

A Qualitative Pilot Study on Text Messaging Intervention for Weight Loss in Adults

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ABSTRACT

Background

Overweight and obesity are major risk factors for chronic illnesses such as cancer, diabetes and cardiovascular diseases. Newfoundland and Labrador (NL) has the highest rates of overweight and obesity of all provinces in Canada. Mobile health or mhealth in the form of text messaging is a potential solution to addressing the high overweight and obesity rates of the province. In this study, we explored NL residents' perceptions of text message programs as an effective intervention for weight loss.

Methods

This study utilized a descriptive qualitative design through in-person semi-structured interviews with adults with previous or current experience in a weight loss program. Participants were recruited through recurrent postings on a biweekly school newsletter and study posters throughout the medical school at Memorial University. The data were analyzed using deductive thematic analysis.

Results

This pilot study included two participants, both women. The themes that arose in this study included past positive experiences, past negative experiences, barriers for weight loss, motivation for weight loss, attitudes about text messaging-based weight loss interventions and specific suggestions for future app development. The latter included text message content with reminders and encouragement, group messages, interactive and personal text messages and specific goal-setting in the app.

Interpretation

There were mixed attitudes towards using a text messaging based intervention. Findings revealed motivating factors of accountability, seeing positive physical bodily changes and goal-setting. Both participants had similar suggestions regarding future app development that involved creating a personalized and interactive experience for the users and to include a sense of community and communication across users of the app.

INTRODUCTION

Newfoundland and Labrador has the highest rates of overweight and obesity across Canada: 40.2% of the adult population self-report as being overweight or obese compared to the national average obesity rate of 26.8% (1). Overweight and obesity are major risk factors for chronic illnesses such as cancer, diabetes and cardiovascular diseases.

Mobile health or mhealth is a potential solution to addressing the high overweight and obesity rates of the province and the remote nature of many of its communities. Mobile health involves any form of technology operated using a cell phone. Mobile phones with text messaging have a high penetration rate in nearly every society, regardless of age, socioeconomic status, and culture. Moreover, texting is fast, convenient, easy to use, broadly scalable, and provides immediate feedback.

Text-messaging could be a convenient, far-reaching, simple intervention for weight management. For instance, a randomized control trial showed that participants using a Tailored Rapid Interactive Mobile Messaging (TRIMM) program lost significantly more weight compared to participants in the standard care control group (2). Text messaging could also be combined with a structured weight loss program or standard medical care to address the high rates of overweight and obesity in the province.

Behavioural change theories address how to change people's behaviours. The theories focus on psychological factors such as self-efficacy, reinforcement, goal-setting, self-monitoring, self-regulatory processes, motivation, personal attitudes, social pressure, etc. For instance, the TRIMM program is based on behavioural theory and it focuses on goal-setting (2). However, it is unclear which theory of behavioural change works the most effectively in text messaging programs and what message content should be included in these interventions. For instance, are text messages that include health information, reminders, cues-to-action, motivational messages, goal-setting, monitoring and/or positive reinforcement important for addressing weight loss? What kind of messages do participants find useful to help them achieve their weight loss? Finally, how can we tailor the text messages to the target population?

To our knowledge, no qualitative research has explored these questions about text messaging as a tool for weight management in Newfoundland and Labrador, the province with the highest rates of overweight and obesity in Canada. Text message interventions based on behavioural change theories are effective, and overall, participants in the studies were satisfied with using the programs (2). However, there is a gap in knowledge regarding whether people living in Newfoundland and Labrador are interested in using such programs or perceive that text message programs are an effective intervention for weight management. It would also be useful to engage potential users in creating a text message program and/or app tailored to their needs.

The purpose of this pilot study is to explore local interest in using a text messaging based app or program for weight loss. We also aimed to generate qualitative data about behavioral change topics such as motivation, barriers and challenges to weight loss. We also solicited suggestions from participants regarding the potential creation of a text messaging based app or program.

METHODS

Participants were recruited through numerous consecutive postings on Mun Express (a biweekly, online newsletter) of the Faculty of Medicine, Memorial University, Newfoundland and Labrador. Recruitment posters were also used on the bulletin boards throughout the medical school. Inclusion criteria for participation included: adults (age 18 or older), and previous or current participation in a weight loss program.

Interviews were semi-structured and conducted in person. For this pilot, a sample size of three participants was intended; however, only two participants were interviewed due to poor response to recruitment after a six month recruitment phase.

The interview evaluated participants' perspective with the goal of learning about their interests in using a weight loss program, previous experiences with weight loss interventions and/or programs, challenges and barriers, and their suggestions for creating a new text messaging based program. The transcribed data were analyzed using

deductive thematic analysis. Pseudonyms were used for the participants in Table 1. See Appendix A for full methodology protocol. The project was approved by the local Health Research Ethics Authority (HREA).

RESULTS

Participants

Two middle-aged female participants took part in interviews. Both of the participants worked at Memorial University and had previous experiences with weight loss programs or weight loss phone apps. Core questions were asked in each interview, supplemented with probing follow up questions as required. Interviews explored prior experiences with weight loss, attitudes on text messaging-based programs and interest in using a text-messaging based weight loss program.

Themes

The themes that arose from interviews included past positive experiences, past negative experiences, barriers for weight loss, motivation for weight loss, identified behavioural changes, attitudes on text messaging-based weight loss interventions and specific suggestions for future app development. Illustrative quotes for the themes and subthemes are presented in Table 1.

Past Positive Experiences of Weight Loss Interventions

Accountability

Previous positive experiences of weight loss interventions incorporated an element of accountability that put responsibility and autonomy on the participants to continue to show up to their respective programs.

Community/group setting

Connections with other group members and friends using the apps provided a social context that the participants enjoyed sharing with other group members and their friends.

Nutritional education

Both participants in their previous weight loss interventions described awareness and education on food labels and understanding and calculating macronutrients.

Convenience

It was important for the participants that their respective weight loss interventions were readily available and easy to use.

Past Negative Experiences of Weight Loss Interventions

The participants brought up dislikes and annoyances from their previous experiences with their respective weight loss interventions. Martha found that daily monitoring of her calories can become tedious especially in social settings.

Announced weigh-ins

Weight Watchers is well known for having participants undergoing mandatory weigh-ins. Gwen did not appreciate this program element.

Barriers for Weight Loss

Feeling ashamed and guilty for unhealthy decisions

The participants experienced making unhealthy choices and understand that the resulting guilt was a barrier to moving forward through their weight loss journeys. Martha identified that people shaming themselves is problematic and that encouragement is a more ideal reaction to making unhealthy decisions. Gwen noted that admitting her failures to others was challenging.

Ongoing unhealthy eating habits

The participants both experienced unhealthy eating regimens of over snacking or snacking on unhealthy foods and missing meals.

Maintenance of weight loss

Gwen identified that initially losing weight is relatively easy compared to keeping the weight off in the long term.

Exposure to unhealthy foods/holiday season

The participants described going on holidays and holidays such as Halloween disrupting their weight loss progress as there are plenty of temptations in the form of treats.

Lack of meal planning

Martha attributed her unhealthy eating patterns to not planning ahead and having meals ready when she returns home after work and also the need to feed her family.

Lack of internal motivation

The participants eluded that they are unsuccessful in the weight loss intervention if they weren't motivated to lose weight on their own terms and to do it for themselves.

Motivation for Weight Loss

The participants had realizations that they were unhappy with their bodies and wanted to change. They saw physical changes in their clothing as motivation to continue their weight loss journeys.

Reaching tipping point; realizing something had to change

The participants had recollections of a point in time when they were either fed up or hit a breaking point and were motivated to make healthy changes to their lives.

Seeing positive physical changes through appearance in outfits

Gwen concluded that seeing results proved that her fitness app was effective and motivated her to continue using it. Martha described her bodily transformation and noticing results as she was able to fit into a new running jacket and felt healthier in her body.

Subjective Feeling of Health

Subjective experiences of health were seen as equally as important as observing physical positive changes. The participants described feeling healthy and empowered.

Identified Health Behavioral Changes

The participants recounted various behavioral changes they have made as part of their weight loss interventions. They also identified behavioral patterns that impeded their weight loss progress.

Meal planning and preparation

Martha noted that planning ahead and preparing meals are helpful so she can bring healthier snacks to work. She identified that planning is important and she will enlist her retiring husband to help with the planning healthy meals for the week and also to keep each other accountable.

Friendly group discussions

Having other members in the weight loss program was beneficial for the participants. It provided them with a platform to share their healthy meals, an outlet to discuss their progress and challenges. It provided accountability and a communal experience.

Accountability process

Gwen described a “streak feature” on her app that encouraged users to use the app daily. Martha saw the benefits of attending routine meetings and anticipated a possible situation where she can find herself acting out and engaging in an unhealthy eating pattern.

Food Monitoring

Reading labels and having awareness of the food that is consumed and what macronutrients that food consist of are seen as being a part of a healthy lifestyle that facilitates weight loss.

Gwen described her routine of scanning and inputting her meals into her phone app. The app provided her with a daily readout signifying if she reached daily required levels of a broad range of macronutrients. Martha reflected on her educational experience with Weight Watchers as helpful.

Attitudes on Text Messaging-based Weight Loss Program

Novelty and Convenience

The participants were unaware of text messaging based weight loss programs. Martha was intrigued at the prospect of trying a text messaging based program as it was something she hasn't previously experienced and it was convenient.

Attitude on text message-based program based on previous experiences with weight loss programs

Gwen shared she would not be as inclined to try a text-messaging based program as she was successful previously using the My Fitness Pal app to lose weight. However, she stated that she would be interested in trying a text messaging based program if it included *goal-setting*. Martha shared similar perspective of having a plan for her weight loss journey.

Comparison to Alcoholic Anonymous (A.A.)

The participants saw similarities of a text based messaging program with A.A. with receiving support through text messages and having a "sponsor" for direct support.

Specific Suggestions for Future App Development

Group setting and sense of community

The participants suggested that they would find it helpful if there was regular contact with other members participating in the same program.

Goal-Setting

Gwen suggested that having a tangible plan is important for her weight loss journey.

Focus on healthy eating and also physical activity

Gwen described she has a holistic view on her health. She thought future apps should incorporate physical activity as well.

Interactive and personalized messages

Participants suggested that having the ability to respond to text messages will be helpful and having personal messages rather than generalized “annoying” text messages.

Shame-free and encouraging messages

Martha saw encouraging and judgment-free messages as beneficial for weight loss compared to messages that make her feel guilty. Martha also viewed receiving encouraging messages from the program as similar to having someone accompany her through her weight loss journey. Gwen pointed out that shaming and over exaggeration of guilt should be avoided.

Timing of messages

The participants reflected on the time of the day that they experience the strongest food cravings and urges.

Reward System

Gwen explained how external rewards could be used productively towards weight loss.

TABLE I
Key themes and subthemes with supporting quotes

Themes and Subthemes	Quotes
Past Positive Experiences	
Accountability	It will alert you if you didn't log in. It will be like “Hey, you didn't log in today. Keep your streak going for 70 days.” -Gwen, previously used My Fitness Pal app So I think cause that wasn't even a program that was just my recognizing that something had to change and I wasn't accountable to anyone other than myself and I felt terrific.

	-Martha, previously was in Weight Watchers
Community/group setting	My friends had it and we were all friends on it. So I can see their [meal] diaries, if you want to, open your diary and they can see mine. -Gwen I was very successful on that weight loss program and that was where a group of people would meet every evening once a week and sit around a table and there was no weight in, you didn't weigh in, it was all about discussion around food and emotional eating and things like that. -Martha
Nutritional Education	Because I was using it, I find now that I know by looking at something a little bit better like how much sugar, I am much more aware, not just calories, how much sugar is in something, fat, protein, carbs just from scanning stuff and seeing how much was in it cause it will give you a read out a little diagram and it will tell you in red you are way over your sugar that kind of thing. -Gwen I feel like I can write a book on weight loss in terms of, you know, every time you turn around labels are changing and you have to interpret those, but for the most part, Weight Watchers was a help for that because they did teach you how to read labels... -Martha
Convenience	Using paper or diary like no, I love that it's on phone because it is way easier to deal with. I like having in on my phone. They have a website so like you can use it from my desktop, use it wherever you are. I like that. -Gwen The least helpful was probably the last time I was in Weight Watchers and it was through work here which was very convenient. I can go in and I didn't have to leave my home at night. -Martha
Past Negative Experiences	
Inconvenience/social hindrances	It wasn't really the app. It was the process of using a calorie counting app I guess. You have to weight everything if you are out and you're at a party or something like obviously you can only estimate like, "Oh I ate this much cheese", but who wants to do that? Like it's no fun. It can hinder your social life if you get too heavy into it. -Gwen
Announced weigh-ins	I don't know if I like the idea of the weighing in thing. I found it helpful, like when, the most successful weight loss program I was in I just felt it in my clothes. I didn't weigh in at all, but I did weigh in once a month. -Martha
Barriers for	

Weight Loss

Feeling ashamed and guilty for unhealthy decisions

...because the worst thing people can do is beat themselves up about bad decisions. Messaging that says like, "Hey it's a new day. Move on." -Gwen

You don't want to be unsuccessful at stuff and it's one thing to be unsuccessful in your own heart but then when you have to tell somebody else that who is there encouraging you that you weren't. I think that makes it tougher. -Martha

Old unhealthy eating habits

I think most people have troubles with evenings like night time eating and also not just eating and coming home from work and not wanting to exercise being too tired. Lots of barriers to getting people out and moving. -Gwen

I have a cup of coffee in the morning and I can go 4 o'clock that day and not eat anything. Which is very unhealthy. I might grab a piece of fruit or something but when I get home at 5 o'clock it's not on the table fast enough. I'm so hungry when I'm home and away from this environment that that's when things go down. -Martha

Maintenance of weight loss

So maintenance to me is tougher than losing it initially so there needs to be some way with the text messaging to be a long-term thing instead of a quick fix like everything. -Gwen

Exposure to unhealthy food/holiday season

I lost about 40 pounds up until now and then, I have to say since I went to Jamaica for a wedding in May and since then I haven't been using it. -Gwen

I blame it around Halloween when there was this exposure to different types of treats and things and just kind of picked up one, it's like that drink you pick it up and you lose all control. -Martha

Lack of meal planning

It's that time of the year because everyone's schedule is all out of whack, but I find that in September I am so tired when I come home at the end of the day I don't always have a planned meal but, so you're grabbing stuff, you know, you're just trying to make things easy cause you have three mouths to feed, yourself, your husband's and the child that is living with you. -Martha

Lack of internal motivation

...the second time I joined which was couple years later I just couldn't get into it. It was the same leader and a lot of the same people. I just couldn't I just stopped going to the meetings. Even though I had paid for it. It just couldn't motivate me... -Martha

Motivation for Weight loss

Reaching tipping point; realizing something had to change	<p>I hated the way I looked and felt so I didn't want to go out sometimes. It was frustrating. For me it was the breaking point. –Gwen</p> <p>So, I think cause that wasn't even a program that was just my recognizing that something had to change and I wasn't accountable to anyone other than myself and I felt terrific. –Martha</p>
Seeing positive physical changes through fitting clothes	<p>For me, it was all how I felt - so my clothes weren't fitting right, really uncomfortable...I had to do something and then when you start, once you start seeing results, I feel like that's when you continue to use whatever service. –Gwen</p> <p>I'm not a runner, but I had a running jacket that I purchased and putting up the zipper it was tight. Within two months it was too big to wear. So those sorts of things were very encouraging. I felt I stood taller, my posture was better. Everything was so positive. –Martha</p>
Subjective feeling of health	<p>I felt better, not just physically, like I said I was learning more about food and what was good for you and what is not. Definitely, just felt healthier. I was trying to exercise more which was good. –Gwen</p> <p>So I did keep a personal record but it was just for myself. I didn't need anybody else to say, "You go girl! That's awesome. That's wonderful." I didn't need that. I felt it myself so that was all I needed but that was the most successful and that wasn't a formal program. It was just me. –Martha</p>
Identified health behavior changes	
Meal planning and preparation	<p>If I plan ahead and had food that was available to take out of the fridge in the morning to snack on throughout the day. Those sort of things that I find are helpful. So those reminders to plan ahead and to be prepared. –Martha</p> <p>The good thing is that my husband will be retiring soon and his plan is to do, to create the menu plan and I will pick up the groceries we need a week in advance and he will do as much prep work as he can during the day and when I get home it's just easy. So I am counting on him to keep me on track a little because I think planning is a huge part of successful weight loss. –Martha</p>
Group and friendly discussions	<p>My friends had it and we were all friends on it. So I can see their diaries, if you want to, open your diary and they can see mine. I used to have friends text me, "what was in that burrito bowl you</p>

made?” or something, “it looked good”. –Gwen

I was very successful on that weight loss program and that was where a group of people would meet every evening once a week and sit around a table and there was no weigh in, you didn't weigh in, it was all about discussion around food and emotional eating...
-Martha

Accountable process

If you don't log into the app to keep your streak going. So what I think they're trying to do there is to make you accountable and visit the app and make sure you're thinking about it. –Gwen

...if it's a program where you are texting a group of people and you meet every you know once a week or once a month that may be different because you are kind of accountable because you aren't just getting this text message looking at it like and going who are you to tell me not to eat this bag of Cheesies. I think being accountable is good. –Martha

Food monitoring

Every day you will scan your breakfast, lunch or input if you make it yourself you can build recipe...Anyways, I used to find the little read out helpful and I used to be happy if I got my iron for the day or I didn't eat too much sugar for the day. –Gwen

...every time you turn around labels are changing and you have to interpret those, but for the most part, Weight Watchers was a help for that because they did teach you how to read labels... -Martha

Attitudes on Text-Messaging-based Weight Loss Programs

Novelty and Convenience

Well I always have my phone on me. It's convenient. I don't have to go to a meeting. It comes to me and I think because I have never tried it before I would like to think maybe it would be another successful program that I would be a participant in. –Martha

Attitude on text message-based program based on previous experiences with other programs

Because I have so much success with My Fitness Pal app, like you came to me and was like, “Hey we need people to test out an app”, I would be like sure. But me personally, right now if I had an email from random, like my Fitness Pal, like “Hey we're offering a service for text-messaging” I probably would not sign up because I tried My Fitness pal and I had no problems with it. –Gwen

Goal-setting

...if there is no tangible plan, like, here's your food plan, here's your exercise plan, we're going to ensure you're staying on track with this plan. Where as My Fitness Pal gives you that. You have it

	there to follow. Like if the text messaging thing came with something to follow. Yes, maybe I would be interested. –Gwen
Seeing potential of program as accountability and encouragement	I just see the text messages as another form of being on my back and I don't mean in a bad way, I mean, just kind of pushing you, you know, you have a plan we're here to help you, to nudge along. Not to judge you, but to just push you along so that you take the successful path as opposed to the path where you are feeling crappy about yourself at the end of the day. –Martha
Comparing to Alcoholic Anonymous	...I have heard about text messaging programs for drug addictions for like getting support through text messaging. So I guess it is kind of similar. No, I haven't heard of any specific programs, but I can totally see it working. –Gwen
	I almost see it as like the AA, you know the sponsor, somebody is sponsoring you individually. So for me to respond would be helpful, but I don't know if I want that in person one-on-one contact. –Martha
Suggestions for future app or program	
Receive shame-free text messages as encouragement	...because the worst thing people can do is beat themselves up about bad decisions. Messaging that says like, "Hey it's a new day. Move on." –Gwen
	...I would think that would be helpful to receive those texts to encourage you. Almost like you picture somebody on your shoulder giving you the encouragement that you need to continue to doing what you're doing that is healthy. –Martha
	Not to judge you, but just to push you along so that you take the successful path as oppose to the path where you are feeling crappy about yourself at the end of the day. –Martha
Group setting and sense of community	...like a group text message, I think would work better than one on one, but that would work too. I'm just thinking if you had peers, people you know maybe, even if the people on the group message met in person a couple times or something. –Gwen
	...but I would think if I were a participant in the text messaging program it would be helpful in some stage of the game to come face-to-face with a group of people who are also a recipient of these texts and sharing ideas because you don't feel you are really alone... -Martha

Goal-Setting	Like if it were just generally motivating, that's cool, but if there is no tangible plan, like, here's your food plan, here's your exercise plan, we're going to ensure you're staying on track with this plan. –Gwen
Focus on healthy eating and also physical activity	...not just food related, activity related messages, “get up and move”. I have an app that tells me to get up every 45 minutes says like “get up!”. Sometimes I don't (laughter). Not just focusing...maybe a more holistic view or something of the whole person. –Gwen
Interactive and personalized text messages	<p>...I think it will be on the person using the service that they will have someone on there like not receiving text messages but the ability to text someone to receive answers almost like a toll-free number. Yeah, so there's an interactive element. –Gwen</p> <p>What kind of messaging...and like text messages could get annoying too like alerts all the time, but if it is a real person behind them instead of automated ones. Maybe that will make a difference. –Martha</p>
Timing of text messages throughout the day	<p>So maybe some sort of message, “why don't you go for a walk it's nice out”, at certain points, definitely evenings after work, afternoon that's when I have troubles with. –Gwen</p> <p>I think for me personally it would probably be that one encouraging me to eat a breakfast that I should have something at lunch time or I keep thinking I am a better person if I grazed throughout the day as opposed to sitting down eating meals...so those reminders to plan ahead and to be prepared. –Martha</p>
Reward System	...but there is a thing online called the Diet Bet. I don't know if you know about it. You pay thirty bucks and you enter a bet with how many people you want. There are existing bets. If you lose 4% of your weight in a month you can win back your money plus potentially more...I always thought external rewards do not lead to long term weight loss, but I wonder if the text messaging can have a monthly draw or something. –Gwen

INTERPRETATION

Findings reveal that text message based programs are seen as novel and convenient. They are seen to have potential to being an accountable, encouraging and proactive method for weight loss. There were mixed responses from participants whether they would use the

program if it were available to them. One of the participants had success with a previous phone app for weight loss, so she is less inclined to try a new program or app. However, both participants see the potential of using a text messaging based program. These findings support existing literature that found overall satisfaction with and acceptability of using text message services [2].

Positive past experiences with weight loss programs, motivating factors for weight loss and suggestions for future development of a text message based program involve interactive and social elements. The participants had past positive experiences with programs that incorporated regular group meetings or avenues to have dialogue with other program participants. They suggested that being able to interact and respond to incoming text messages are important for weight loss. Having this back and forth communication allows for sharing of ideas, for example healthy recipes, emotional support and accountability. Our findings correlate with other findings that engaging and interactive text messages were associated with long term weight loss and maintenance (2). Social learning through interactions between peers is part of the social cognitive theory of behavioural change (3). The ability to interact and engage with the text message sender and other peers allows for discussions around healthy living, sharing of food recipes and ideas and discussions around emotional eating.

Self-monitoring, tracking physical activity, dietary intake and reading food labels were seen as motivating factors for weight loss and were offered as suggestions for future weight loss programs. The participants revealed that seeing their weight decrease was motivating as they were able to fit into clothing and feel comfortable in their own clothes. However, they believed that tracking their own weight is personal and would prefer to have private weigh ins rather than open weigh ins such as found in Weight Watcher programs. Being well versed in reading and understanding food labels and tracking their daily macronutrient intakes was an educational and satisfying experience for the participants that they attributed to their previous success with weight loss. These findings are in line with self-determination theory research that has shown the effectiveness of self-monitoring activities for behavioural change (4).

Accountability was an important component that participants highlighted when discussing past positive experiences with previous weight loss programs, identified behavioural changes and as a suggestion for future app and program development. One participant revealed that accountability through being in a group setting with other participants was helpful for her weight loss journey; however, what was more important was feeling “like she was accountable for herself”. Weight loss programs and apps can take advantage of mechanisms to encourage accountability through incorporating “streaks” such that users receive increasing streaks for using the app daily and consecutively. Participants also saw the benefits of having the ability to interact and engage with the text messages, particularly if there is another person on the other end of the messages that would increase accountability.

Alongside accountability, the participants viewed having an encouraging environment as conducive to weight loss. Encouraging messages provide participants with a helpful response after making an unhealthy decision. One of the participants imagined the text messages being received as someone ‘being on her back,’ encouraging her along her weight loss journey without making her feel bad. Timing of the messages may be beneficial if they were tailored to each individual participant’s time of the day which they have the most difficulty with staying on track with their weight loss goals. Possibly having tailored text message reminders sent to them during lunch, before their supper times and at the end of the night can help remind them of their healthy goals and inquire about their current progress with their goals and discourage participants from engaging in unhealthy behaviours. These findings are agreeable with previous research which found that self-monitoring and tailored goals based on several biometric measurements of participants was effective at promoting weight loss (2).

One participant suggested future app development may consider ways of motivating users to go on and use the app regularly by including rewarding features. She suggested the app can include a “Betting feature”. She described it akin to an existing website called “Diet Bet” where people bet real money to challenge themselves to attain a certain weight

target. Apps could also incorporate a reward system in which users can attain points when they complete goals and use the reward points towards exchanging for memberships at local fitness services and health related items and equipment (5).

CONCLUSION

The findings from this study show a mixed response to the interest of using a text message-based weight loss program; although, both participants saw the potential of the program. Participants preferred being in programs that were goal-oriented, had a community and group dynamic, incorporated personalized, encouraging and regular messages and encouraged accountability.

The limitations of this pilot study include a very small sample size and lack of sample diversity. This being a pilot study, the sample size was intended to be small; however, low participation rates suggests further improvement in recruitment strategy is necessary. The recruitment strategy in this study was limited to the medical school and its immediate community and the recruitment time was short. Further research and recruitment will need to expand the recruitment area and may require a longer recruitment period.

The two participants in the study were both women with prior experience in weight loss programs; thus, the generalizability of the data is limited. Ideally, further studies will have a diverse population sample including individuals with various identities. Having a larger sample size will provide a greater source of qualitative data that could generate new themes important for app development. However, this small study did generate rich qualitative information and identified similar themes that were seen across both participants' perspectives and in line with previous research.

For future studies on this topic it may be beneficial for the key measured outcome to expand on what it means to be healthy. Weight loss has been a key measurement used in previous and current research as a synonym for health. (6, 7, 8) However, taking a more holistic view may be a closer representation to what it means to be healthy as illuminated by one of the participants in her interview. Teixeira et al., (9) discusses reconsidering

treatment outcomes to include behavioural and psychological outcomes and also to consider process based treatments, rather than outcome focused treatments, when discussing about lasting weight control. These suggestions are in line with study findings.

The findings from this pilot study support existing literature and could assist in designing a text-messaging based program for weight loss. In addition, data collected from this research adds to the weight management behavioural change literature and provides a baseline for future qualitative research in Newfoundland and Labrador (NL).

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APPENDIX A

Methodology Protocol

The Interview

At the start of the interview, the participants were briefed on the purpose of the study and gave informed consent before beginning the interview. The reason behind including participants with prior experience with weight loss programs allowed the interview to examine positive and negative experiences with prior weight loss programs and allowed participants to anticipate or predict what improvements they want to see in future weight loss programs. They were reminded that at any time of the interview, they could choose to skip a question and or end the interview at any time. They were given the opportunity to ask any questions before the interview began and were encourage to ask questions during and after the interview. Each interviewee addressed the same questions and the interviews lasted for approximately 30 minutes. The study used a semi-structured interview format to allow a conversational style and encourage participants to discuss what was important to them. This allowed the interviews to remain as open and adaptable as possible because discussion about weight management and body size can be sensitive. The interviews had same set of core questions, but the follow-up questions in response to participants' answers differed from interview to interview. This allowed participants the freedom to express their views in their own term while still providing reliable, comparable qualitative data. The interview focused on identifying participants' interest in using a text message program for weight loss, previous experiences with weight loss programs and electronic based programs, what they would like to be included in such programs and what are some challenges and barriers they have and how they think a text message program can help overcome them.

Deductive Thematic Analysis

The interviews were recorded using an audio recorder. Transcripts were created verbatim and the researcher (KQ) reviewed each transcript thoroughly and repeatedly. The transcribed data was analyzed using deductive thematic analysis. This is a method that can be used across a wide range of qualitative research questions and it is a method for identifying, analyzing, organizing, describing and reporting themes found within a data

set (11). Thematic analysis offers certain advantages as it provides a flexible approach that can be modified for the needs of many studies, provides a rich and detailed, yet complex account of data (11). Lastly, thematic analysis does not require the detailed theoretical and technological knowledge of other qualitative approaches and it offers a more accessible form of analysis.

Textual data was created around the transcripts through notes, reflexive journal entries and participant observations, stories and their narratives. Qualitative codes were then generated reflecting on the development of ideas emerging from the data. Finally, codes were put into a table and examined further and sorted and collated for their relevance towards themes. Themes were identified and generated with a deductive lens based on the interview questions, but allowing inductive analysis as sub-themes were identified within these core themes of interest in using a text messaging based weight loss program, previous experiences, barriers and challenges with weight loss and motivations for weight loss.