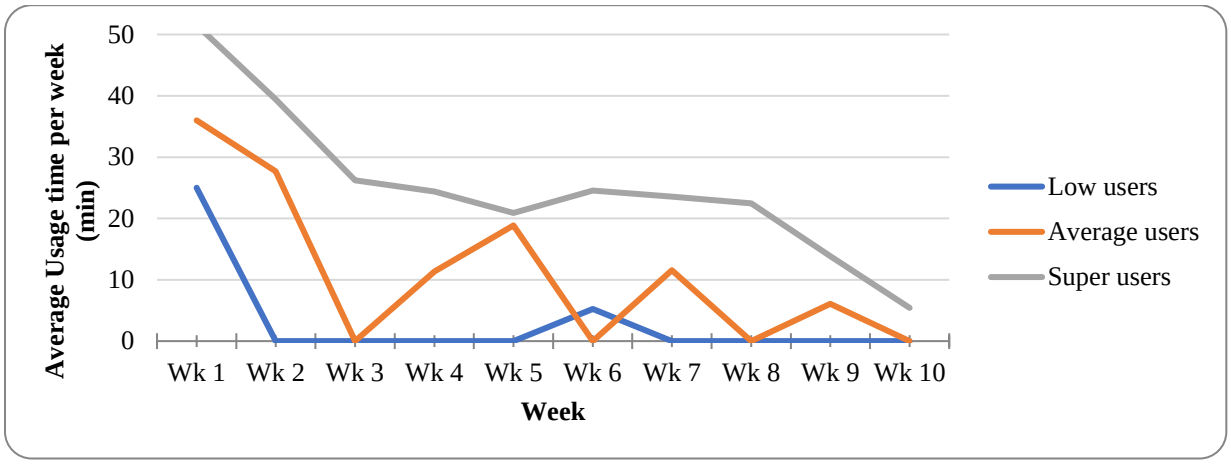

Figure 3. Average Family Portal usage time per week

*Super users accessed ≥4 weeks of content; average users accessed 2 or 3 weeks of content; low users accessed less than 2 weeks of content.

Based on parent and child satisfaction forms completed after the program, families who used the Family Portal consistently liked it and found it useful. In general, those who accessed the online resource less often rated it less highly. Table 7 shows qualitative feedback about the Family Portal from parent interviews and the parent satisfaction survey.

Table 7.
Qualitative Feedback for Family Portal

Theme	Parent Quotes
Easy to use	"It's very easy to use. You don't need to be computer savvy to use it which is nice. For myself, there were no issues accessing the information or reading any of it, it is concise."
Useful information	"It's got useful information, the recipes are nice."
Content variety	"It's nice to have the different kinds of media. It wasn't just, you know, 'I've got to go read this'. There's lots of different things to see."

2.3.1.3 Satisfaction

Families who provided feedback through post-program interviews or post-program satisfaction surveys enjoyed participating in the FHLP and felt that, overall, the program went well. Parents who responded were highly satisfied and acknowledged the safe and inclusive environment that was provided. They found the program provided them with the opportunities and tools to make positive changes and were excited about what the program meant for their children. Overall, most parents who completed feedback forms found the information given in handouts to be easy to understand, respectful, adequate and suitable for their families and British Columbians in general, with an average rating of 4.4 out of 5 (Figure 4).

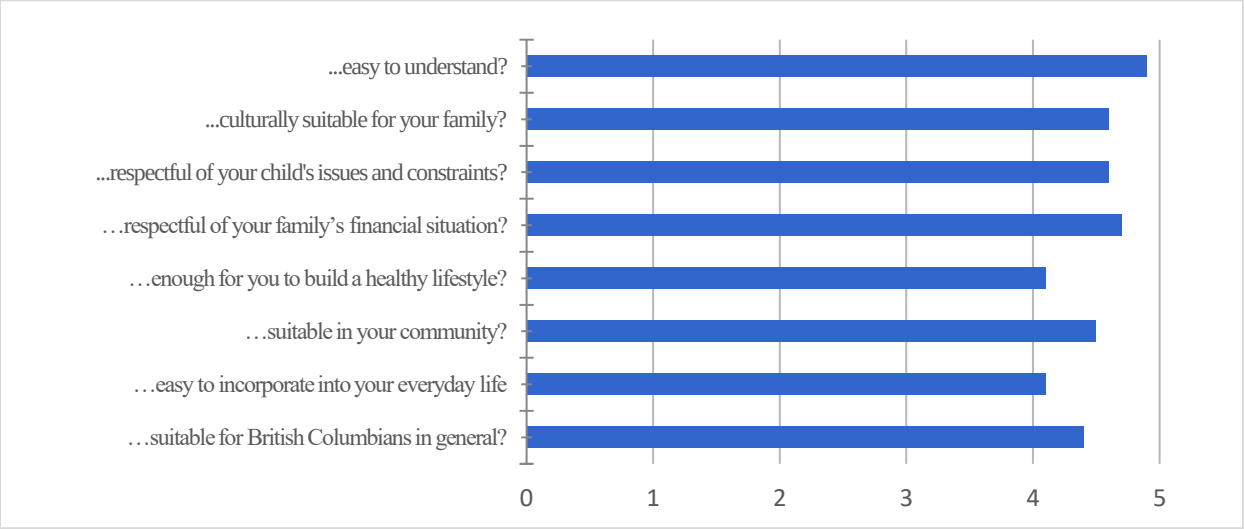

Figure 4. Parent reported satisfaction with information provided in weekly handouts

n = 16 parents. Responses are on a five-point scale where 1 = "not at all" and 5 = "a lot"
Parents were asked: "Was the information given in weekly sessions…"

Overall, most parents who completed satisfaction surveys were highly satisfied with how the FHLP was delivered, providing an average rating of 4.3 out of 5 (Figure 5). The areas where parent ratings were less highly rated were providing families with adequate accurate information before starting. Parents felt there were adequate staff members and that staff were effective and knowledgeable. Further, most parents felt the 90-minute session was an appropriate length of time and that once a week for 10 weeks was an appropriate duration. A small number of parents interviewed mentioned that 90 minutes did not allow enough time.

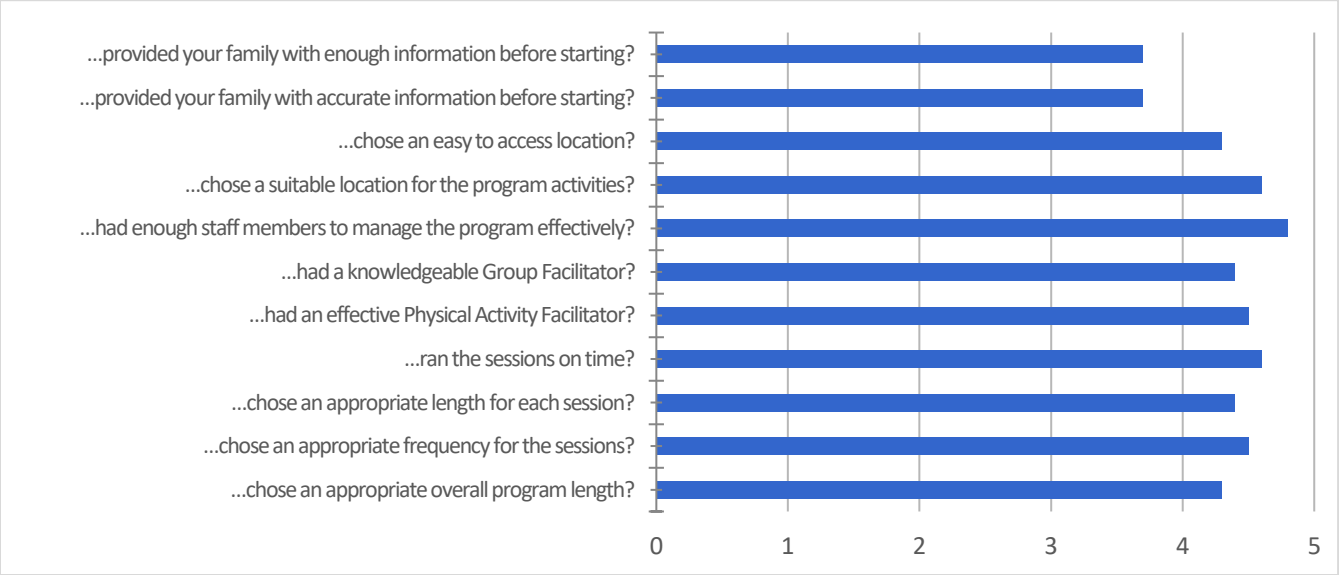

Figure 5. Parent reported satisfaction with program delivery

n = 16 parents. Responses are on a five point scale where 1 = "not at all" and 5 = "a lot"
Parents were asked: "The Family Healthy Living Program provided…"

Child Satisfaction

Overall, most children who completed feedback forms were satisfied with the components of the FHLP sessions, with an average rating of 4 out of 5 (see Figure 6). On average, children rated a 3.4 out of 5 that the individual components helped their family apply what they had learned about living a healthy life and found them useful. Children-only physical activity sessions and family physical activity sessions were the most highly rated components at 4.7 out of 5 respectively. Children were satisfied with the FHLP sessions and felt components helped them apply (was useful) what they learned about living a healthy life (see Figure 6).

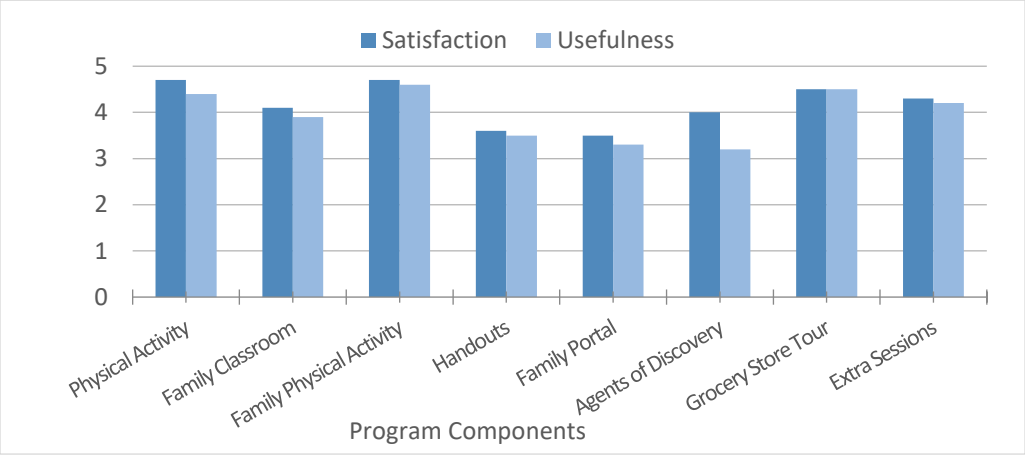

Figure 6. Child reported satisfaction of FHLP sessions and usefulness of program components

n = 7 children. Responses are on a five-point scale where 1 = "not at all" and 5 = "a lot"

Based on the child satisfaction surveys completed after the program, children had fun, liked their program leaders, and plan to make future changes towards living a healthy life with ratings all above 4/5 (Figure 7).

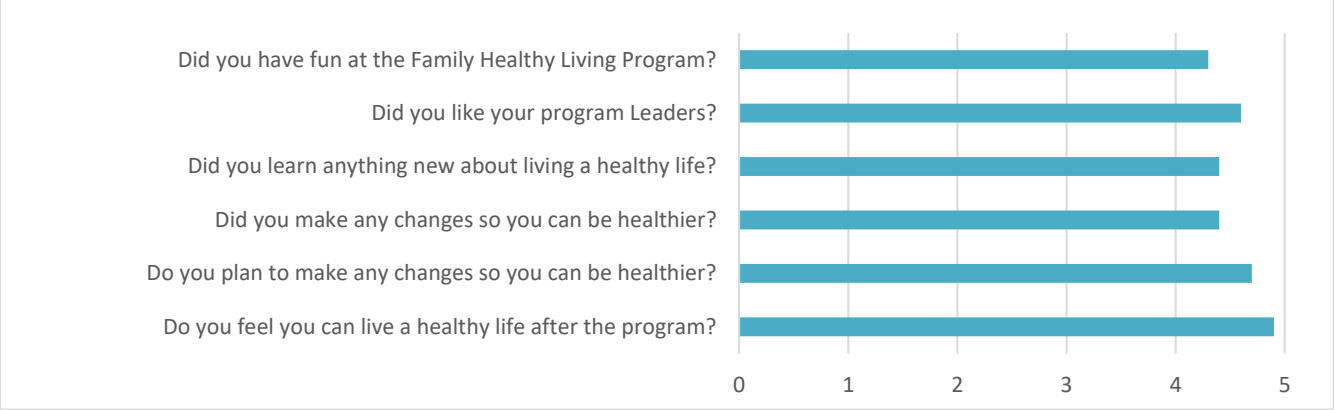

Figure 7. Child reported satisfaction of FHLP sessions and usefulness of program components

n = 7 children. Responses are on a five-point scale where 1 = "not at all" and 5 = "a lot"

2.3.1.4 Barriers to Participation

Parents identified several barriers to participating in or attending the weekly FHLP sessions. Table 8 provides a summary of the most common responses from the parent satisfaction survey.

Table 8.
Summary of Family Barriers to Participation

Barrier to Participation (mention frequency)	**Parent Quotes**
Scheduling (5)	"It's a rush to get here in time after work."
Transportation (3)	"The traffic on the way to JDF recreation centre was problematic."
	"Parking spaces at the YMCA."
No barriers (3)	N/A
Other commitments (2)	"10 consecutive weeks without a break was also difficult as Sundays is usually the only day where we have time to do things with the family."
	"The scheduling was a bit tight for our family and being a Friday night was both good and bad as there tended to be other events especially leading up to Christmas."
Illness (1)	"Sickness sometimes made it difficult to attend."
Other response (1)	"Life sometimes made it tough but we made it to as many sessions as possible."
Did not answer (1)	N/A

n=16 parents

2.3.1.5 Facilitators to Participation

Parents also identified several facilitators to participating in or attending the weekly FHLP sessions. Table 9 provides a summary of the most common responses from the parent satisfaction survey.

Table 9.
Summary of Family Facilitators to Participation

Facilitator to Participation (mention frequency)	**Parent Quotes**
Free of cost (5)	"No cost to the program to attend helped us a lot."
	"No cost helped considerably."
Sibling inclusion (4)	"The low barrier access was extremely appreciated, we appreciated that siblings could come."
	"Allowing siblings to come was definitely the best thing."
Location (2)	"Location for me was a good one as I lived 10-15mins away."
	"Close to home location"
Free family recreation passes (2)	"The added gym membership was amazing as well."
Other response (1)	"I think options to join by teleconference at times might have been nice. Especially for the follow up (maintenance) sessions."
Did not answer (2)	N/A

n=16 parents

In the interviews, parents also provided suggestions for improvements. The key themes were more flexibility illustrated by one parent who said, "I think options to join by teleconference at times might have been nice. Especially for the follow-up (maintenance) sessions". Other suggestions for improvement were 1) classes should be longer to allow for more discussion time, more physical activity time, and to reduce the amount of homework; 2) extra community-based activities should be scheduled before the program commences so that families know the scheduling commitments well in advance; and 3) have more program locations so that families don't have to travel as far to attend.

2.3.2 Program Delivery Level

2.3.2.1 Adoption

BC recreation providers were keen to bring the FHLP to their communities. Several YMCAs and municipal recreation centres responded to a call for expressions of interest in offering the pilot program (n=9). In total, the seven of the nine communities originally identified as pilot sites implemented the program in Cycles One and Two. Notably, the FHLP was implemented in all five British Columbia regional health authorities: Fraser, Interior, Island, Northern, and Vancouver Coastal (see Table 10). The remaining two sites cancelled the program offering due to low enrollment.

Table 10.
Family Healthy Living Program Locations and Delivery Cycles

Health Region	Community	Program Location	Cycle One	Cycle Two
Fraser	Burnaby	City of Burnaby	✓	✓
	Surrey	City of Surrey	✓	
	Surrey	Tong Louie YMCA	✓	✓
Interior	Kelowna	YMCA of Okanagan	✓	
Island	Victoria	Westshore Parks & Recreation	✓	✓
Northern	Prince George	YMCA of Northern BC	✓	✓
Vancouver Coastal	Vancouver	Langara Family YMCA	✓	✓

2.3.2.2 Fidelity

The overall program fidelity was high. Results showed that program leaders followed the FHLP components as it was intended to be delivered most of the time. The average fidelity score for all program components was 73.5%. The range of fidelity scores was 42-95%. The lowest scores were for two positive mental health activities, the appreciation and gratitude circles. The most common reason for not completing components was a shortage of time. This feedback was given in both the weekly feedback surveys and in post-program interviews with leaders. As well, for appreciation and gratitude circles, leaders often responded that doing both activities became repetitive, so combined with a lack of time, they chose to only deliver one of the two circles. The fidelity score for completing either the appreciation or gratitude circle was higher at 55%. 'Accomplishments and challenges' had a score of 95% and 'tracking and behavioural change' had a score of 78%.

2.3.2.3 Acceptability

Post-program interviews with program leaders and recreation centre staff managers showed acceptability across all sites. Overall, delivery site staff interviewed were keen to be involved in the FHLP. They described their recreation centre's response to the program as positive and cooperative. In addition, they felt participating families formed a community as a result of their involvement in the program.

2.3.2.4 Feasibility

All seven of the pilot program delivery sites indicated they would be interested in continuing to deliver the FHLP in their community if funding was made available. Although the

pilot program was trialed in select motivated communities (those who responded to a call for expressions of interest in offering the pilot program), a challenge for the representativeness of the sample, it appears feasible to implement across a range of communities and with broad family demographics if resources are provided to fund staff and administration.

2.3.2.5 Compatibility

Several program leaders responded that the FHLP fit with the recreation centres' goals and values during post-program interviews. They noted this is what attracted their recreation centre to offer the program. Leaders and staff managers felt the FHLP had a positive impact on their recreation centre by bringing in new members and creating greater awareness of available services and activities amongst participating families.

2.3.2.6 Barriers to Implementation

Program leaders identified several barriers to the implementation and delivery of weekly FHLP sessions. Table 11 provides a summary of the most common responses from the program leader interviews.

Table 11.
Summary of Program Delivery Barriers to Implementation

Barrier to Implementation	Program Leader Quotes
Recruitment	"I think that there could be an additional…stronger push made to try and get that word out there."
Small group size	"[in the manual] having more guidelines for us to work on if there's less participants…having an idea of activities that we can use when we have a smaller group."

Attendance	"Attendance was an ongoing challenge that affected the group dynamic."
	"We had a lot of attendance issues, I think some was due to other schedules…we tried our best to adapt to the smaller group…"
Limited time to deliver content	"Typically we ended up going over by 15 minutes every day. So, I think that lengthwise, the budgeted amount of times were a little bit snug for all the activities. I think there needs to be maybe a little bit of time just plugged in for those transitions and things."

2.3.2.7 Facilitators to Implementation

Program leaders also identified several facilitators to the implementation and delivery of weekly FHLP sessions. Table 12 provides a summary of the most common responses from program leader interviews.

Table 12.
Summary of Program Delivery Facilitators to Implementation

Facilitator to Implementation	**Program Leader Quotes**
High compatibility & feasibility	"Strong fit with goals and values of recreation centre"
	"Very, very supportive response [from the recreation centre]."
Context	
Resources	
• Program manual	"Manual was an excellent resource…plenty of activity ideas"
• Room availability	"Giving us rooms easily"
	"Having rooms available"
• Equipment provided	
• Grant funding	"The grant was a huge help in being able to secure the resources to make it happen."

2.4 Discussion

This process evaluation study explored implementation of the FHLP in British Columbia, Canada from both the family and program delivery levels with the aim of contributing to the literature on implementation as well as informing real world program improvements and decisions about scale-up. The FHLP was developed as a prototype family-based early intervention childhood healthy weights program to address a gap in programming in BC. It was tailored to the needs of BC families and aligned with existing programs. Early intervention family-based lifestyle programs have been shown to be efficacious for addressing childhood obesity and its consequences (Ash et al., 2017), and the scale-up of such interventions into real-world settings is important to prevent delays in wider community access (Milat, Bauman, & Redman, 2015) which can ultimately lead to a greater public health benefit. Childhood Obesity Foundation and its partners consulted on, designed, implemented, and evaluated the made-in-BC program.

The FHLP aimed to provide an evidence-based amount of contact time (26+ hours; Ash et al, 2017) and provided several innovative components: for participants, positive mental health activities (e.g. gratitude, appreciation and mindfulness activities), food and physical literacy, screen-time and sleep hygiene activities and, for community-based program leaders, trauma-informed practice and weight bias training. The program also used a more scalable and flexible blended format which introduced families to e-health technologies such as the online Family Portal and embedded community resources and activities into the intervention approach. Preliminary evidence showed that the program had a significant impact on parent support behaviours and children's physical activity (Childhood Obesity Foundation, 2019). Eleven programs ran in seven BC communities from September 2018 to April 2019. Both the families

and program delivery leaders were highly satisfied with the program; it appeared highly acceptable and feasible to implement. However, several participation and implementation barriers and facilitators arose. The findings are discussed in the context of the literature following.

The program reached diverse ethnic, educational, and socioeconomic backgrounds. 9.6% of participants identified as Aboriginal compared to 5.9% of the BC population (Statistics Canada, 2016). This included families from all five regional health authorities. Drop-out from the program was 20% which is comparable to other rates in the literature (Skelton & Beech, 2011). Reasons why families withdrew from the program included time conflicts, medical reason or sickness, or lost interest which are consistent with the literature on attrition from childhood weight management programs (Skelton & Beech, 2011).

FHLP sessions were well attended by those who completed the program with more than 80% attending 70% or more of the weekly in-person sessions. This is slightly lower than HOME program (Fulkerson et al., 2010) and the MADE4Life Program (Barnes, Plotnikoff, Collins, & Morgan, 2015). The average contact time was lower than the 26 hours recommended by a recent systematic review (Ash et al., 2017) and previously by Janicke et al., 2014). This was due to decreased engagement with the online Family Portal sessions over time, with a notable drop in engagement after Week 3 as well as low attendance at the four post-program maintenance sessions. The maintenance session attendance was lower than that in the literature and response rates to maintenance follow-up was so low that we did not include it in this analysis and cannot draw conclusions. However, it may be because the schedule was not weekly but every two weeks, which is challenging for family scheduling. It was also held in-person, while some interventions provided maintenance period contacts by telephone (Pinard et al., 2012).

When families attended parents were highly satisfied with both the program content and delivery where most rankings were satisfied or very satisfied. This is comparable to other family interventions where satisfaction ratings were high (Barnes, Plotnikoff, Collins, & Morgan, 2015; Welsby et al., 2014; Fulkerson et al., 2010); it is also comparable to these two studies in that parent satisfaction was higher than child satisfaction. Our qualitative data illustrated some of the potential reasons for satisfaction. Thematic analysis showed parents acknowledged the safe and inclusive environment provided and felt program leaders were knowledgeable and effective. They reported that the program provided them with the opportunities and tools to make positive changes and they were excited about what the FHLP meant for their children. Most children were also satisfied with program components and felt these components helped them apply what they learned. They had fun, liked their program leaders, and plan to make future changes towards living a healthy life. 'Having fun' was a new factor emerging from our study.

Factors that facilitated participation were that the program was free of cost, siblings were allowed to attend, a convenient program location, and a free family recreation pass. Having a convenient program location is commonly cited in the literature as a facilitator to participation (Staiano et al., 2017; Kelleher et al., 2017). Some families enrolled but were unable to commence because of a program cancellation due to low enrollment. Other barriers to participation included scheduling conflicts, other commitments, transportation challenges, and illness—barriers that are consistent with the literature (Wild et al., 2019; Staiano et al., 2017; Kelleher et al., 2017).

At the program delivery level, seven of the nine (78%) communities originally identified as pilot sites implemented the program. It should be noted that two communities were not able to attract enough participants in one delivery cycle. One was after a successful recruitment and one

never was able to attract enough participants. During the delivery of MEND in British Columbia, parental concerns about weight stigma were a cited factor not enrolling. As well, the literature shows that parents are not accurate in their assessment of their children's level of overweight which may contribute to this. The average fidelity score for all program components was 73.5%; the most common reason for not completing components was a shortage of time. This was lower than the MADE4Life program (Barnes, Plotnikoff, Collins, & Morgan, 2015) and is likely due to the fact that program leaders reported having too little time to cover all program materials. As well, many leaders responded that two components (appreciation and gratitude circles) were similar and became repetitive, so combined with a lack of time, they chose to deliver only one.

Feedback from program leaders and managers showed acceptability and high compatibility across all sites. Staff interviewed were keen to be involved in the FHLP and described their recreation centre's response to the program as positive and cooperative. As well, they felt participating families formed a community as a result of their involvement in the program. All seven pilot delivery sites indicated they would be interested in continuing to deliver the FHLP in their community if funding was made available.

Facilitators to program implementation were high compatibility and feasibility; context including support from the recreation centre and having qualified staff; and resources including adequate room availability, the program manual, equipment provided by COF, and grant funding. Barriers to implementation were recruitment, small group size, attendance, and limited time for program leaders to deliver the weekly in-person session material.

There were several strengths to this study. First, the program was based on an extensive literature review and consultation with BC stakeholders. Thus, it was evidence-based and contextually relevant. It also moved beyond the majority of the literature by incorporating

several innovative aspects such as positive mental health, sleep hygiene, food and physical literacy, trauma-informed practice training for leaders, and a blended delivery model (in-person and online). Another strength was the evaluation, the mixed-methods process evaluation were collected data from a range of sources and participants including children, parents, delivery site staff, and program support team. A wide range of instruments and methods were used such as questionnaires, attendance forms, online lesson analytics, surveys, individual interviews, and focus groups. This broad data set provided a strong foundation for assessing several implementation measures at both the family and program delivery levels. Further, the study incorporated the minimal implementation data set for physical activity interventions as proposed by McKay et al. (2019).

A further strength was that several measures were taken to control researcher bias and increase the trustworthiness of the data and conclusions. This included prolonged engagement, an audit trail, rich program description, triangulation, member checking, peer debriefing, and clarification of researcher bias (Thomas, Nelson, & Silverman, 2015). The researcher had prolonged engagement with the FHLP in several roles: primarily as a researcher for the process evaluation components of the study, as well as a member of the COF support team and as a program leader. An audit trail of changes to qualitative instruments and notes were taken during interviews. A rich description of the program and setting was provided. Data triangulation occurred during analysis and member checking was conducted with program leaders and recreation centre staff managers. This was not done with parents and/or caregivers as there was already a high measurement burden. Peer debriefing occurred regularly while theming within the project team, including the Project Coordinator and Project Director.

The limitations of this study are also important to consider when interpreting the findings. First, while a comprehensive recruitment effort was undertaken, participant recruitment and enrollment was a challenge and limitation to the study. A smaller number of families than anticipated participated in the FHLP over two cycles. This opens the study to issues of positive response bias. However, challenges with recruitment and attrition are commonly cited in many other child healthy weights interventions (Skelton & Beech, 2011). Additional feedback from delivery site staff and the COF Project Coordinator recommended that recruitment activities needed to be continually supported by centralized province-wide communications and stakeholder engagement activities. 'Family Healthy Living Program' was a generic 'placeholder' name intended to be used only for the prototype period. Building a distinct program name and program brand was seen by program leaders as an important aspect of increasing awareness of, and interest in, the program among BC families and key stakeholders across a variety of sectors.

Another limitation was that the completion of satisfaction surveys at the end of program cycles was inconsistent and most families that withdrew did not complete a feedback form. In addition, only families that completed the program were interviewed. Therefore, data is likely not representative of all families. As with all intervention studies, recruitment bias and selective drop out may influence the results and without data from drop-outs, it is difficult to estimate the effect of this. This influences the generalizability of the findings. In terms of qualitative data, researcher bias may have influenced interpretation.

A critical delimitation of the study that further influences generalizability was the overall context for delivery. The Government of British Columbia had identified early intervention as a priority and provided funding for free programming from 2013. The programming was supported by an extensive stakeholder consultation, engagement and communication strategy, evidence-

based implementation support that included centralized operational and technical support, ongoing course correction, and extensive evaluation. There were also two clinical programs being delivered in person (for obese children with co-morbidities) and using telehealth. It was also clear from the program leader interviews that sustainability of this free intervention program was contingent upon funding. These findings may not be applicable to a fee for service model. Finally, the findings are only generalizable to community-based healthy living interventions for children 8-12 years of age and their families.

In summary, the FHLP was feasible and highly acceptable for both families and program delivery partners. The free cost, sibling inclusion, and family recreation passes worked to facilitate the implementation. While recruitment, attendance, and online engagement were challenges that need to be addressed after the pilot. An awareness of the above strengths and limitations can help inform the development and evaluation of other multi-site childhood healthy weights programs, as well as the potential for scale up and subsequent dissemination. It was clear that resources to deliver a free program are a critical scale-up issue as well. Adjustments were made to the program based on this mixed-methods process evaluation. The in-person contact time was expanded from 90 minutes to 2 hours, the face-to-face maintenance sessions were dropped, and more interactive features and leader engagement was added to the online Family Portal. It is important to conduct research on the modified model. Future research should also focus on strategies to increase online engagement and facilitate online group interaction.

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Appendix A: Certificate for Ethical Approval of Study (BC18-024)

Board of Record
University of Victoria

Human Research Ethics Board (HREB)
Administrative Services Building
Room B202
PO Box 1700 STN CSC
Victoria, BC V8V 2Y2

Certificate of Ethical Approval for Amendment to Harmonized Minimal Risk Study

Also reviewed and approved by:

Children's & Women's

Principal Investigators:	Primary Appointment:	Board of Record Approval Reference #:
Patti-Jean Naylor	**University of Victoria**	**BC18-024**

Study Title: **Generation Health (EIP) Study**

Amendment Approved: **02-OCT-2019** Expiry Date: **07-MAR-2020**

Research Team Members: **Co-Investigators: Sam Liu (UVic), Ryan Rhodes (UVic), Louise Masse (BC Children's Hospital Institute & UBC), Geoff Ball (U of A); Project Director, EIP: Karen Strange (Childhood Obesity Foundation); Executive Director: Jennifer Bradbury (Childhood Obesity Foundation); Project Champion: Tom Warshawski (Childhood Obesity Foundation); Project Coordinator: Teresa Hartrick (Childhood Obesity Foundation); Evaluation Consultant: Joy Weismiller (Juniper Consulting); Lydia Keefe-Sampson (Research Assistant); Camilla Briggs (Research Assistant); Student/Research Assistants: Dimas Adiputranto, Megan Perdew, Bianca DeSilva, Brenda Adams**

Sponsoring Agencies: **Childhood Obesity Foundation**

Documents included in this approval:

Document Name	Approved version date
Request for Modification – V1	Sept 25, 2019

This ethics approval applies to research ethics issues only and does not include provision for any administrative approvals required from individual institutions before research activities can commence.

The Board of Record (as noted above) has reviewed and approved this study in accordance with the requirements of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2, 2014).

The "Board of Record" is the Research Ethics board designated on behalf of the participating REBs involved in a harmonized study to facilitate the ethics review and approval process. In the event that there are any changes or amendments to this approved protocol, please notify the Board of Record.

Board of Record Research Ethics Board Representative
Name: Dr. Rachael Scarth
Title: Associate VP Research Operations
Signature:
Date: 02-OCT-2019

Appendix B: Screening Phone Call Script and Registration Form

Generation Health Screening Phone Call Script

Site _____ **Date** _____ **RA** _____

Hi, my name is _____ and I'd like to thank you for your interest in Generation Health. I have some information to share about the program and an eligibility process to walk. Is this a good time to talk?

I'd like to start out by asking you what drew you to finding out more about the program _____

_____

_____

Great, thank you – and can I ask how you heard about the program?

Prompts – if needed:

	MD Referred
	Nurse/Nurse Practitioner
	School
	Posters - where?
	Flyers/Rack Cards - where?
	Newspaper, Radio, other local Media
	Social Media (Facebook, Instagram, other)
	Program Participants (current or past)
	Friends, Family, Community Member
	Other, please specify

Great, thank you. If it's okay with you I'd like to spend some time explaining the program and then we can talk more about your interest in taking the program.

1) First it is important for me to tell you that this is an online program for families with children between the ages of 8-12 who are **NOT** above a healthy weight, but would like to learn healthy lifestyle behaviours. If your child is above healthy weight – this means that their Body Mass Index for age is in the 85th percentile or above – I can refer you to the in-person version of this program (**NOTE**: ignore the last part if the family was referred by the coordinator).
2) May I ask are you concerned that your child is off the healthy weight path or above a healthy weight?

If Yes

- ➢ We will be offering an in-person program at the Juan de Fuca Rec centre this fall and winter. Our fall program will take place on Saturdays from 3-5pm starting September 28th and our winter program will take place on Thursdays from 6:30-8:30pm starting January 16th.
- ➢ **If interested in signing up, go to program information**

If No but I am having trouble with their lifestyle and am worried

- ➢ Our 10-week, online program for families that need help working on their lifestyle which includes access to a web-based family portal with resources and suggested activities.

If NOT SURE

- ➢ Why don't I describe the program and the process for figuring out whether your child is off the healthy weight path. If they are you have access to our Generation Health in-person Program and if they aren't you still get access to a 10-week online program through the Generation Health Family Portal.
- ➢ **go to Program Information**

PROGRAM INFORMATION

1) Let me tell you more about the program itself and then we will talk about how we determine eligibility.

- It's a FREE community, family based 10-week program
- Designed in BC by healthy lifestyle and behaviour change experts
- This is not a weight loss program, but rather a program to support you in making family changes to healthy behaviours such as healthy eating, physical activity, screen time, sleep and to promote positive mental health that support your child's own health behaviours
- The program is focused on practical, fun activities that build family connectedness while building both parents and the child's skills to make lasting changes. In addition, it incorporates some positive mental health activities that build resilience and self-confidence.
- A parent and/or caregiver is required to come to all sessions.

FOR THE ONLINE PROGRAM

- You will receive 10, weekly online e-sessions through a web-based family portal. These e-sessions will include a weekly lesson on various healthy lifestyle behaviour topics, as well as weekly family challenges & activities and recipes.
- As part of the evaluation, participants (both adults and children) will be asked to provide some lifestyle information about themselves at the first and last session of the program. Participants will be provided with a consent form to review and sign.

FOR THE IN-PERSON PROGRAM

- Sessions are 2-hour long and will include a variety of family time (both you and your child will learn, do activities and be active together), parent only discussion time and child-only physical activity time
- The physical activity portion of the program encourages physical activity in a group setting while emphasizing FUN! And building the skills and confidence so children want to participate outside the program
- Sessions include:
    - Introduction to healthy eating and active living
    - Strategies that help you make changes, like goal setting, tracking, etc.
    - Healthy body image and self-esteem, managing stress and active living for everybody
    - Creating positive family mealtimes and physical activity experiences
    - Family, food, and getting active outdoors
    - Positive caregiving
    - Cooking and Playing together
- In addition to the weekly in-person sessions, there will also be weekly online e-sessions through a web-based family portal. These e-sessions will supplement the material covered in class and can be completed whenever is convenient for you during the week.
- Over the 10-week period there will also be 4 additional group activities that you will be expected to participate in. These extra group activities will be community-based activities that will be scheduled and led by the program facilitators and may take place on the weekend or on a week night.
- After the 10-week intensive phase there will be a maintenance phase where you will have continued access to the online family portal and will receive email reminders from the Generation Health team.

2) Based on what you have heard are you interested in moving forward with the questions regarding eligibility? We can go through this process now or we can arrange another time that is more convenient for you. You will need to know your child's height and weight. Do you have that information handy?

➢ **If time now and know their child's height and weight proceed to Screening Questions**

➢ **If not enough time now and/or don't know child's height and weight schedule a call back time.** When would be a good time to call you back? As mentioned part of the screening process requires providing your child's weight and height as part of a healthy growth check. Could you have those measurements with you when we talk next?

SCREENING QUESTIONS

1. What is your child's name? _____ (***ALWAYS*** use their name during the interview). Are they a girl or boy? _____

2. Our program is designed for children above a healthy weight. In order to determine if your child is eligible, may I have (**use child's name**) most recent height __ and weight ___. What is **use child's name**'s date of birth? _____

Thank you. It will just take me a moment to calculate their BMI.

** use CDC BMI calculator https://nccd.cdc.gov/dnpabmi/calculator.aspx and enter data in EIP Participant Tracking Form

➢ BMI above the 85th percentile for age

Great thank you. Let's continue with the screening questions.

Note: Don't engage in a discussion about whether the child is overweight or obese. If they have questions related to child's height and weight, encourage them to follow up with their family physician.

➢ BMI below 85th percentile for age

Great thank you. Your child's BMI is within the healthy weight range. So this means although you aren't eligible for the 10 week program you can register for the online program which will also give you access to the family portal. Would you like to register?

➢ If yes use the registration form to register them for the Workshop

Screening Questions Continued:

Note: If you sense, hear hesitation or things that may limit the family from attending, do not proceed to the next question. Discuss the question in more detail. It's OK if you help the parent determine that their family is not ready for the program. Always validate, affirm and

3. The following set of questions are asking about your **concerns and readiness** for participating in the program:

a) Why are you interested in this program? _____
_____
_____

b) What if any health concerns do you have for your child? _____
_____
_____

c) What if any are your concerns for your child around healthy eating, physical activity, screen time, sleep and/or positive mental health? _____

d) Do you worry your child has lost control over how much they eat? _____

e) Do you worry your child makes themselves sick because they feel uncomfortably full? _____

f) How would you like things to be different for your family? _____

g) What if any changes would you like to make? _____

h) Why might you consider making this change? _____

i) How have you tried to engage in similar lifestyle changes? _____

j) What would be most helpful for you? _____

k) What might be some barriers to change? _____

l) If you were encouraged to come to the program by your physician or another professional, are you registering because you want to? _____

m) Is your child interested in attending the program? _____

When to refer to family physician:

1. Major health concerns raised (questions b & c)
2. Signs of an eating disorder (questions d & e)

When to refer to Shapedown BC program or HEAPK

Between 85th percentile and known health issues such as cardiovascular disease, mental health issues, eating disorder

** For Vancouver & Surrey families with children above the 97th percentile with no known co-morbidities – inform parents of more intensive Shapedown BC program and parents can decide which program they want to pursue

(FOR IN-PERSON PROGRAM) (NOTE: if family was referred by the program coordinator, skip this section)

The following questions address your family's ability to **commit** to the program. The program requires that a parent/caregiver attends and actively participates in the program with their child. This means attending the 10, weekly 2-hour sessions and participating in the 4 additional group sessions.

a. What is your ability to commit to the 10 week program? Does your child have any other activities happening on **[week night of program]**?_____

b. Do you have other children? Where will they be during the sessions? _____

c. What might limit you from being able to attend sessions each week and doing family activities in addition to weekly sessions? _____

d. Do you have any holidays planned between October and December? _____

e. If there are occasions that you cannot attend with your child, who will come in place of you? _____

f. Is there anything that would prevent your child from participating in the physical activity portion? Have they participated in similar activities? _____

g. The program requires that you commit to participating in the evaluation of the program by providing health information for yourself and your child at the beginning and end of the 10-week program. This includes an online questionnaire for the parents/caregivers and in-person questionnaires for the Children during the first and last session of the program. The measurements will be treated confidentially.

h. Do you have any questions or concerns do you have about the evaluation? _____
_____
_____

i. Can you commit to taking part in the evaluation? _____
_____
_____

After everything that you have heard and we have discussed are you ready to register for the program?

- **If yes – fill out the registration form**
- **If no – ask if you can follow up with another phone call after they have had time to think about the program**

Generation Health
Registration Form:

Date: _____ Completed by: _____

Program location:			
Participant Information			
Child's First Name		Child's Last Name	
Date of Birth		Gender (M/F)	
Caregiver's First Name		Caregiver's Last Name	
Home Phone		Cell Phone	
Email Address			
Address – Line 1		Address – Line 2	
City		Postal Code	
Province		Country	
Relationship to Child			
Height (state units)		Weight (state units)	
Calculated BMI			

Medical Information

It is important for the program facilitators to know any essential health information about your child.

Can you think of any reason (medical/physical/psychological/other) why your child may have difficulty participating in the program? Such conditions could include: asthma, diabetes, attention deficit hyperactive disorder, down syndrome, behavioural disorders, autism, dyspraxia, dyslexia, any heart or lung conditions etc. History of relevant injuries.

It doesn't mean your child will not be included in the program but it will let us know how to help you and ensure your child has the best experience possible.

Additional Notes
Please give any other information that you think is relevant, for example any health complications your child may have due to their weight etc.

Appendix C: Participant Consent Form

University of Victoria | School of Exercise Science, Physical & Health Education

Generation Health Evaluation Study

You are invited to participate in the Generation Health Evaluation Study because you have expressed interest in participating in the Generation Health program and the evaluation is a core component of the program. If you join the program you are agreeing to participate in the evaluation component of the Generation Health study, because the purpose of the pilot is to evaluate whether Generation Health is effective and feasible for families. The Generation Health Program is being conducted by the Childhood Obesity Foundation through funding from the BC Ministry of Health. The evaluation component is being carried out by Dr. PJ Naylor, in collaboration with Dr. Sam Liu, of the University of Victoria. You may contact them by phone or e-mail (Dr. Naylor: 250-721-7844, pjnaylor@uvic.ca; Dr. Liu: 250-721-8392, samliu@uvic.ca) if you have further questions.

Purpose and Objectives
The purpose of the study is to evaluate how feasible and effective the Generation Health program is for families, as well as gain an understanding of the issues involved in the implementation of this intervention across the province.

Importance of this Study
Evaluation studies of this type are important because they help us understand how to help families adopt a healthy lifestyle that keeps them on a healthy lifestyle and healthy weight path.

What is involved?
Together, children and their parent(s)/caregiver(s) are asked to complete a 10-week online program. Participants will be randomly assigned into one of two online programs and will not know which program they have been assigned into. Both programs will consist of 10 online weekly self-guided sessions. Sessions will cover topics such as: healthy eating, physical activity, behaviour change skills, mental health, parenting practices, and sleep hygiene. Caregivers and children are asked to complete questionnaires and have physical measures (height, weight) taken on two separate occasions: before the program starts and after the program ends. The research team will contact you to confirm the location and date of the measurement collection.

If you consent to voluntarily participate in the Generation Health program, the research team will collect the information at the beginning and end of the program and again after the maintenance sessions. Your information will be combined with others for evaluation purposes. There will be no information in the research results that will be personally identifiable. These measures are all planned to be a normal part of the Generation Health program activities. In addition to these, you may be asked to participate in a post-program telephone interview to get your opinion on the program.

Inconvenience
Data collection will be completed in person at the University of Victoria immediately following program registration. Compensation for childcare and parking will hopefully mitigate any inconvenience this may cause. To thank participants for their time, a $50 honoraria will be provided to families in both programs after they have completed their second measurement. Participation in this research may cause some additional inconvenience to you as we are collecting the caregiver data using a pre-program online

questionnaire and we may ask you to take additional time to participate in a 30-minute post-program interview. All of the rest of the data collection will occur during program delivery hours.

Risks
None.

Benefits
The potential benefits of your participation in Generation Health include increased self-esteem and increased health and wellness for you and your child. By participating in the research study you are contributing to the evidence of Generation Health's ability to help children and families adopt a healthy lifestyle and stay on a healthy weight path.

Voluntary Participation
Your participation in this program and evaluation study is completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study you can choose to allow us to use your/your child's data collected to date or to not use it. If at any time you choose to withdraw consent, your preference for the use of your data will be documented and your request honoured.

Since participation in this study requires a child and caregiver to participate together, if you or your child/children decide to withdraw from the study, you will both have to withdraw; children cannot participate without a caregiver and caregivers cannot participate without a child.

On-going Consent
To make sure that you continue to consent to participate in the evaluation component, we will re-confirm your consent when we complete measures at the last session of the program and when we contact you for the focus group.

Anonymity
In terms of protecting your anonymity there will be no identifying names on any of your/your child's records. Your name/your child's name will be replaced by unique identification numbers. You will not be completely anonymous as the research team knows who is participating.

Confidentiality
Your confidentiality and the confidentiality of the data will be protected by having no participant names on any of the data. As well, hard copies of the data will be stored in a locked filing cabinet in a locked room at the University of Victoria. Electronic files will be stored using your unique identification numbers on a secure network drive at the University of Victoria which is accessible only to the principal investigator and research staff. Only the researchers will have access to the videos. During the telephone interview notes will be taken and the interview may be audio-taped and will be transcribed for further analysis. Only the researchers will have access to the tapes and transcripts.

Dissemination of Results
It is anticipated that the results of this evaluation study will be shared with others through presentations at conferences, a report to public health and community stakeholders and through academic publications.

Disposal of Data
This data (e.g. questionnaire, interview transcriptions) will be disposed of five years following publication. If the results are not published within 5 years of completing the study, the data will be

destroyed. Hard copies will be shredded and any computer files with participant information will be deleted.

Individuals that may be contacted regarding this study include:

Dr. PJ Naylor	Dr. Sam Liu	Dr. Karen Strange
Principal investigator	Co-investigator	EIP Project Director
250-721-7844	250-721-8392	250-216-7893
pjnaylor@uvic.ca	samliu@uvic.ca	karen@childhoodobesityfoundation.ca

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca) or the Research Subject Information Line in the University of British Columbia Office of Research Services by email at RSIL@ors.ubc.caor by phone at 604-822-8598 (Toll Free Number 1-877-822-8598).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researchers and that you consent to participate in this study.

_____	_____	_____
Name of Participant	Signature	Date

Children's Statement

I have talked with my parents/guardians about the Healthy Living pilot program and evaluation study and I understand that all activities are a normal part of the Healthy Living Program. I understand that if I want to I can stop being in the pilot program evaluation study at any time. I have had the chance to ask questions and have received satisfactory answers to all of my questions.

_____	_____
Signature of Child One	Date

_____
Printed Name of Child

_____	_____
Signature of Child Two	Date

_____
Printed Name of Child

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix D: FHLP Staff Consent Form

Leader Training Workshop Evaluation
Participant Consent

You are invited to participate in the **Healthy Living Program Pilot Evaluation** because you are participating in a Healthy Living Program as a leader and in the related training workshop. The evaluation/associated research is a component of the pilot. The evaluation/research study is being carried out by Dr. PJ Naylor, Dr. Sam Liu, and Dr. Ryan Rhodes all researchers at the University of Victoria, in collaboration with Drs. Louise Masse, a University of British Columbia researcher, and Dr. Geoff Ball, a researcher at the University of Alberta. You may contact PJ Naylor, the Principal Investigator, or Sam Liu, the Co-Investigator, by phone or e-mail (Dr. Naylor: 250-721-7844, pjnaylor@uvic.ca; Dr. Liu: 250-721-8392, samliu@uvic.ca) if you have any questions.

Purpose and Objectives
The purpose of this evaluation/research is to examine the reach and efficacy of the Healthy Living Program in BC as well as gain an understanding of the issues involved in the implementation and sustainability of delivering this intervention across the province.

Importance of this Evaluation
Evaluation / research of this type is important because it helps us understand how to help families adopt a healthy lifestyle that keeps them on a healthy weight trajectory and how to scale up effective programs.

What is Involved
As part of the Healthy Living Program we are asking you to complete training workshop surveys. If you consent to participate in the evaluation, you will complete a 10-15-minute survey about your confidence and knowledge in delivering program content to Healthy Living Program participants before and after the training workshop and your level of satisfaction with the workshop.

You will also be asked to participate in a telephone interview. The telephone interview will take approximately 20-30 minutes of your time and will be scheduled based on your availability. The interview will be audio-taped and/or the interviewer will take notes to record your responses. Once the data has been transcribed, we will send you the results to ensure that your responses were accurately captured. If you consent to participate in the interview your information will be combined with others for evaluation purposes. There will be no information in the evaluation results that will be personally identifiable. None of the questions will address your personal life.

Risk and Inconvenience
There are no known risks to you participating in the evaluation/study. Participation may be inconvenient because we are asking you to spend about 20-30 minutes for the surveys and 20-30 minutes for the interview.

Benefits
The potential benefits of your participation are that it can help to inform future Healthy Living Program training workshop development and implementation and it may contribute to the evidence of the Healthy Living Program's ability to help children and families adopt a healthy lifestyle and stay on a healthy weight trajectory.

Voluntary Participation
Your participation in the Healthy Living Program surveys and interview is completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. You are under no obligation to participate in the pilot evaluation/study. If you do withdraw from the study you can choose to allow us to use your survey and/or interview data collected to date or to not use it. If at any time you choose to withdraw consent, your preference for the use of your interview and survey data will be documented and your request honoured.

Anonymity and Confidentiality
In terms of protecting your anonymity there will be no identifying names on any of the records. Your name will be replaced by a unique identification number. Your confidentiality and the confidentiality of the data will be protected by having no participant or organization names on any of the data. Notes will be taken and/or the interview will be audio-taped, then transcribed for further analysis. Only the researchers will have access to the tapes, transcripts, and survey data. The audio file will be deleted from the recorder after transcription. Hard copies of the interview transcript and surveys will be stored in a locked filing cabinet in a locked room at the University of Victoria. Electronic files will be stored using your unique identification number on a secure network drive at the University of Victoria which is accessible only to the investigators and research staff. All of the data will be fully anonymous (removal of any identifiers) if used in the future by other researchers.

Dissemination of Results
It is anticipated that the results of this evaluation/study will be shared with others through presentations at conferences, classes and scholarly meetings; through academic publications and on the internet; in the media (e.g. newspaper); and directly to participants and groups involved through a summary report.

Disposal of Data
All data will be retained for a minimum of five years following the last publication, after which point it will be destroyed. Hard copies will be shredded and any computer files with participant information will be deleted.

Individuals that may be contacted regarding this evaluation/study include:

Dr. PJ Naylor
Principal Investigator
250-721-7844
pjnaylor@uvic.ca

Dr. Sam Liu
Co- Investigator
250-721-8392
samliu@uvic.ca

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598. Alternatively, you may verify the ethical approval of this evaluation/study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in the workshop surveys and telephone interview, that you have had the opportunity to have your questions answered by the researchers, and that you consent to be contacted as indicated above.

_____	_____	_____
Name of Participant	*Signature*	*Date*

Contact information.

Name: _____

Organization: _____ Title: _____

Email: _____ Phone #: (_____) _____

Please ask the workshop leader for a copy of this consent if you would like one for your records.

Appendix E: COF Staff Consent Form

Healthy Living Program Evaluation Study – Member of the team

You are invited to participate in the **Healthy Living Program Evaluation Study** because you are a member of the Healthy Living Program team and are also involved in the evaluation activities. The research study is being carried out by Dr. PJ Naylor, in collaboration with Dr. Sam Liu, of the University of Victoria. You may contact them by phone or e-mail (Dr. Naylor: 250-721-7844, pjnaylor@uvic.ca; Dr. Liu: 250-721-8392, samliu@uvic.ca) if you have further questions.

The Healthy Living Program is being conducted by the Childhood Obesity Foundation through funding from the BC Ministry of Health.

Purpose and Objectives
The purpose of the study is to evaluate the reach and efficacy of the Healthy Living Program as well as gain an understanding of the issues involved in the implementation and sustainability of delivering this intervention across the province.

Importance of this Study
Research of this type is important because it helps us understand how to help families adopt a healthy lifestyle that keeps them on a healthy weight trajectory and how to scale up effective programs.

What is involved
If you consent to voluntarily participate in the research component, the research team will have access to the program tracking forms and the minutes from your weekly Healthy Living Program meetings. As you are probably aware there is no personal information about you on these forms and there will be no personally identifiable data. These tracking tools and meeting minutes are a normal part of the Healthy Living Program delivery and evaluation. In addition to these you may be asked to participate in a post-program telephone interview to get your opinion on the program. We would also have access to the transcripts from this interview if you have participated.

Inconvenience
Participation in this research will not cause any additional inconvenience to you as we are using the tracking tools and one-hour post program interview that is a normal part of the Healthy Living Program delivery.

Risks
There are no risks to you by participating in this study.

Benefits
The potential benefits of your participation in this study include the ability to contribute to improving the Healthy Living Program delivery. By participating in the study you are contributing to the evidence of the Healthy Living Program's ability to help children and families adopt a healthy lifestyle and stay on a healthy weight trajectory.

Voluntary Participation
Your participation in this study is completely voluntary. Although participating in the program data collection is part of your job, your consent for the data to be used for the associated study is completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study you can choose to allow us to use the data collected

to date or to not have it used. If at any time you choose to withdraw consent, your preference for the use of your data will be documented and your request honoured.

On-going Consent
To make sure that you continue to consent to participate in this research, we will confirm with you when we contact you for the post-program focus group/interview if you still consent to us using your data to date.

Anonymity
In terms of protecting your anonymity there will be no identifying names on any of your records. Your name will be replaced by a unique identification number.

Confidentiality
Your confidentiality and the confidentiality of the data will be protected by having no participant names on any of the data. As well, hard copies of the data will be stored in a locked filing cabinet in a locked room at the Healthy Living Program site. Electronic files will be stored using your unique identification numbers on a secure network drive at the University of Victoria which is accessible only to the principal investigator and research staff. At the focus group, code numbers will be used to identify your comments. Due to the nature of focus groups your comments are not entirely confidential, as other participants at the focus group will hear what you say. All focus group participants will be asked not to repeat what others in the focus group say and to keep each other's comments confidential. Notes will be taken and the interview may be audio-taped and will be transcribed for further analysis. Only the researchers will have access to the tapes and transcripts.

Dissemination of Results
It is anticipated that the results of this study will be shared with others through presentations at conferences, a report and through academic publications.

Disposal of Data
Tracking tools and focus group/interview transcripts from this study will be disposed of one year following publication. If the results are not published within 5 years of completing the study, the data will be destroyed. Hard copies will be shredded and any computer files with participant information will be deleted.

Contacts
Individuals that may be contacted regarding this evaluation include:

Dr. PJ Naylor	Dr. Karen Strange	Dr. Sam Liu
Principal investigator	HLP Project Director	Co-investigator
250-721-7844	250-216-7893	250-721-8392
pjnaylor@uvic.ca	kstrange@uvic.ca	samliu@uvic.ca

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca) or the Research Subject Information Line in the University of British Columbia Office of Research Services by email at RSIL@ors.ubc.ca or by phone at 604-822-8598 (Toll Free Number 1-877-822-8598).

I agree to participate in the following components of the Healthy Living Program pilot evaluation study. (**Please check (✓) the study components that you consent to).**

___ I agree to have all project tracking data that I am involved in collecting (ie. weekly tracking sheets, minutes from weekly staff meetings, etc.) included in the Healthy Living Program evaluation study.

___ I agree to participate in a post-program interview about the Healthy Living Program model if asked.

I understand that at any time during the Healthy Living Program pilot evaluation study I will be free to withdraw without jeopardizing any employment opportunities. I understand the contents of all three pages of this form, the proposed procedures and possible risks. I have had the opportunity to ask questions and have received satisfactory answers to all inquiries regarding this study.

_____	_____	_____
Name of Participant	*Signature*	*Date*

A copy of this consent will be left with you, and a copy will be taken by the researcher

Appendix F: Parent/Caregiver Questionnaire

(questions about participant demographics and characteristics only)

University of Victoria | School of Exercise Science, Physical & Health Education

1. Please indicate your full name and the date in the text boxes below.

   Name

   Date

2. Please provide your **participant ID number** in the textbox below.

This form should be completed by the participating child's parent or primary caregiver. The Healthy Living Program is committed to reaching all groups, irrespective of gender, location, economic means or ethnicity. The information you provide will help to ensure we are reaching all sections of the community and providing services to meet all the community's needs.

We therefore request that you answer all the following questions.

Remember this information is strictly confidential.

3. What is your relationship to the child?

4. Do you consider yourself a single parent?
   - ☐ Yes
   - ☐ No
   - ☐ Prefer not to answer

5. People living in Canada came from many different cultural and racial backgrounds. Is your child (please choose all the apply):
   - ☐ An aboriginal person (e.g. First Nations, Metis, or Inuit)
   - ☐ White
   - ☐ Chinese
   - ☐ South Asian (e.g. East Indian, Pakistani, Sri Lankan)
   - ☐ Black
   - ☐ Filipino
   - ☐ Latin American
   - ☐ Southeast Asian (e.g. Cambodian, Indonesian, Laotian, Vietnamese)
   - ☐ Arab
   - ☐ West Asian (e.g. Afghan, Iranian)
   - ☐ Japanese
   - ☐ Korean

- Other (please specify)

6. What language(s) do you speak most often at home?
   - English
   - French
   - Chinese language (Cantonese, Mandarin, Hakka, Fukien, Taiwanese)
   - German
   - Punjabi
   - Tagalog (Filipino/Pilipino)
   - Spanish
   - Hindi
   - African languages
   - Somali
   - Arabic
   - Vietnamese
   - Korean
   - Urdu
   - Aboriginal languages (Cree, Blackfoot, Ojibway)
   - Other (please specify)

7. The following questions use the term "household". For this questionnaire, "household" refers to the people living at the same place who are supported by the same source(s) of income. Is the primary earner of the household:
   - Employed
   - Unemployed – currently looking for work
   - Unemployed – currently not looking for work
   - Prefer not to answer

8. What is your best estimate of the total income received by all household members, from all sources, before taxes and deductions, in the past 12 months? Income can come from various sources such as from work, investments, pensions or government. Examples include Employment Insurance, Social Assistance, Child Tax Benefit and other income such as child support, alimony and rental income. Is your household income in the past year:
   - Less than $28,000
   - $28,000 to less than $34,000
   - $34,000 to less than $41,000
   - $41,000 to less than $47,000
   - $47,000 to less than $53,000
   - $53,000 to less than $59,000
   - $59,000 or more
   - Prefer not to answer

9. What is the highest level of education achieved by the primary caregiver of your child?
   - Finished grade 8
   - Finished grade 10
   - High school certificate
   - Trade certificate or diploma from a vocational school or apprenticeship training
   - Non-university certificate or diploma from a community college
   - University certificate below bachelor's level
   - Bachelor's degree
   - University degree or certificate above bachelor's degree

- Prefer not to answer

10. How many adults and children live in your household? Please count yourself as an adult. If you are pregnant, please indicate the baby you are carrying as a child:

Adult(s)	
Child(ren)	

Appendix G: Parent/Caregiver Satisfaction Survey

This form should be completed by the participating child's **parent or caregiver**.

Thank you very much for participating in the Family Healthy Living Program. We hope you and your child enjoyed it! We want to find out more about what you think of the program so we can make it better for other families like yours. Your feedback is important to make the program a success.

A. Rating weekly sessions

In this section, we want you to think about each session and tell us (1) if you liked it or not, and (2) if you found the session helped you learn and/or you felt it was useful for changing your lifestyle. Please choose a number that corresponds with what you think using a scale of 1 to 5, with 1 being "not at all" and 5 being "a lot" and circle one number per column for each session you attended. Please leave the row blank if you were unable to attend a particular session. **Please leave the row blank if you were unable to attend a particular session.**

Session Name	**I liked it…**					**I learned a lot at this session... It was useful?...**				
	A lot				Not at all	A lot				Not at all
Wk 1: Healthy Living Workshop	5	4	3	2	1	5	4	3	2	1
Wk 2: Introduction to Healthy Eating and Active Living	5	4	3	2	1	5	4	3	2	1
Wk 3: Setting Family Healthy Living SMART Goals and Effective Rewards	5	4	3	2	1	5	4	3	2	1
Wk 4: Family Fun at the Supermarket	5	4	3	2	1	5	4	3	2	1
Wk 5: Healthy Body Image and Self-Compassion	5	4	3	2	1	5	4	3	2	1
Wk 6: Creating Positive and Healthy Family Mealtime & Physical Activity Experiences	5	4	3	2	1	5	4	3	2	1
Wk 7: Family, Food and Getting Active Outdoors	5	4	3	2	1	5	4	3	2	1
Wk 8: Positive Caregiving and Brainiacs	5	4	3	2	1	5	4	3	2	1
Wk 9: Cooking and Playing Together	5	4	3	2	1	5	4	3	2	1
Wk 10: Accomplishments & Sticking with it Celebration	5	4	3	2	1	5	4	3	2	1

B. Rating the overall Healthy Living Program

In this section, we want know a little bit more about what you think about the Healthy Living Program in general. Using similar scales as before, please tell us (1) if you liked different parts of the Healthy Living Program, and (2) if you found that parts helped your family apply what you have learned about living a healthy life. Please circle one number per column for each part of the Healthy Living Program. **Please leave the row blank if you were unable to attend a particular session.**

Parts of the Healthy Living Program	**Level of satisfaction with…**					**This part helped my family apply what we have learned about living a healthy life… It was useful…**				
	A lot				Not at all	A lot				Not at all
Family Classroom components	5	4	3	2	1	5	4	3	2	1
Child classroom/PA components	5	4	3	2	1	5	4	3	2	1
Parent/Caregiver classroom components	5	4	3	2	1	5	4	3	2	1
Family Physical Activity components	5	4	3	2	1	5	4	3	2	1
Handouts for parents and caregivers	5	4	3	2	1	5	4	3	2	1
Handouts for children	5	4	3	2	1	5	4	3	2	1
Online Family Portal	5	4	3	2	1	5	4	3	2	1
Agents of Discovery Game	5	4	3	2	1	5	4	3	2	1
Grocery Store Tour	5	4	3	2	1	5	4	3	2	1
Other additional sessions	5	4	3	2	1	5	4	3	2	1

C. Rating components of the Online Family Portal

In this section, we want know a little bit more about what you think about the different components of the Online Family Portal. Using similar scales as before, please tell us (1) if you liked different components of the Online Family Portal, and (2) if you found that components helped your family apply what you have learned about living a healthy life. **Please circle one number per column for each part of the Healthy Living Program. If you did not use the component, please put an "x" under the "Did not use" column.**

Components of the Online Family Portal	**Level of satisfaction with…** Not at all				A lot	**This part helped my family apply what we have learned about living a healthy life… It was useful…** Not at all lot				A	**Did not use**
Articles	1	2	3	4	5	1	2	3	4	5	
Videos	1	2	3	4	5	1	2	3	4	5	
Quizzes	1	2	3	4	5	1	2	3	4	5	
Recipes	1	2	3	4	5	1	2	3	4	5	
Family Activity Ideas	1	2	3	4	5	1	2	3	4	5	
Forum	1	2	3	4	5	1	2	3	4	5	
Our Places	1	2	3	4	5	1	2	3	4	5	
Our Steps	1	2	3	4	5	1	2	3	4	5	

D. Rating the information provided by the Healthy Living Program

In this section, we want to find out more about what you think of the information given in the sessions and the handouts. Please rate the information using a scale of 1 to 5, with 1 being "not at all" and 5 being "definitely."

Was the information...	**Information given in sessions**					**Information given in the binder**				
	Not at all				Definitely	Not at all				Definitely
…easy to understand?	1	2	3	4	5	1	2	3	4	5
…culturally suitable for your family?	1	2	3	4	5	1	2	3	4	5
…respectful of your child's issues and constraints?	1	2	3	4	5	1	2	3	4	5
…respectful of your family's financial situation?	1	2	3	4	5	1	2	3	4	5
…enough for you to build a healthy lifestyle?	1	2	3	4	5	1	2	3	4	5
…suitable in your community?	1	2	3	4	5	1	2	3	4	5
…easy to incorporate into your everyday life?	1	2	3	4	5	1	2	3	4	5
…suitable for British Columbians in general?	1	2	3	4	5	1	2	3	4	5

i. Did you learn anything new through the information provided by the Healthy Living Program?

ii. What were the most important pieces of information provided by the Healthy Living Program?

iii. Are there any pieces of information that you think should not be included in the Healthy Living Program in the future?

iv. Were there any areas or topics you expected to be covered that were not?

E. Rating the Healthy Living Program delivery

In this section, we want to find out more about what you think of the delivery of the Healthy Living Program. Please rate the program using a scale of 1 to 5, with 1 being "not at all" and 5 being "definitely."

The Healthy Living Program…	Not at all				Definitely
…provided your family with enough information before the program started?	1	2	3	4	5
…provided your family with accurate information before the program started?	1	2	3	4	5
…chose an easy to access location?	1	2	3	4	5
…chose a suitable location for the program activities? (rec centre, school, rooms, gym space, etc...)	1	2	3	4	5
…had enough staff members to manage the program effectively?	1	2	3	4	5
…had a knowledgeable Group Facilitator?	1	2	3	4	5
…had an effective Physical Activity Leader?	1	2	3	4	5
…ran the sessions on time?	1	2	3	4	5
…chose an appropriate length for each session (90 minutes)?	1	2	3	4	5
…chose an appropriate frequency for the sessions (1 time per week)?	1	2	3	4	5
…chose an appropriate overall program length (10 weeks)?	1	2	3	4	5

1. Was there anything that made it difficult for your family to attend the Healthy Living Program sessions (eg transportation, scheduling)?

2. Was there anything that made it easier for your family to attend the Healthy Living Program sessions (eg including siblings in the activities, free program)?

3. What do you think will make it easier for other families to attend the Healthy Living Program in the future (eg. Providing babysitting)?

4. In your opinion, which part(s) of the Healthy Living Program went well?

5. In your opinion, which part(s) of the Healthy Living Program could use improvement? Please provide details.

F. Rating the impacts of the Healthy Living Program

In this section, we want to find out more about the Healthy Living Program's impact on your family.

1. Did your family make any changes towards a healthy lifestyle during the Healthy Living Program?

□ Definitely	□ I think so	□ I don't know	□ I don't think so	□ Definitely not

2. What changes, if any, did your family make?

3. Is your family planning to make any further changes towards a healthy lifestyle after the Healthy Living Program?

□ Definitely	□ I think so	□ I don't know	□ I don't think so	□ Definitely not

4. What further changes, if any, does your family plan to make?

5. What was the one thing you liked the most about the Healthy Living Program?

6. What would you like to change about the Healthy Living Program?

7. Were there any impacts (positive or negative) to your child's positive mental health (eg: social/emotional well-being) from being involved in the Healthy Living Program that you noticed or talked about with your child?

8. Did measuring your child's weight and BMI at the first and last program sessions have any impact (positive or negative) on your child's positive mental health?

9. What would you tell other families about the Healthy Living Program?

10. Would you recommend the Healthy Living Program to other families?

Thank you for your time completing this survey and your participation in the program!

Appendix H: Child Satisfaction Survey

Healthy Living Program Feedback Form – Children

This form should be completed by the **child**.

Thank you very much for participating in the Healthy Living Program. We hope you enjoyed it as much as we did! We want to find out more about what you think of the Healthy Living Program so we can make it better for other children just like you. Your feedback is important to make the Healthy Living Program a success.

A. Weekly sessions

First we want you to think about each session and tell us (1) if you liked it or not, and (2) if you found the session helped you learn about living a healthy life. **Please circle one of the faces in each column to tell us what you think about each session. If you did not attend a session or do not remember a session, please leave the row blank.**

Session Name	**I liked it…** A lot Not at all	**This session helped me learn about living a healthy life… it was useful** A lot Not at all
Wk1: Healthy Living Workshop		
Wk 2: Introduction to Healthy Eating and Active Living		
Wk 3: Setting Family Healthy Living SMART Goals and Effective Rewards		
Wk 4: Family Fun at the Supermarket		
Wk 5: Healthy Body Image and Self-Compassion		
Wk 6: Creating Positive and Healthy Family Mealtime & Physical Activity Experiences		
Wk 7: Family, Food and Getting Active Outdoors		
Wk 8: Positive Caregiving and Brainiacs		
Wk 9: Cooking and Playing Together		

Wk 10: Accomplishments and Keeping it Going Graduation Celebration		

B. Program Overall

Now we want to know a little bit more about what you think about the Family Healthy Living Program. Using similar scales as before, please tell us (1) if you liked different parts of the Program, and (2) if you found that part helped you apply what you have learned about living a healthy life. Please circle one face per column for each part of the program. Please leave the row blank if you were unable to attend a particular session.

Parts of the Healthy Living Program	**I liked it…** A lot Not at all	**This part helped me apply what I have learned about living a healthy life…** A lot Not at all
Physical Activity sessions		
Family classroom sessions		
Family Physical Activity components		
Handouts		
Online Family Portal		
Agents of Discovery Game		
Grocery Store Tour		
Other Extra Sessions		

C. Your experience in the Family Healthy Living Program

1. Did you have fun at the Family Healthy Living Program?

 A lot  Quite a bit  It's ok  Not really  Not at all

2. Did you like your Program Leaders?

 A lot  Quite a bit  They're ok  Not really  Not at all

3. Did you learn anything new about living a healthy life through participating in the Program?

 Definitely  I think so  I don't know  I don't think so  Definitely not

4. What was the most important thing, if any, you learned through the Family Healthy Living Program?

5. Did you make any changes in your life so you can be healthier during the Family Healthy Living Program?

 Definitely  I think so  I don't know  I don't think so  Definitely not

6. What changes, if any, did you make?

7. Do you plan to make any changes in your life so you can be healthier after you finish the Family Healthy Living Program?

 Definitely  I think so  I don't know  I don't think so  Definitely not

8. What changes, if any, do you plan to make?

9. Do you feel you can live a healthy life after you finish the Family Healthy Living Program?

 Definitely  I think so  I don't know  I don't think so  Definitely not

10. What was the one thing you liked the most about the Healthy Living Program?

11. What was the one thing you liked the least about the Family Healthy Living Program?

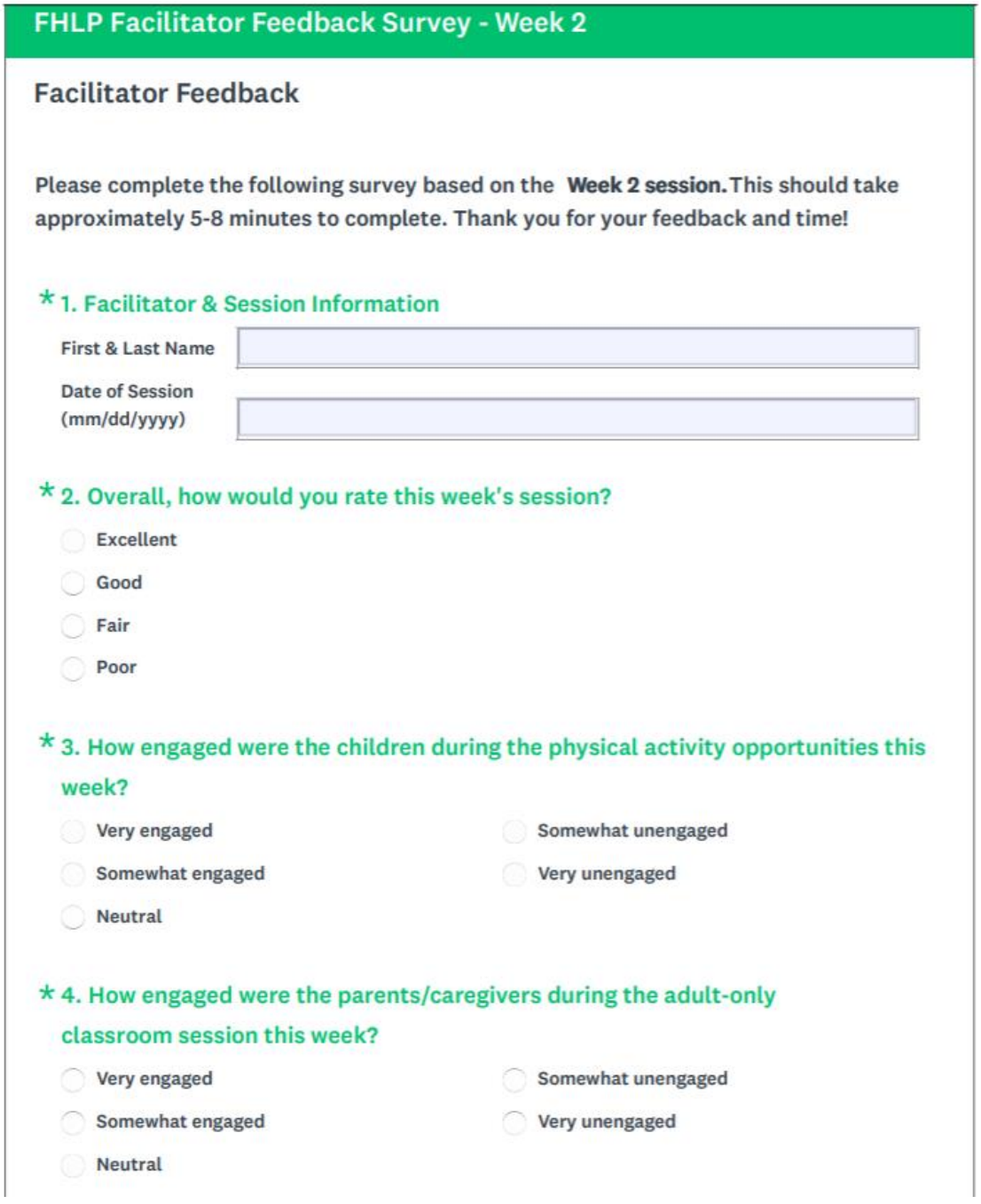
12. Is there anything you would like to change about the Family Healthy Living Program?

13. Were there any changes in your feelings, positive or negative, (e.g. confidence, happiness) from being involved in the Family Healthy Living Program?

14. What would you tell your friends about the Family Healthy Living Program?

Thank you for your time <u>and participation in the program</u>!

Appendix I: Weekly Facilitator Feedback Survey



FHLP Facilitator Feedback Survey - Week 2

Facilitator Feedback

Please complete the following survey based on the **Week 2 session.** This should take approximately 5-8 minutes to complete. Thank you for your feedback and time!

* 1. Facilitator & Session Information

First & Last Name

Date of Session (mm/dd/yyyy)

* 2. Overall, how would you rate this week's session?

- Excellent
- Good
- Fair
- Poor

* 3. How engaged were the children during the physical activity opportunities this week?

- Very engaged
- Somewhat engaged
- Neutral
- Somewhat unengaged
- Very unengaged

* 4. How engaged were the parents/caregivers during the adult-only classroom session this week?

- Very engaged
- Somewhat engaged
- Neutral
- Somewhat unengaged
- Very unengaged

* 5. Please check off all of the session components you were able to complete this week:

- [ ] Child-only physical activity
- [ ] Family Action Break
- [ ] Parent/caregiver classroom components
- [ ] Appreciation Circle
- [ ] Family classroom components
- [ ] Gratitude Circle
- [ ] Accomplishments & Challenges
- [ ] Activity: Think Before You Drink
- [ ] Tracking & Behavioural Change

For each component that you were not able to complete, please indicate why (ran out of time, group was not engaging in the material, etc.)

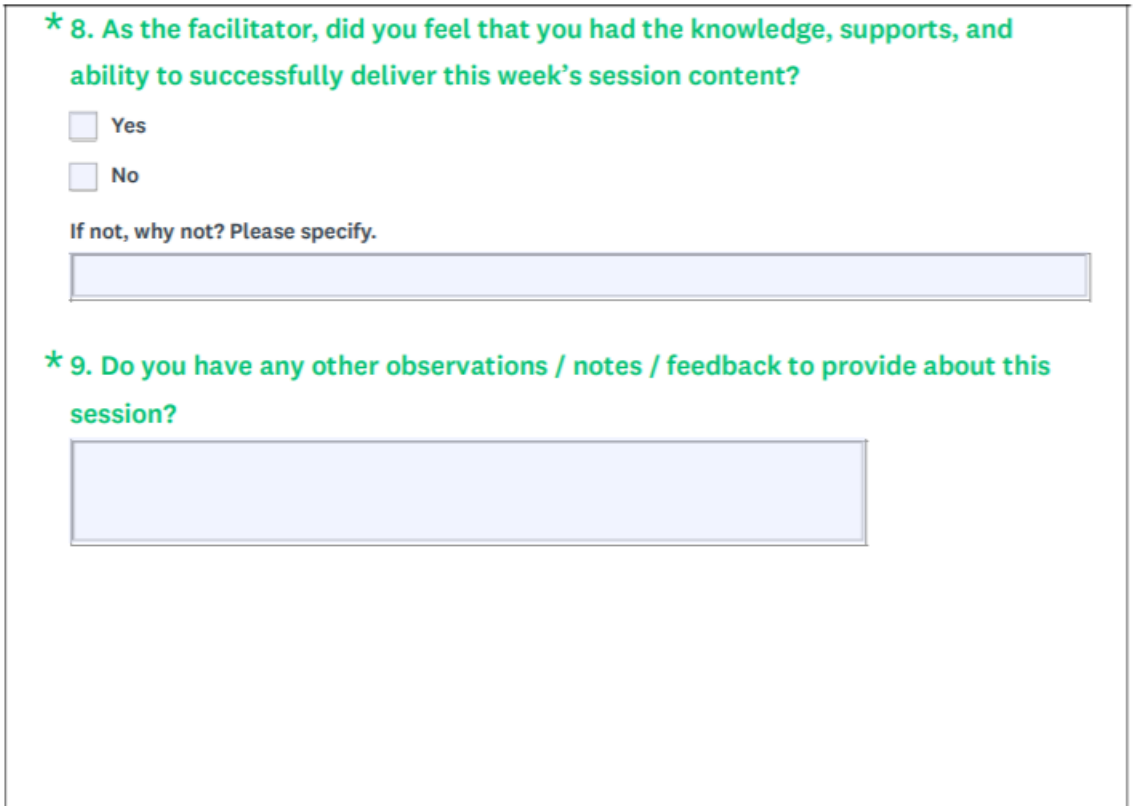
* 6. Which component(s) from this week's session appeared most effective or well received among participants?

- [ ] Child-only physical activity
- [ ] Family Action Break
- [ ] Parent/caregiver classroom components
- [ ] Appreciation Circle
- [ ] Family classroom components
- [ ] Gratitude Circle
- [ ] Accomplishments & Challenges
- [ ] Activity: Think Before You Drink
- [ ] Tracking & Behavioural Change

If you have any additional feedback, please enter it here:

* 7. Were there any components or aspects from this week's session that could be improved upon?

- [ ] Yes
- [ ] No
- [ ] If yes, which ones? How? Please specify.



* 8. As the facilitator, did you feel that you had the knowledge, supports, and ability to successfully deliver this week's session content?

- [ ] Yes
- [ ] No

If not, why not? Please specify.

* 9. Do you have any other observations / notes / feedback to provide about this session?

Appendix J: Post-Program Interview Questions - Parents/Caregivers

1. What do you think about the Healthy Living program?
2. What impact (positive/negative) has the Healthy Living Program had on your family?
3. Were there any impacts you didn't expect? Either positive or negative? Include spin off benefits.
4. What was the best thing about the program?
5. What was the worst thing about the program?
6. What improvements could be made to the Healthy Living Program to make it more appealing to families in your community?
7. Why do you think that families don't attend? Drop out?
8. What are the major lessons you learned through participating in the Healthy Living Program?
9. To what extent was the program meaningful to you?
10. Was the family web portal useful for you? What did you like? What didn't you like? Is there anything else you would like to see on the portal?
11. What did you think about the extra family activities that were offered?
    - E.g. Grocery store tour
        - What did you like most about this activity?
        - What didn't you like about it, if anything?
    - What did you like most about Agents of Discovery?
        - What didn't you like about it, if anything?
        - Would you recommend it to friends?
12. How satisfied were you with the Healthy Living program?
13. What impact (positive/negative), if any, do you think measuring your child's weight and BMI had on your child's positive mental health? (socially/emotionally)
14. Is there anything else that you feel is important to say?

Appendix K: Post-Program Interview Questions - Program Leaders

1. What attracted your recreation centre to participate in the Healthy Living Program?
2. What were your initial reasons for participation in the program? Have your reasons for participation changed since you first started?
3. What has been your recreation centre's response to the Healthy Living Program?
4. What factors do you think facilitated the implementation of the program at your recreation centre?
5. Were there milestones or achievements during the 10-week program that you think are particularly important?
6. Were there barriers to the implementation of the program?
7. Describe your role in implementing the Healthy Living Program pilot.
8. What impact (positive or negative) has the Healthy Living Program had at your recreation centre? In your community?
9. What did you think about the Agents of Discovery application?
    - What worked well/what didn't work well?
    - How did the families respond to the game?
    - Do you think there could be broader use for this type of game within your recreation centre/community?
10. Were there major lessons your recreation centre learned through participating in the program?
11. What do you think of the resources, training, and assistance provided by the Healthy Living Program support team?
12. If funding was announced by the Province, what do you think the likelihood is that your facility would continue to implement the Healthy Living Program?
13. What factors would influence the continued use of the program at your facility?
    - Prompts if needed:
        - E.g. External incentives for increasing registration and/or encouraging good attendance (7/10 sessions) e.g. grocery store gift card
        - Having a greater (or required minimum) number of participants
        - One of the barriers you mentioned above?
14. What improvements could be made to the program to enhance its chance of success in other recreation centres and communities?
15. What factors do you think would facilitate the provincial roll-out and long-term sustainability of the Healthy Living Program?
16. What factors do you think would be a challenge to the provincial roll-out and long-term sustainability of the program?
17. What have we missed that you feel is important to say?

Appendix L: Post-Program Interview Questions - Program Director & Coordinator

1. What areas do you think worked well/what factors do you think helped with the implementation of the Family Healthy Living Program?
2. What areas/factors do you think were challenges for the implementation of the program?
3. From your perspective, what impact is the program having (positive and negative)? (Implementation)
   Probes
   - On families who participate?
   - On the community in general?
   - Were there any unanticipated benefits to implementing this program?
4. What linkages does the program currently have with other relevant supports and services? Which supports does the program connect with most often?

5. Partnerships: Which partnerships did you draw on for the pilot? (e.g. Shapedown, HealthLINK BC, HEAPK, YMCA, BCRPA, MoH, PHSA, others_What worked well/didn't work well for the partnership Probes
   - Strengths/Weaknesses
   - Barriers/Facilitators
   - Impact
6. What are the conditions for successful longer-term implementation of the Family Healthy Living program at the provincial level?
   Probes
   - Financial sustainability?
   - Relationship/partnership sustainability?
   - Capacity
   - Stakeholder support
7. What aspects of the program's marketing strategy seemed to be effective? What worked well and what could be improved in terms of the combined central/local marketing strategy? Do you have any ideas for how this could be more effective?
8. In your opinion, which part(s) of the support process worked well?
   - Centralized follow-up vs. localized (get the facilitators more involved)
   - Method of communication (phone vs email)
   - Tracking
   - Chain of communication (having you as middle-person between participants and sites)
9. In your opinion, which part(s) of the support process could use improvement?
   - Centralized follow-up vs. localized (get the facilitators more involved)
   - Method of communication (phone vs email)
   - Tracking
   - Chain of communication (having you as middle-person between participants and sites)
10. Are there any major lessons you learned that haven't been raised?
11. Is there anything else that you would like to add?

Additional questions if time permits:

12. To what extent is the Family Healthy Living Program acceptable or meaningful? What changes are needed to increase the program's acceptability or meaningfulness?
    Can you comment on how this program is/is not filling a gap/need in British Columbia?
13. How does this program meet the needs of different communities/subpopulations? Are there adaptations that need to be made to better meet the needs of residents of British Columbia?

Appendix M: Post-Program Facilitator Interview Questions: Support Team

1. What factors do you think made the program accessible for families to register?
    - E.g.: free, self-referral, convenient location, ability to bring sibling, etc.
2. What, if any, factors did you perceive to be barriers for families registering for the program?
3. How did the BMI requirement impact parents' decision to register for the program? (positive or negative).
    - Did perceived stigma impact decisions to enroll?
4. What were the main reasons that families chose not to register (if their child was eligible)?
5. What do you think will make it easier for other families to register the Healthy Living Program in the future?
6. In your opinion, which part(s) of the recruitment and screening process worked well (from the point of first contact through to Week 1)?
    - Screening script
    - Centralized screening
    - Tracking participant data (including follow-up communication)
7. In your opinion, which part(s) of the recruitment and screening process could use improvement?
    - Screening script
    - Centralized screening
    - Tracking participant data (including follow-up communication)
8. What did you perceive to be the biggest challenge for you to complete a registration?
9. What did you perceive to be the biggest challenge for you throughout the entire registration process from the point of first contact with a family, through to commencement of the program?
10. How did individuals respond to the screening call requirement? (positive or negative)

    10a - Were there any common emotions? (gratefulness for free program, frustration in their inability to effectively help their child, etc.)

    10b - Were there any questions that appeared to illicit negative/strong reactions from individuals?
11. Did you feel comfortable/knowledgeable referring parents/caregivers to external resources when needed?
12. Is there anything we missed that you feel is important to say?