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Process Evaluation Of The HealtheSteps™ Lifestyle Prescription Program

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Process Evaluation of the HealthSteps™ Lifestyle Prescription Program

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The findings reported have not been previously published and the manuscript is not being simultaneously submitted elsewhere. The findings from this article have not been reported elsewhere.

Compliance with Ethical Standards

Western University Health Sciences Research Ethics Board approved this study and all participants provided written informed consent.

Disclosure of potential conflicts of interest

All authors declare that they have no conflicts of interest.

Research involving Human Participants and/or Animals

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Authors' contributions

WB contributed to acquisition of data, data analysis, study design and was a major contributor in writing the manuscript. DG contributed to study design, data analysis, and was a major contributor in writing the manuscript. BR contributed to acquisition, analysis of data, and critical revision of the manuscript. JBB contributed to data analysis, and critical revision of the manuscript. RJP contributed to study conception, study design, data analysis, and was a major contributor in writing the manuscript. All authors read and approved the final manuscript.

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Abstract:

Background: Physical inactivity, sedentary behaviour, and poor diet are contributing to the rise in chronic disease rates throughout the world. HealthSteps™ is a lifestyle prescription program focused on reducing risk factors for chronic disease through in-person coaching sessions, goal setting and tracking, and technology supports. *Purpose:* A process evaluation was conducted alongside a pragmatic randomized controlled trial to: a) explore the acceptability of HealthSteps™ program from coach and participant perspectives; and b) identify where the program can be improved. *Methods:* Participants at risk or diagnosed with a chronic disease were recruited from five primary care/health services organizations into HealthSteps™. Participants met with a trained coach bi-monthly for six months and set goals for physical activity (step counts), exercise (moderate to vigorous activity), and healthy eating. Coaches were interviewed at 6 months and participants at 12 months (6 months post-program). All coach interviews (n=12) were analyzed along with a purposeful sample of participant interviews (n=13). *Results:* Coaches found HealthSteps™ was easy to deliver and recommendations for exercise and healthy eating were helpful. Including discussions on participant readiness to change, along with group sessions and more in-depth healthy eating resources were suggested by coaches to improve the program. Participants described the multiple avenues of accountability provided in the program as helpful. However, more feedback and interaction during and post-program from coaches was suggested by participants. *Conclusions:* HealthSteps™ is an acceptable program from the perspectives of both coaches and participants with suggested improvements not requiring significant changes to the core program design.

Keywords: Chronic Disease; Physical Activity; Sedentary Behaviour; Healthy Lifestyle; Process Evaluation

Introduction:

By the year 2020, chronic diseases will account for 73% of all deaths worldwide and contribute to an estimated 60% of the global burden of disease [1]. In Canada, two thirds of all deaths are caused by four major chronic diseases: cardiovascular disease; cancer; diabetes; and chronic respiratory disease [2]. This number is expected to grow in the coming years as people age and lifestyles become more sedentary [3]. Nonetheless, chronic diseases are highly preventable where changes in tobacco use, alcohol consumption, physical inactivity, and unhealthy eating can prevent up to 90% of type 2 diabetes, 80% of coronary heart disease, and 33% of cancers [3,4].

Approximately four in five Canadian adults have at least one modifiable risk factor for chronic disease [2]. In 2012-2013, 77.8% of Canadian adults were considered inactive and 60.3% consumed less than five fruits and vegetables per day (compared to the recommended 7 to 10 servings per day) [2]. Canadian adults also spend an average of 9.6 hours of their day being sedentary (i.e., sitting while driving, at work, or watching television) [5]. Of more concern are rural, remote, and Indigenous communities' where rates of type 2 diabetes and obesity are even higher than urban, non-Indigenous communities and access to prevention and management programs are limited [6]. This emphasizes the need for chronic disease prevention and management programs that target the risk factors for chronic disease and can be delivered in a variety of urban, rural, and remote settings.

There are many frameworks and models addressing chronic disease prevention in primary care, but evidence-based programs for chronic disease prevention and management are inconsistently applied in the primary care setting [7]. Part of the reason is that primary care providers often lack the time, tools, resources and access to pragmatic programs to help patients

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make and maintain positive health behaviour changes [8]. HealthSteps™ was developed for clinicians and non-clinicians to provide at-risk patients with activities and actions to reduce their risk for chronic disease [9]. HealthSteps™ was developed from an extensive research base exploring the impact of physical activity counselling, mobile health, nutrition, behaviour change, and knowledge translation [10-18]. Preliminary results are promising and indicate HealthSteps™ has the potential to improve physical activity levels (step counts) and eating habits in participants at-risk for chronic disease [19].

The theoretical foundation of HealthSteps™ is grounded in the social cognitive theory of self-regulation[20], providing participants with the tools, resources, and supports to make positive health behaviour changes [21]. HealthSteps™ goes beyond typical health promotion messaging and provides each participant with: 1) an individualized fitness score; 2) personalized lifestyle prescriptions/plans for exercise, physical activity and healthy eating; and 3) in-person and technology-supported coaching (phone coaching delivered by Sykes Assistance Services, secure online social network powered by Tyze Personal Networks, and HealthSteps™ smartphone app) using Co-Active coaching[22], a form of motivational interviewing that works with the participant to develop strategies to achieve their individualized prescriptions and overcome potential barriers. This model has been shown to be effective in assisting overweight and obese individuals make positive health behaviour changes [23].

Methods:

Aim: The aim of this process evaluation was to examine the acceptability of the HealthSteps™ program by exploring: 1) coaches' experience delivering HealthSteps™; 2) participants' experience with HealthSteps™; and 3) identifying areas for further program improvement.

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The HealthSteps™ program and pragmatic randomized controlled trial have been described in detail elsewhere [9]. Briefly, 118 participants who were at risk for or had been diagnosed with a chronic disease were recruited into a 6-month healthy lifestyle program. Those included in the study were between 18-85 years of age with one or more self-reported or measured risk factor for chronic disease including: body-mass index (BMI) greater than 25 kg/m²; less than 150 minutes of exercise per week; 3 or more hours sitting per day; consuming less than 8 fruit and vegetable servings per day; diagnosis of metabolic syndrome or type 2 diabetes; and clearance to participate in physical activity via the Physical Activity Readiness-Questionnaire (PAR-Q) or a health care provider. Those who were unable to comprehend the letter of information and consent documentation were excluded from the study.

Participants met bi-monthly (months 0, 2, 4, and 6) with a trained HealthSteps™ coach to set prescriptions for physical activity, exercise, and healthy eating. In setting the exercise prescription, participants were asked to complete a STEP test; a physical test where participants climb two steps up and down, 20 times with the coach recording the duration. These results, along with the participant's age, weight, and gender were entered into a spreadsheet to calculate the participant's predicted maximal oxygen uptake or current fitness level (VO₂max), and ultimately their target heart rate for setting their exercise prescription. Participants were encouraged to reach their target heart rate and increase their activity in increments of 10 minutes until they met the recommendation of 150-minutes of moderate to vigorous exercise per week as recommended in the Canadian Physical Activity Guidelines[24]. The physical activity prescription was set based on the participant's step count average at baseline (month 0) and through their own tracking for sessions 2-4 (month 2, 4, and 6). Participants used a chart to incrementally increase their step counts to meet 10,000 steps per day. Lastly, the healthy eating

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prescriptions were created based on the recommendations from *Eating Well with Canada's Food Guide*[25] where participants increased or decreased a serving in each food group as needed to work towards meeting the recommendations. Participants were also provided with access to a Tyze Personal Networks, an online social network to connect with coaches and other participants, phone coaching supports whereby a trained HealthSteps™ coach calls the participant, and a free HealthSteps™ smartphone app which provides a virtual coach, heart rate monitor, step counter, and tracking option to monitor their progress with their goals.

Coaches were staff at each of the sites who received in-person training in the HealthSteps™ protocol by the central research team at Western University. Participants were recruited from three primary care settings in an urban community, a community health centre in a rural community, and a health services organization in a smaller urban community. Participants were randomized (1:1) to intervention (HealthSteps™ program) or comparator (wait-list control to begin HealthSteps™ 6 months later). Ethical permission was granted through Western University Health Sciences Research Ethics Board and all coaches and participants provided written informed consent.

Data to inform the process evaluation were collected through interviews with coaches upon program completion (month 6), and with participants at a follow-up assessment (12 months). All interviews were conducted by a member of the research team not involved in program delivery. Interviews were semi-structured with a list of open-ended questions guiding the interviews and allowing the interviewer and participant to explore other topics related to the program when they arose. Out of 13 coaches who delivered the program to the intervention group, 12 coaches completed the interview with a member of the research team. One coach was unavailable due to scheduling conflicts. Coaches (n=12) were asked about their experience

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delivering HealthSteps™ including barriers and facilitators for program delivery and suggestions for improving the different program components. Participants were asked about their experience making health behaviour changes, program successes and challenges, and ways they think the program could be improved.

All participants who attended the follow-up assessment at 12 months (n=39), were invited to participate in an interview. Of the participants who attended these assessments, 32 agreed to participate in the interview and be audio-recorded. From these 32, a purposeful sample of 13 participants were chosen. This sample was chosen according to baseline measures including, site location, age, gender, ethnicity, marital status, education, occupation, body mass index, average step count, and self-rated health.

Data Analysis: All coach interviews and the purposeful sample of 12-month participant interviews were audio-recorded and transcribed verbatim. All coach interviews were read independently by five members of the research team, one with expertise in qualitative research, to explore the emerging themes. The research team then met to discuss the main themes found throughout the transcripts and to identify the exemplar quotes illustrating the themes. Findings were then summarized, and reviewed again by the research team for coherence. Participant interviews completed at 12 months were analyzed separately and followed the same methods for analysis as the coach interviews. Note: C = coach interview at 6 months and P = participant interview at 12 months.

Final Sample

Coaches interviewed came from a variety of health-related backgrounds, including fitness instructors, health promoters, and research assistants. For the purposeful sample of 13 participants for the 12 month interviews, the average age was 59.5 years (SD 12.8),

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approximately half were female (46.2%), approximately equal parts urban (53.8%) or rural (46.2%), married (69.2%), achieved at least a high school diploma or equivalent (100%), with the majority being retired (58.5%). In terms of health status at baseline, the average BMI was 32.9 kg/m² (SD 8.5 kg/m²), and average steps per day 6591.8 (3400.3).

Findings

Coaches Experience Delivering HealthSteps™ Program

Coaches identified many successes and challenges delivering HealthSteps™ to participants. The following themes present throughout the coach interviews were identified as *successes* to program delivery: 1) simplicity of the program; 2) use of common resources; 3) focus on small behaviour changes; and 4) building rapport. The following themes were identified as *challenges* to program delivery: 1) differentiating between physical activity and exercise; 2) scheduling; 3) administration of pedometers; 4) time between training and program delivery; 5) more resources; 6) participant readiness; and 7) frequency of sessions. These themes are described in further detail below.

Program Successes

Simplicity of Program

The simplicity and ease of delivering the program, was noted multiple times by coaches. Particularly, coaches liked the structure of the program which focused on three risk factors, “*I think the fact that we were only looking at three tools, the physical activity, exercise, and the healthy eating, I think that really helped to keep it structured to 10 to 15 minutes for each portion*” (C-3). Although the majority of coaches did have some experience in health promotion, they noted that delivering this program did not require extensive background knowledge, “*A coach can be anyone...and it really plugs well in terms of their time at work, and so it doesn't*

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disrupt existing work flow to be implemented in that type of setting” (C-4). Having the materials prepared beforehand by the central research team at Western University assisted the coaches in delivering the program and enabled them to focus directly on the material to be taught,

“Packages were organized, prepared and ready to go because I just do not have time for that...I really appreciated that part of it. That helped me to be able to do it properly” (C-7).

Use of Common Resources

Most coaches felt comfortable delivering the healthy eating components of the program. This was attributed to the use of *Eating Well with Canada’s Food Guide*, a freely available government resource for healthy eating on which the eating prescription was based, *“I think Canada’s Food Guide is a great model” (C-9)*. The combination of Canada’s Food Guide and the Canadian Physical Activity Guidelines were an effective support for the coaches as they could refer back to these guidelines to ensure they were providing the right information to participants, *“Canada’s Food Guide and the physical activity guidelines, it was just good as a backup to show participants that this isn’t just your opinion, this is a government issued professional’s point of view” (C-3)*.

Small Changes

Overall, the coaches found the program content was effective due to the emphasis on small changes, *“I think the strengths are the tiny steps, we’re not asking people to make radical change all at once” (C-6)*. Coaches noted how the emphasis on small changes on your own schedule made leading a healthier lifestyle seem more attainable for participants, *“The nice thing with HealthSteps is that it’s not like you need to go for a run for 20 minutes. It’s more fitting physical activity into your everyday life.”*

Building Rapport

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Coaches described how the participants appeared to value the personal interaction and the opportunity to discuss barriers to leading a healthy lifestyle, *“I think also acknowledging when participants don’t meet their target, and not shaming them, but finding out why and the barriers they faced was really important”* (C-5). Coaches described how the program has helped participants, *“I really thought even if people weren’t meeting the requirements, they were more conscious about being more active, trying to eat healthier”* (C-11). Coaches also described how delivering this program helped them to understand the complexities of leading a healthy lifestyle, *“Delivering the advice really made me cognizant of what I ate on a daily basis and allowed me to empathize with participants a bit more about difficulties they faced through the program”* (C-5). Coaches found they were also invested in the participants’ success in the program, *“It was satisfying when your participant, like I was with one guy every coaching session, so it was satisfying to see the changes he had made and the loss of weight and the more activity he had been doing...”*(C-3).

Coaches seemed to value the simplicity, flexibility, and pragmatic nature of delivering the program in a primary care setting, *“...I think that doing it within a health center like this where we already have established programs makes it really easy to say okay, this is what we are going to do”* (C-7). Although coaches noted that there were program areas that could be improved, the program was viewed as a step in the right direction for preventing chronic disease, *“I think it’s just a great motivator for health prevention, for trying not to have the age-related chronic diseases creep up like your high blood pressure, your diabetes”* (C-1). The settings in which the HealthSteps™ randomized controlled trial was delivered already had experience delivering health promotion programs and noted the potential for the program to expand to other centres, *“The scaling and sustainability potential I think is its biggest strength”* (C-4). In scaling

up the program to other sites, coaches identified areas where the program could improve to better meet the needs of coaches delivering the program and the participants involved in the program (See Table 1 for *Suggestions & Actions Taken for Program Improvement*).

Challenges

Physical Activity vs. Exercise

Some coaches struggled with differentiating between the physical activity (step counts) and exercise (moderate to vigorous activity) components of the program, *“I think for our coaches it was maybe a little bit challenging to decipher between the exercise and the physical activity”* (C-10). The coaches noted the participants liked the STEP test as it acted as another measure of progress in improving their lifestyle, *“I think the VO2 tracker, that was certainly helpful and people liked that, they liked coming in”* (C-10). However, the coaches were unsure about how well the participants understood the STEP test or the importance of the target heart rate in reaching their exercise goals, *“...as long as they [participants] really understand that target heart rate and I sometimes felt that some people just didn’t get that”* (C-6).

Scheduling

In some cases, the scheduling for the sites was completed by the central research team in order to reduce the workload of coaches delivering the program. Coaches noted that instead of decreasing the workload, this actually made scheduling more difficult as a third party had to communicate between the coach and participant in order to set an appointment, *“I think initially I thought well if you guys do it, it’s one less thing I have to do, but I don’t know that it ended up that way”* (C-10). This resulted in a lack of continuity as some participants had different coaches at each session, even though this was not the original intent of the program, *“In the perfect world you would have the same coach for sessions 1, 2, 3, and 4”* (C-1). Coaches noted that although

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they worked at the site where the program was delivered, they are also involved in many different projects, making scheduling appointments by a third party even more difficult, *“Just scheduling really, because they have lives and I have programs that I’m already plugged into so there are, some days I don’t have any wiggle room”* (C-7). Coaches recommended that they should assume the responsibility for scheduling in order to better support the participants and allow for easier program delivery, *“We realized after that they should have the same coach to build that rapport so I think that was a really key thing, especially for moving forward and improving”* (C-2).

Pedometers

Coaches believed the pedometers were effective as they provided participants with a measure to track their progress throughout the day, *“The pedometer was a great component too because it gave more tangible description of what they were doing”* (C-2). Coaches observed that participants experienced technical glitches (i.e., not counting steps correctly and/or turning off) with the pedometers. Even with these technical glitches, the coaches found the participants were very disappointed when the pedometers were taken back by the research team at the end of the coaching sessions, *“They were shocked and they were upset to lose the pedometer”* (C-6).

Participant Readiness

The ability to tailor the program to participants needs was identified as a key aspect in ensuring the program was pragmatic, *“It’s simple. People understand what their being asked. And it’s really participant lead”* (C-5). However, coaches noted that participants needed to be ready to make lifestyle changes in order to benefit from the program, *“It really was dependent on the person. For sure probably around 60% of them were really motivated...maybe 40% weren’t completely motivated”* (C-11). Of note, coaches described the participants who were

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already meeting or close to meeting the recommendations for physical activity and exercise may have been pushing themselves further, not for the benefit of themselves, but for the research, *“Like an obsessive compulsive, they were trying to exercise 45 minutes in the morning and then go for a walk at lunch and then another 45 minutes in the afternoon”* (C-8). Coaches noted that appropriate participant selection is a key factor for improving the program and creating the greatest impact on improving health outcomes, *“If this is about improving health then you know, maybe we select the people who need improving, not the people that are already doing a great job”* (C-7).

Coach Training

Training was identified by coaches as an area that could use further improvement. The coaches identified that there was a significant time gap between training and the actual delivery of the program, *“If [training] was closer to the start date of the sessions, it would have been more ideal...”* (C-11). Coaches suggested having a research team member check in with them or having training refreshers to ensure they are delivering the program appropriately, *“If they had somebody from the research team call once in a while and check in and how’s that going because you might get a clearer idea of concerns from [coaches]”* (C-7). Coaches also would have preferred some further training on how to use the VO2 max spreadsheet to determine the target heart rate of their participant, *“I wouldn’t have minded a little bit of extra training time only on the screen time that just doing the actual numbers piece of it. Just do a couple of practice runs”* (C-7).

More Resources

Coaches also discussed having more resources to support program delivery, *“Stress or emotional well-being, sleep, alcohol consumption, all those types of things that kind of play into*

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this kind of healthy lifestyle weren't necessarily addressed" (C-5). Having more resources to support the healthy eating component of the program besides Eating Well with Canada's Food Guide was noted by multiple coaches, *"I mean I agree with it [Canada's Food Guide], I don't know if it could have been a little bit more dynamic or something a little bit more exciting than just giving them Canada's Food Guide"* (C-10). In particular, coaches identified that having resources that go more in-depth into a healthy diet would be helpful for meeting participant needs from the program, *"Maybe a little more in depth on what certain foods are so that we put them in the right categories because people have questions on that quite a bit actually"* (C-12).

More Frequent Sessions

More frequent sessions was identified by coaches as a way to improve the program, *"I think that you could even meet on a more regular basis than that [referring to bi-monthly coaching sessions]"* (C-8). Front-loading sessions was another recommendation by one of the coaches, *"Looking at how the sessions are spaced would be number one, and consider frontloading them"* (C-4). Coaches noted how group sessions along with regular individual coaching sessions might assist participants in their commitment to the program, *"I just felt maybe getting people together more, maybe like having group sessions...to try and encourage people to be motivated by each other"* (C-3).

Participants experience with the HealthSteps™ Program

Our analysis of the purposeful sample of participant interviews also revealed program successes and challenges. The following themes were identified under program *successes*: 1) reasons for joining; 2) accountability; 3) behaviour change; and 4) routine. *Challenges* identified included: 1) maintaining behaviour changes; and 2) external barriers. These themes are described in further detail below.

Successes

Reasons for Joining

Participants noted that an interest in chronic disease prevention was a reason for joining the program, *“That’s part of it right? Prevention and control of diabetes. So that was the major issue for joining”* (P2). The needs of participants for a health promotion program varied as some were already active and did not require as much support, *“I was sort of a little older and a little bit more along the way in maintaining my weight and I didn’t need as much [coaching support]”* (P3). Some participants were already involved in health promotion programs and found HealthSteps™ complemented these programs, *“I’m involved with Every Minute Matters*, so I have a calendar and every day I record what exercise I did, yard work, walking, whatever”* (P3). *Every Minute Matters is a health and wellness program run by the community site also involved in delivering HealthSteps™.

Accountability

The accountability HealthSteps™ promoted was the most prominent theme present throughout the interviews and was a positive motivator for creating behaviour change during the program. The recording aspects of the program (i.e., writing down steps, food servings, and amount of exercise) was highly valued by participants, *“Seeing it in writing. I think that is the encouraging thing about HealthSteps”* (P2). Many participants found reporting to a personal lifestyle coach made them more accountable, *“Well when I have to report into someone about how many steps I have I’m more apt to do them”* (P9). Participants noted their awareness increased throughout the program, making them more committed to their physical activity goals, *“I’ve always been active, now knowing – I’m always shooting for trying to get 10,000 steps a day”* (P4). The recommendations provided from Eating Healthy with Canada’s Food Guide

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combined with the recording aspects helped participants remain accountable to eating healthy, *“I think now I’m more conscious of how many servings, the quantity and the number of servings that I’m having each day is – again it’s recording and the recording makes me think”* (P2). The pedometer was another source of accountability for maintaining physical activity levels, *“I still wear a pedometer and I still aim for 10 [thousand]”* (P7) and many participants were disappointed when the pedometer had to be returned to the research team at the end of the program as they lost that source of accountability, *“Well they took my stepper back I didn’t really have anything to go by”* (P10).

Positive Behaviour Changes

When asked about changes to their physical activity levels, many participants noted they were now more active because of the program, *“...I was certainly walking a lot more. Even inside the house or going for walks and cycling”* (P7). They were able to make small changes in order to increase their levels of physical activity, *“I don’t use the cart now. I used to”* (P11). Even those that were regularly meeting the recommended weekly exercise requirements found that the program encouraged them to increase their exercise intensity, *“I was already meeting that 150 minutes, but I find now that, especially when I do spinning classes and stuff like that I find that I do it a little more vigorously”* (P5). In terms of healthy eating, participants noted that they were able to make changes to their eating habits through the program, *“I have my big meal at lunchtime instead of at dinner”* (P11).

Commitment

Many participants described that maintaining the healthy lifestyle habits developed during the program was easy as they had established a routine which could continue onward, *“I found I was pretty good on my own. Like I said I didn’t need any encouragement and I mostly got*

my understanding and my routine down I was just repeating it” (P7). Another participant noted the messages of the program were straightforward and was hopeful these messages would help them maintain their healthy lifestyle, “It was fairly common sense. It wasn’t one of the – like I’ve done some fad stuff, like the low carb stuff and you drop 25 pounds but then in a year you’re back up again. I think this one should be fairly consistent” (P11).

Challenges

Maintaining Behaviour Changes

Participants explained the importance of being committed to making their lifestyle goals as things would change very quickly when they went off track, *“You have to stay with it – well I do. I don’t know if everybody else does. But it seems like just one little mistake and I gain it right back” (P12). Some participants were able to make health behaviour changes during the program, but experienced setbacks with maintaining those changes, “At first it was okay, but now it’s [health] the same as it was the same as when I first started” (P10). The loss of accountability provided in the formal program was one reason participants regressed to old habits, “After the six months on the program everything just sort of got dropped. You had no accountability, you didn’t have your pedometer to actually keep track, even kind of the forms to keep – you didn’t have anyone to account to” (P9).*

External Barriers

There were also many external barriers noted by participants that limited their maintenance of health behaviours. Injuries affected the progress of some participants, *“I have a very bad back and I have vertigo all the time, so I have to be careful what I do” (P12). Winter weather, holidays, and travelling were also identified as barriers, “It’s a little more challenging when you’re travelling too...quite often you’re eating at more fast food places... so you end up*

off your eating vegetables and fruit" (P3). Work in particular, was a barrier for participants being physically active during the day, "I sit all day in an office and I get fixated on a project I'm working on and I find myself not moving for three or four hours at a time and it's not good" (P13).

Participants did feel there were areas for improvement (See Table 1 for *Suggestions & Actions Taken for Program Improvement*). One participant noted that group sessions would have been helpful, *"Getting the opportunity to share ideas and help each other along with what kind of issues you have or suggestions" (P6). Others recommended more feedback including a report on progress from baseline to 6 months, "You never got any feedback from where you started, where your health was at the end of six months or where it has been for years...I guess no accountability for the outcome" (P9). Participants also suggested having pedometers available at the end of the program even for a small fee would help participants maintain their physical activity levels. Lastly, the majority of participants interviewed did not access the Tyze Personal Networks due to difficulties with registering and the network being introduced after the program had begun, "Well it's an after that fact thing, so it wasn't really – it was just starting when I was in the program" (P6). The phone coaching was also not well utilized by participants as many did not understand the purpose of having a third party calling to help coach. Nonetheless, those that understood the phone coaching and used it regularly, liked the service, "...it was easy, you didn't have to actually show up" (P4).*

Discussion

As the rates of chronic disease continue to rise [26,27], the greater the need for programs that can prevent and manage those at risk and diagnosed with chronic disease. Programs that focus on modifying lifestyle-related risk factors, such as physical inactivity, an unhealthy diet,

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smoking cessation, and decreasing alcohol intake, have shown promise in reducing the rates of chronic disease [28,29]. They also tend to be lower in cost, resources, and easier to deliver than pharmacological and more invasive preventative options for reducing and managing chronic disease risk [30].

HealthSteps™ was created to address the three most common risk factors for chronic disease: physical inactivity, sedentary behaviour, and an unhealthy diet [31]. Although many lifestyle prescription programs address one risk factor at a time, HealthSteps™ addresses multiple risk factors, as those at risk for chronic disease are more likely to engage in more than one risk factor at a time (i.e., unhealthy diet and physically inactive) [32]. HealthSteps™ also focuses on promoting self-management of participants' risk factors for chronic disease as this has been shown to be effective in enabling participants to feel in greater control of their health [21]. One of the key factors that has allowed HealthSteps™ to be successfully integrated within primary care and health care organizations is that coaches are not required to be registered health care professionals, which was previously found to be a barrier in providing lifestyle prescriptions to patients [33]. Although some sites were primary care-based, in most cases coaches were not registered health care professionals. Coaches found they were able to deliver the program with greater ease because of the use of standardized guidelines and focus on only three modifiable risk factors for chronic disease.

Participant readiness to make behaviour changes was identified by both coaches and participants as a key factor influencing the participant's success in the program. Participants varied in their commitment to changing their lifestyle with some already meeting the recommendations outlined in the program, while others were at the beginning stages. Including discussion and information on making behaviour changes at the first coaching session may help

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to set the tone for future coaching sessions, allowing coaches and participants to approach the behaviour changes promoted in the program on similar terms. Some participants identified that although they found great benefit in the program, they felt that those at a greater risk for chronic disease than they were, would have benefited even more. This was especially true in the rural communities, as participants that were recruited for the program learned about the program through their participation in other health promotion programs at the community site.

The foundation of the HealthSteps™ program is the Co-Active coaching model whereby the participant is the expert in their care [34]. Coaches were trained in the Co-Active coaching model prior to delivering the program and found that this was beneficial in building rapport with the participant. Participants noted how they felt accountable to their coach and the progress that they had made in improving their lifestyle throughout the program. The flexibility of the program in being able to discuss factors affecting the participant's lifestyle outside of the three risk factors helped to further solidify the relationship between the coach and participant, and allow for a more comprehensive approach to developing strategies for participants to achieve their lifestyle goals.

The technology components of the program (HealthSteps™ app, Tyze Personal Networks, and Sykes phone coaching) were highly underutilized by participants in the program. As noted by Bandura (2004), the effectiveness of technology in creating behaviour changes is dependent on the individuals having motivation to take advantage of what these tools have to offer [21]. The technology supports were added to the program after the program had already begun and the research team was still becoming familiar with the kind of support these resources would provide. Participants recruited for the project cited age and a lack of experience/disinterest in technology as a reason for not using these resources. Offering the technology support options

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at the beginning of the trial or providing participants with a menu of options for them to choose which ones they would feel most comfortable with using may have helped to increase their use throughout the trial. Further exploration into the effectiveness and usability of these technology tools is still warranted to better understand how to optimize these resources to better support participants in making health behaviour changes.

There were limitations to our findings. This paper reports solely on qualitative interviews and feedback from coaches and participants. Further addition of quantitative results and outcomes could provide a more robust outlook on the acceptability of the program. Data was only collected from the intervention group from the pragmatic randomized controlled trial; collecting data from the wait-list group could have deepened our understanding of participants' experience with the program.

The results from this process evaluation confirm that HealthSteps™ is an acceptable program for improving the lifestyle habits of individuals at risk for chronic disease. Moving forward, the suggestions for improving the program delivery do not require significant changes to the program protocol. Therefore, there is significant potential to scale-up the program for future integration into the primary care and community health space, where promotion of healthy lifestyles is most needed.

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Table 1: Suggestions & Actions Taken for Program Improvement

Item	Suggestions & Actions Taken
Pedometers	Ensure good quality pedometers are purchased prior to running the program or require participants to bring their own.
eLearning Modules	Online modules have been created for incoming coaches to have access to the training materials whenever needed. We have also included videos on how to fill out the prescription forms and VO2 maximum spreadsheet to calculate the participants target heart rate.
More Resources	We updated the HealthSteps website to provide more resources for coaches and participants. We are also in the process of starting a HealthSteps community of practice where coaches can create an online profile and chat with other coaches and health care professionals about the program and where to find further resources.
Target Heart Rate	We have further clarified the target heart rate through our eLearning modules.
Scheduling	The research team will not be doing the scheduling at the community sites.
Coach Continuity	We have added recommendations that coaches continue with their participant whenever possible through all of the sessions in the eLearning modules.
Participant Readiness	We have recommended that coaches recruit participants through primary care sites where those at greater risk for chronic disease can be referred to the program to ensure those being recruited are in need of lifestyle changes.
Technology Supports	We will continue to explore ways to introduce the technology options earlier and ensure participants are given a menu of technology options they can choose from to help support their lifestyle changes.
More Frequent Sessions	Future delivery of the program will be more flexible allowing coaches to deliver the program through a variety of means (i.e., group sessions or individual) and as often as needed by the participant (i.e., monthly vs. bi-monthly).