Barriers and facilitators for adopting a healthy lifestyle among Latina cancer survivors: A qualitative descriptive study

Abstract

Purpose: Cancer is the leading cause of death among Hispanics/Latinos in the United States. Latina cancer survivors experience higher symptom burden than other cancer survivors. A healthy lifestyle can decrease recurrent cancer risk, increase wellbeing, and may decrease symptom burden in cancer survivors. The purpose of this study was to explore the barriers and facilitators for adopting healthy lifestyle behaviors among Latina cancer survivors.

Methods: Using the Health Belief Model as the theoretical framework, qualitative descriptive methodology was used for secondary analysis of data from a previously conducted randomized clinical trial. Transcripts from the telephone health coaching calls, analyzed in the original language (English or Spanish) were used for this qualitative analysis.

Results: Intervention telephone call transcript data from Latina cancer survivors (n = 14) were analyzed. Major themes were: Perceived susceptibility to other chronic illnesses, perceived benefits of a healthy lifestyle, and perceived barriers and facilitators of adopting a healthy lifestyle. Lack of knowledge about healthy lifestyle behaviors could prevent participants from adopting a healthy lifestyle; gaining new knowledge about healthy lifestyle behaviors was a facilitator for changing lifestyle. Family responsibility and wearable technology could both prevent and motivate the participants to adopt a healthy lifestyle.

Conclusion: Developing culturally appropriate interventions for Latina cancer survivors is vital to decrease symptom burden and health risks, as well as improve health outcomes in this population.

Keywords: Cancer Survivors, Diet, Health Belief Model, Latinas, Physical Activity, Symptoms

Introduction

Cancer is the leading cause of death among Hispanics/Latinos in the United States [1], and Latina cancer survivors experience higher symptom burden such as depression, pain, and disrupted sleep than other cancer survivors [2-4]. Following a healthy diet and being physically active can improve quality of life, reduce risk of chronic disease (including cancer risk), decrease symptom burden, and mortality for cancer survivors [5]. The American Cancer Society's (ACS) guidelines for diet and physical activity recommend 2.5 cups of fruits and vegetables per day, a diet low in saturated fats and alcohol and high in fiber as well as 150 minutes of moderate physical activity each week [6]. However, few Latina cancer survivors meet the ACS recommendations for physical activity and a healthy diet after treatment completion [7]. For cancer survivors, common barriers to adopting these healthy behaviors include lack of knowledge, resources, and motivation in addition to symptom burden as a result of cancer and its treatment [8]. Among Latina cancer survivors, this high symptom burden may be a significant barrier to adopting a healthy lifestyle. Extant research has focused on the barriers to adopting a healthy lifestyle among cancer survivors [8-11]. However, there has been less focus on barriers and facilitators for adopting healthy lifestyle behaviors among Latina cancer survivors. Theory-guided research to understand the barriers and facilitators to adopting a healthy diet and physical activity in Latina cancer survivors is important and is needed to improve the development of interventions, programs and resources that specifically support this vulnerable group of cancer survivors.

The aim of this study was to describe Latina cancer survivors' perceived barriers and facilitators to achieving the ACS guidelines for diet and physical activity for cancer survivors. The Health Belief Model (HBM) [12] served as the theoretical framework to guide the qualitative analyses of perceived susceptibility, benefits, barriers and facilitators for adopting a healthy lifestyle among Latina cancer survivors, who were enrolled in the Nuestra Salud (NS) (*For Your Health*) intervention study [13]. For this secondary qualitative analysis, the research question was: What are Latina cancer survivors' perceived barriers and facilitators for adherence to the ACS recommendations for cancer prevention of healthy diet and physical activity for cancer survivors?

Methods

Study Design

A qualitative descriptive approach was used for this study, to provide a description of participants' perceptions and give voice to Latina cancer survivors' experiences from the NS study. The NS study was a 2:1 randomized 12-week telephone-delivered intervention (n=28) or attention control (n=17) pilot study for dyads of Latina cancer survivors and their informal caregivers who reported at least one of five symptoms (fatigue, depression, anxiety, pain, disrupted sleep) at a 4 or greater on a scale of 0-10. Dyads randomized to the intervention arm of the NS study received twelve, 20- to 30-minute telephone calls from a trained health coach. The intervention integrated coaching for both symptom management and lifestyle behavior change. The health coaching for the intervention arm utilized Motivational Interviewing to facilitate behavior change [14]. This technique is grounded in Social Cognitive Theory [15], which is a person-centered approach to explore barriers and facilitators to behavior change and build self-efficacy. The coaching was conducted in the participants' preferred language of either English or Spanish. Intervention participants received a Fitbit or a pedometer (participant preference) as a strategy for self-monitoring and goal setting. Dyads randomized to the attention control arm received twelve telephone calls for a brief 5-minute symptom assessment only. At the end of the study, attention control participants also received a Fitbit or pedometer (participant preference). The NS study has been described in depth elsewhere [13]. All intervention telephone calls were made and recorded using the electronic Health Interventions Platform (eHIP) [16]. Using a qualitative descriptive approach, the analysis and interpretation of findings stay close to the data [17,18]. The consolidated criteria for reporting qualitative research (COREQ) guidelines [19] were used with minor modifications for conducting a secondary data analysis [20]. For example, since these data were recorded intervention telephone calls, no interview guide exists. Informed consent was obtained from each participant at the beginning of the NS study and included consent for secondary analyses and publication. The NS study was approved by the Institutional Review Board from the University of Arizona [13].

Data Collection

In the NS study [13], each intervention telephone call was recorded. As recommended by Chatfield [20] the recordings from intervention telephone calls were selected based on the ability to provide the best data source for answering the proposed research question: What are Latina cancer survivors' perceived barriers and facilitators for adherence to the ACS recommendations for cancer prevention of healthy diet and physical activity for cancer survivors? Thus, only data from the Latina cancer survivors in the intervention group was selected. Due to the large set of related intervention telephone calls (n = 336) [13], a subsample of calls was selected as recommended [20]. The sub-sample of intervention telephone call selection process was conducted by the intervention coaches for the NS study and co-authors of this study (AA, IP, and SF). Inclusion criteria for call transcripts included the third call (in the sequence of twelve) for participants in the intervention group was selected since this was commonly when participants became familiar with the intervention coach and were more likely to be open about their experiences, and actively setting healthy lifestyle goals. If the length of the third call in the series was less than five minutes, the fourth call was selected as well. Sampling continued until thematic saturation was achieved [21]. Thus, not all intervention telephone calls from all intervention participants in the NS study were included.

Data Analysis

Each telephone call was digitally recorded by eHIP [14] and transcribed using Google Cloud Speech-To-Text service [22] with human verification and corrections as needed. The transcripts were kept in the original language to ensure that meaning was not distorted or lost during translation [23]. The all-female research team for this study consisted of three intervention coaches from the NS study, two bilingual coaches (AA and IP), and one English-speaking coach (SF), as well as one bilingual team member (SG), and the first author (HD). SG and HD were not part of the NS study.

The deidentified transcripts were imported into Dedoose [24], a software program for organizing qualitative data. The transcripts were analyzed using qualitative content analysis with both deductive and inductive coding [25]. Deductive coding is based on theories and/or literature *a priori*. A deductive code framework was developed by the research team with main codes being the central concepts within the HBM [12,25]: Perceived benefits and barriers to adopting a healthy lifestyle, perceived susceptibility and severity of a health threat and cues to action. The second and third level codes were based on known barriers for adopting a healthy lifestyle in cancer survivors [8,9,11]. Inductive coding are categories that emerge from the data during the data analysis [25] (See table 1 for the code framework). All codes were kept in English, which allowed the research team to view and discuss the data as a whole [23]. When the first transcript in English and the first transcript in Spanish were coded, the research team met and discussed the coding to ensure that the entire team understood and agreed upon what each code meant. Subsequent transcripts were coded independently by two researchers. After two transcripts were coded, the two researchers would discuss the coding and reach consensus before moving to the next transcript. Once a week all team members would meet and discuss both English and Spanish transcripts and add any potential new inductive codes. Intercoder agreement percentage were not calculated. After transcripts from 12 participants were coded, no new themes emerged. Two transcripts from two additional participants were included to ensure thematic saturation [21], thus the sample size (n=14) was determined by thematic saturation. The major themes and findings were discussed among the research team and with the NS study principal investigator and senior author (TC), until consensus was reached. Translation of Spanish quotes into English for this manuscript was performed by AA and verified by SG and IP.

Trustworthiness/Rigor:

Trustworthiness was ensured by following the criteria outlined by Lincoln and Guba [26]. *Credibility* was established through peer debriefing within the research team throughout the analysis process. Keeping the transcripts in the original language ensured that meaning within the data was not lost with the translation, and discussions within the research team further brought these meanings into light. *Dependability* was ensured through a rigorous qualitative descriptive process with literature supporting secondary analysis of interview data [20], and the analysis process of data in multiple languages [23]. *Confirmability* was established with a thorough audit trail and consensus regularly established among the research team. The participants in the study represent different countries of origins and are survivors of different types of cancer, which provided breadth of data and thereby *transferability* of the findings.

Results

The transcripts from the sample consisted of 14 Latina cancer survivors who were enrolled in the intervention group of the NS study. Ten of the participants were Spanish-speaking and four were English-speaking, and all were from the southern Arizona or northern Mexico border region. Their ages ranged from 51 to 72 years old. Eleven participants were breast cancer survivors, one of which had breast cancer in addition to another form of cancer, two were colon cancer survivors and two were unspecified cancer survivors. The time since their cancer diagnosis varied between two and 21 years. See Table 2 for demographic information.

The call recordings ranged from 10-60 minutes per participant. Four major themes emerged during qualitative analysis and centered around the HBM: *Perceived susceptibility*, *perceived benefits of a healthy lifestyle*, *perceived barriers*, and *facilitators of healthy lifestyle*. See Tables 3-5 for illustrative quotes.

Perceived Susceptibility

In addition to a past cancer diagnosis, most participants had other chronic illnesses such as diabetes and an auto-immune disease. Their motivation to participate in the NS study and adopt a healthy lifestyle was most often to manage symptoms related to either the previous cancer and/or managing co-morbidities. When discussing a healthy diet, they were concerned about how diet changes might affect their chronic illnesses. Additionally, the participants were concerned about their susceptibility to other chronic diseases, such as high blood pressure and heart disease. They implemented changes to their lifestyle to decrease their disease risk, with weight loss as a main desired outcome. Less often participants expressed concern about recurrent cancer risk. One participant experienced the passing of a friend from her cancer support group and expressed feeling vulnerable to recurrent cancer. The friend’s passing was a reminder of her own experience with cancer, the trauma from treatments, and that cancer could come back and be a threat to her life. See Table 3 for illustrative quotes.

Perceived Benefits of a Healthy Lifestyle

Participants often described the benefits of adopting a healthy lifestyle, with managing symptoms and decreasing the risk of other chronic illnesses as priorities. The participants believed that a healthy lifestyle in form of a healthy diet and being physically active would lead to weight loss. The participants also expressed how a healthy lifestyle improved their wellbeing, due to being more active and participating in social events with friends and family. Most of the participants had started feeling the benefits of the healthy lifestyle within the first couple of weeks of study participation. They expressed increased confidence in their ability to maintain a healthy lifestyle. They described feeling more "normal" and returning to activities like cooking meals and participating in social events. See Table 3 for illustrative quotes.

Perceived Barriers

A major barrier to adopting a healthy lifestyle was a lack of knowledge. Participants expressed that they did not know how to exercise in a way that did not increase symptoms, such as pain. They also did not know how to manage symptoms such as gastrointestinal problems (i.e., constipation and acid reflux). Many had tried losing weight on their own without success, and they were uncertain about which foods would not increase symptoms such as abdominal pain. Some participants needed guidance on how to eat a healthier, yet still a culturally relevant diet by incorporating more vegetables into a diet consisting mainly of rice, beans, meats, and tortillas. When encouraged to eat more fruits and vegetables, the participants needed guidance as to what specifically constituted vegetables. Many had also requested information about a healthy diet from their health care providers or done online searches without finding helpful information.

Lingering long-term effects, especially nerve pain and obesity, were significant barriers for physical activity, as one Spanish-speaking participant described experiencing “dolor de huesos” *(pain in the bones).* Several participants expressed a desire to be more physically active, but symptoms prevented them from doing so. The participants often perceived physical activity to be strenuous and exercise-oriented, such as hour-long exercise classes or running. By changing this belief and incorporating low to moderate-intensity activities such as walking and yard-work, the participants were able to enjoy being physically active.

Emotional struggles also presented barriers for sustaining a healthy diet and physical activity. Depression and anxiety were common among the participants. When describing chronic symptoms such as nerve pain, the participants described an internal battle between accepting the challenges, while also feeling powerless. Two participants experienced the passing of a friend, and attended social events surrounding the passing. With emotional struggles related to the loss of their friend and the temptation of desserts and other comfort food, the participants struggled to meet their diet goals. This led to disappointment and self-blame when not sticking to their goals or gaining weight.

Responsibility for their family members, both young and adult children as well as aging parents, was a high priority among the participants, and this responsibility often hindered adoption of a healthy lifestyle. The participants would cook the family members’ preferred meals that were not in line with their own diet goals. Family responsibilities often prevented them from their intended physical activity goals. For some participants, the wearable Fitbit was a nuisance, instead of being a motivation for physical activity. The participants had trouble learning how to use the Fitbit and were dependent on family members or informal caregivers to set it up. Two participants stated they did not know how to use a smart phone. This overall resulted in some participants not using the Fitbit and opting to use a pedometer instead. See Table 4 for illustrative quotes.

Facilitators of a Healthy Lifestyle

The main facilitators to adopting a healthy lifestyle mirrored the concepts that presented as the main barriers, such as knowledge about a healthy lifestyle, family responsibility and the wearable Fitbit. During the weekly telephone calls, the participants shared their physical and emotional struggles with the intervention coaches, which the participants found both encouraging and motivating. The intervention coaches assisted the participants to identify and commit to their own goals. These included diet goals (i.e., increased fluid intake, more fruits, and vegetables), foods beneficial to decrease symptom burden (i.e., increased fiber to aid with constipation, and foods to decrease inflammation), and physical activity goals. The participants often expressed excitement for trying new foods, as well as working towards and reaching their goals. Some were surprised by the positive change they had experienced in decreasing undesirable symptoms with increased wellbeing. It was common for the Spanish-speaking participants to ask their intervention coach to set the goals for them, expressing the belief that the intervention coaches were more knowledgeable than themselves. The intervention coach would attempt to guide the participants to identify goals for themselves, but the participants would still preferentially seek and follow their intervention coach's recommendations.

Family responsibility was also a motivation for this group of cancer survivors to live a healthier lifestyle. They expressed the desire to participate in more family activities, such as hiking or taking their grandchildren to the park. Remaining healthy and decreasing their risk for chronic illnesses was also important in being able to support their family members long term. The participants wanted to set a good example of a healthy lifestyle for their children and grandchildren. For some of the participants, the Fitbit was very motivating. Keeping track of step counts and sleep patterns provided the participants with the evidence of their efforts and helped them to increase their activity goals.

When asked at the beginning of the call how they were doing, most of the Spanish-speaking participants would state; "Good. Thanks to God." Some participants appeared to convey the deeper meaning that their improved or good health was God's will. Some participants described the fatalistic belief that positive changes in lifestyle and symptom burden would happen if it was meant to happen. Their ability to adhere to the goals would, for some participants, be "if God is willing." See Table 5 for illustrative quotes.

Discussion

In this qualitative analysis, an overarching theme for the Latina cancer survivors was that knowledge about a diet and physical activity for cancer prevention represented both a barrier and a facilitator to the adoption of a healthy lifestyle. Similar to other studies of cancer survivors [27,10,28], participants desired to adopt a healthy diet but were uncertain about what to eat. They perceived a healthy lifestyle as being beneficial in managing symptoms, decreasing the risk of cancer and other chronic illnesses, and improving their wellbeing. However, they had not received useful information from their healthcare providers or through online searches. Receiving individualized and culturally appropriate information about how to implement a healthy diet into their lifestyle and increase physical activity, increased the participants' wellbeing, decreased their undesirable symptoms, and motivated them to change their diet long term and stay physically active.

Family responsibility represented both a barrier and a facilitator of adopting a healthy lifestyle. As noted in other research [3], family (*familism*) represents a central role for Latina cancer survivors. The participants would prioritize family members' preferred meals instead of meals that were in line with their own diet goals. Yet, the participants also noticed how a healthy lifestyle led to increased ability to participate in family activities. Developing interventions that include the role of family may facilitate the adoption of healthy lifestyle behaviors in Latina cancer survivors.

For cancer survivors, cancer may represent a threat to life [29]. However, this was not generally expressed by this group of cancer survivors. This may be because they were long-term survivors, and cancer no longer represented an immediate threat to life as it may have initially. It may also have been due to the NS study's positive and supportive focus that provided the participants with improved wellbeing, confidence, and culturally appropriate knowledge to manage the lingering symptoms from the cancer treatments [13]. For these cancer survivors, perceived susceptibility was mostly centered around other chronic illnesses such as cardiovascular diseases. This aspect of longer-term cancer survivorship and tailoring of interventions based on time since treatment completion should be investigated further.

Keeping the transcripts in the original language and analyzing these data with a bilingual research team led to topics emerging that otherwise may have been overlooked if the transcripts had been translated into English prior to analysis. These topics included how the Spanish-speaking Latinas gave thanks to God for their health, and how they preferred that the intervention coaches set goals for them. Faith may influence Latina cancer survivors' adoption and adherence to healthy lifestyle behaviors, and this topic should be further explored. Another concept that emerged specially about pain was the expression "dolor de huesos" *(pain in the bones)*. What this concept encompasses may be important for the type of pain this population experiences, thus further exploration of this concept is recommended.

A common barrier for Latina cancer survivors' participation in cancer treatments and intervention research, is transportation. Many Latinas lack a reliable mode of transportation or do not feel safe commuting using public transportation in their community [30]. Unlike other research [30], transportation was not a barrier for participation or for engaging in physical activity among the cancer survivors in this study. This may be due to the design of the NS study being a telephone-based intervention [13], where the women could remain in their own homes. Also, the intervention coaches suggested several types of physical activity that the participants could do within or around the home.

The NS intervention (e.g., coaching, handbooks, Fitbit/pedometer instructions) was offered in English or Spanish [13]. This eliminated the language barrier reported by others working with Latinas [30]. The culturally tailored lifestyle behavior intervention with integrated symptom management was well received by these cancer survivors. Further research exploring culturally and linguistically relevant and accurate interventions may improve other health outcomes for this population.

Limitations

This study has several limitations. The study was an analysis of recorded intervention calls (telephone coaching sessions) from the NS study intervention [13] versus the participants directly being interviewed. However, these recorded calls allowed for further analysis of the barriers and facilitators in adopting a healthy lifestyle in a vulnerable and ethnically diverse group of cancer survivors that may have been otherwise difficult to recruit.

The multiple languages presented a challenge for analysis. The strategies for overcoming these challenges were planned ahead and a recommended method was followed [20,23]. However, the analysis may have benefitted from a calculation of intercoder agreement [31], that may have decreased any unintentional bias in the coding process. In addition, bias may have been imposed in the analysis process, since three members of the research team had conducted the telephone calls for the NS study [13], as well as members of the coding team. However, the three team members understood the broader context of the participants' situation which added greater depth to the analysis process. The lead author was not a part of the previous study and was able to view the transcripts and the analysis process without prior knowledge, which decreased bias.

Conclusions

In this study we explored the barriers and facilitators among Latina cancer survivors for adopting healthy lifestyle behaviors of diet and physical activity to decrease symptom burden and cancer risk as well as improve overall wellbeing. Recorded intervention telephone calls from the NS study provided an opportunity to explore the experiences of a vulnerable and ethnically diverse group of cancer survivors who might otherwise have been difficult to access. Lacking and gaining knowledge about a healthy lifestyle can represent both a barrier and a facilitator of adopting healthy lifestyle behaviors. Similarly, family responsibility and wearable technology can be both a barrier and a facilitator for behavior change. The support and information the participants received from the intervention coaches helped the participants to decrease severity of symptoms and overcome feelings of powerlessness while improving healthy lifestyle behaviors. Analyzing these data in the original language brought cultural themes into light that may otherwise have been overlooked. Developing culturally appropriate interventions for Latina cancer survivors is vital to meet the unique needs of this group including higher symptom burden and increased health risks to improve health outcomes in this population.

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Table 1

Code Framework with Code Frequencies

Level 1 Codes (n=6)	**Level 2 Codes (n=30)**	**Level 3 Codes (n=9)**
• Cue to action (173)	• External (126) • *Goal setting (49)* • Internal (87)	• Encouragement of social support system (25) • From healthcare provider (12) • From the NS study (102) • *Wearable (11)* • Divert thoughts of disease (10) • Family responsibility (16) • Improve well-being (64) • Symptoms (gastrointestinal, fatigue, mental health) (25) • Threat to life (0)
• Perceived Barriers to a healthy lifestyle (168)	• Emotional barriers (28) • Family responsibility (27) • Fatalism (6) • Knowledge deficit (39) • Lack of support (8) • Lack of time (12) • Language (0) • *Memory problems (5)* • Personal finances (9) • Physical barriers (symptoms/trauma from surgery) (68)	

	• Physical environment/safety (6) • Powerlessness (25) • Religion (0) • Self-blame (16) • *Temptation (3)* • Transportation (0) • *Wearable (7)*	
• Perceived Benefits of a Healthy Lifestyle (82)	• Confidence (25) • Control of life (35) • *Improved well-being (36)* • New knowledge (29) • Normalization (10)	
• Perceived Severity of Health Threat (4)	• Metastatic disease (2)	
• Perceived Susceptibility (48)	• Other chronic illness (23) • Fatalism (7) • Cancer risk (6) • Symptom burden (22)	
• Thanks to God (20)		

*Codes in italic are inductive codes.

Table 2.

Demographic Table

Characteristics	Participants N=14 Mean (SD) or *N* (%)
Age	62 (6.69)
Cancer*	
Breast	11 (78.6%)
Colon	1 (7.1%)
Head or Neck	1 (7.1%)
Other	2 (14.3%)
Ethnicity	
Hispanic	14 (100%)
Non-Hispanic	0 (0.0%)
Hispanic Subgroup	
Mexican	12 (85.7%)
Cuban	1 (7.1%)
Spanish	1 (7.1%)
Preferred Language	
English	4 (28.6%)
Spanish	10 (71.4%)
Marital Status	
Married	6 (42.9%)
Divorced/Separated	2 (14.3%)
Widowed	2 (14.3%)
Single	4 (28.6%)
Time since diagnosis (years)	7.3 (6.7)
Household size (number of people)	2.7 (1.6)

* Multiple cancer types could be selected per participant

Table 3.

Perceived Susceptibility and Perceived Benefits of a Healthy Lifestyle

Code	Participant #	Quote
Perceived susceptibility	1	P: “It had been off; my blood pressure has been sneaking up. I've always had actually exceptionally low blood pressure like in the 90s high-90s […] and maybe within about the last two years […] I think that it's been, you know, an added ten-twelve points from what it used to be […] I’ll be curious to see if that goes back to my healthier 105.”
	4	P: “I had the passing of one of the members of the breast cancer support group. So, we went to her memorial service and, you know it was sad […] she had; it was like a second returns about a year-and-a-half ago and then they treated her again and it came back, even with the treatment. And so, you know, with the third time… and I think to myself, you know like; Boy, I had a return, I had a second time and it was pretty bad because it required treatment for the whole year. And it was like, it was really hard that year. I mean physically, emotionally, which was an emotionally…. with my kid, you know. Because by this time she was going to middle school and so […] Heck, you know, it happened to me a second time and… yeah, and so. It's just makes you feel vulnerable, I think.”
Perceived benefits	6	I: “Eso suena [como] neuropatía, y los ejercicios que le mandé le van a ayudar aliviar también el dolor. Entre más hace, entre más continúe esos ejercicios más rápido se alivia esa sensación de como hormigueo y como piquetes [...].” P: “[...] por ejemplo, estoy parada un tiempo y me duele y hago los ejercicios del pie, por eso creo que el de las manos no lo estoy haciendo bien, porque mi pie sabes que si siento como alivio.” *I: “That sounds like [like] neuropathy, and the exercises I sent you are going to help relieve the pain as well. The more you continue those exercises, the faster that tingling feeling and pickets is relieved [...].”* *P: “[...] for example, if I'm standing for a while, it hurts and I do the foot exercises, so I think I'm not doing the [exercise] for my hands right, because I do feel relief on my foot.”*
	1	P: “But eating a better meal, to sit down and eat a larger meal instead of picking stuff, I’ve had less hunger for sugar. I've even lost two pounds. I mean, it could be water weight and all

		the other things, I know, with my inflammation that I can lose or gain kind of water weight and stuff. I don't want to be too optimistic, but the scale is, I say, is two pounds lighter so that's good news. […] it's funny to think this is only my second visit with you, cuz I was thinking this felt like… I don't know, third or whatever, you know, the changes have been that significant. So that surprised me.”

I: Intervention Coach, P: Participant; English translations are italicized.

Table 4.

Perceived Barriers

Code	Sub-code	Participant #	Quote
Perceived Barriers	Lack of knowledge	7	P: "Okay pero es que, por ejemplo, ahí [es] donde me confundo yo porque estoy comiendo ensalada, y lleva garbanzo, lleva el frijol, y no es ensalada por decir porque no son puras verduras pero es sano, ¿no?" *P: "Okay but it's just, for example, that's where I get confused because I'm eating salad, and it has garbanzos, beans, and it's not salad to say because they're not pure vegetables but it's healthy, right?"*
		4	I: "I don't know if you know this, but your weight can fluctuate five pounds in a day based on your water intake, your natural salt, and whether you've had a bowel movement within the last three or four hours. A bunch of reasons." P: "Five pounds….I believe it, you know going back and forth like a 182 and 188, so that's six pounds.." I: "Right. It's completely normal. A female body." P: "Wow, kind of wild swing […] so, actually, I think, I needn't be discouraged […] okay. That's good to know, about the fluctuation…"
	Emotional Barriers	4	P: "I cope, I can, I mean… I could be, I mean… I have to accept it. Like my daughter said that time; 'Mom, this is what we need to do is accept it', and at that time I said; 'well I can't accept it'. And but now I'm kind of resigned you know, there's no other."
		8	P: "I suffer from depression and I'm in remission and the only thing that that's going on is that I did suffer some panic attacks a couple of weeks ago and I do relate it to the changes of moving."
	Physical/ symptoms	6	I: "Problemas intestinales de 0 a un 10." P: "5 tuve mucha diarrea un día." I: "Oh okay, y sabe de pronto lo que causo eso?" P: "No, no sé, porque comí [en] mi casa y no me sentí mal. De hecho anduve sola esa tarde y tenía mucho dolor de huesos, me dolían mucho los

			huesos, y [...] me la paso en el baño y temblaba y si me puse el termómetro pero no tuve temperatura." *I: "Bowel problems from 0 to 10."* *P: "5 I had a lot of diarrhea one day."* *I: "Oh okay, and do you know what caused that?"* *P: "No, I don't know, because I ate [at] home and I didn't feel sick. In fact, I was home alone that afternoon and I had a lot of bone pain, my bones hurt a lot, and [...] I spent my time in the restroom and I was shaking and I used the thermometer but I had no temperature."*
		13	I: "Sí y si quiere tratar un poquito para ver si le puede ayudar a su pierna también. [...]" P: "Lo que pasa [es] que el tumor está recargado para el lado de, para el lado izquierdo de mi matriz. Yo digo y como en la [...] coyuntura de la pierna [...] esa parte de ahí, es cuando [hago] el movimiento que voy a subir escalones, es por eso, por eso, por eso me duele." *I: "Yes and if you want to try and see if it [exercise] helps your leg too. [...]"* *P: "What happens [is] that the tumor is leaning on the side, the left side of my uterus. I think and like [...]the joint on my leg [...] that part right there, like when I [do] the movement that I'm going to climb steps, that's why, that's why it hurts."*
	Family responsibility	11	P: "[...] No encontré nada en el refrigerador. Tengo que ir a comprar porque llegué ya encontré vacío aquí todo." I: "Oh no." P: "Sí es que tengo tres nietos, y mi esposo, y mi hijo y [inaudible] [...] arrasan ya no mas encontré tostadas. Ya pan, no encontré." *P : "[...] I didn't find anything in the fridge. I have to go shopping because I arrived and I already found everything empty here."* *I: "Oh no."* *P: "Yes I have three grandchildren, and my husband, and my son and [inaudible] ... they eat everything. There's tostadas but there's no bread."*

		12	I: “Pues si no les [nietos] gustan los licuados a lo mejor, por ejemplo, si no licúa la fruta y se las da entera, ¿usted cree que se las van a comer? Así para que ellos coman y usted coma también.” P: “Lo que... lo trate, mira compré yogur del, del yogur natural y trate con [bayas] y avena. Comen un día pero al otro día no. Quieren mejor desayuno; dicen que eso no es desayuno.” *I: “Well, if they [grandchildren] don't like smoothies, maybe, for example, if you don't liquefy the fruit and give them whole, do you think they're going to eat them? So they eat and you eat too.”* *P: “Well... I bought yogurt, natural yogurt and tried with berries and oats. They eat one day, but the next day they don't. They want better breakfast; they say that's not breakfast.”*
	Wearable barrier	6	I: “Okay, ¿cómo está entonces con lo que habíamos quedado de las caminatas?” P: “Bien [...] me ha ido bien. No más sabes que a mí me pasó algo, el Fitbit se me descargó y [...] no cargaba, y no cargaba, estuve como 2 días sin él. Cómo que no cargaba y ya le dije a mi hijo, "¿Me puedes ayudar?" le dije "Porque siento que no está cargando, estaba apagado" y me dijo, "Es que lo pusiste mal mama." Pues yo le intente varias cosas con tal de que me lo hiso funcionar [inaudible].” *I: “Okay, how are you with the walks that we talked about?”* *P: “Well [...] I did well. Oh, you know what happened, the Fitbit ran out of battery and [...] it wasn't charging, and it wasn't charging, I was like two days without it. I told my son, "Can you help me?" and he said, "You just put it wrong, Mom." Well, I tried several things for it to work [inaudible].”*
	Temptation	11	P: “[...] Le digo a mi hija [que] es cuestión nomás nosotros de limitarnos [...] que, que tengamos una poquita de fuerza de voluntad porque si llega uno a.... me fui a visitar a una sobrina en H* y luego luego las galletas de, las coyotas. Y luego puso pan tostado con cacahuate y mermelada, bueno había de todo. Mucha, mucho, para comer, pero todo era muy

			dulce y le dije, "Sí voy a agarrar coyotas," le dije porque esas no las como, las como, muy a lo largo. Pero puso un montón de galletas, de varias clases de galletas, y panes, y no más mirábamos yo y mi hija. "¿Qué no van a comer?" me decían, "Es que estamos a dieta," le digo, "Ah, [...] ¿Por la boda?" [...] le digo, "También por la boda y también por salud." *P: "[...] I tell my daughter [that] it's just a matter of limiting ourselves ... that, that we have to have some willpower because if one comes to.... [like] I went to visit a niece and then [they brought] the cookies, the coyotas. And then they put out the toast with peanut butter and jam, well there was everything. A lot, a lot, to eat, but it was all very sweet and I said, "I'm going to grab coyotas," I said because those I don't eat, I eat them, once in a while. But they put out a bunch of cookies, various kinds of cookies, and breads, and everyone was looking at me and my daughter. "What, aren't you going to eat?" they said, "We're on a diet," I said, "Ah, [...] For the wedding?" [...] I said, "Also for the wedding and also for health."*

I: Intervention Coach, P: Participant; English translations are italicized.

Table 5.

Facilitator of a Healthy Lifestyle

Code	Sub-code	Participant #	Quote
Facilitators	Knowledge About Healthy Lifestyle	9	P: “[…] Anoche comimos salmón con [arroz integral], y como dijo usted, [use] colores. Le puse zanahoria hervida, con espárragos, con [arroz integral] y salmón. Sí poquito no comí mucho y después de postre me comí un albaricoque . […] dijo que tenía que tener un plato con todos los colores, ¿verdad?” *P: “[...] Last night we ate salmon with brown rice, and as you said, [use] colors. I put boiled carrot, with asparagus, with brown rice and salmon. I didn't eat much and after dessert I ate an apricot. [...] you said you had to have a plate with all the colors, didn't you?”*
		1	P: “And, I think, maybe awareness helps too, you know. Visiting and talking with you about it, receiving support and stuff. It's different than making it my own rules or thinking; “Oh it's not going to work anyways,” and, you know, “giving it the old College try” and with support and direction and stuff. So, yeah, I'm real tickled. So, there you go.”
		12	P: “Bueno está bien. ¿Sabes que voy a hacer esta semana? Lentejas. Me llegaron unas recetas buenísimas de lentejas. Una prima mía [...] me mandó unas recetas buenísimas de lentejas que nunca viviré imaginado, hasta taquitos de lentejas, y, y quiero tratar esta semana voy a tratar con las lentejas y con la quínoa.” *P: “Well, that's fine. You know what I'm going to do this week? Lentils. I got some really good lentil recipes. A cousin of mine [...] she sent me some good lentil recipes that I wouldn't never imagined, even lentil taquitos, and, and I want to try this week I'm going to try with lentils and quinoa.”*

	Family responsibility	2	P: "I'm always focusing on the kids… and on the girls, so… and my mother. But that's about it, that's okay. I still feel better, so… health wise."
		12	P: "[...]Les hice el arroz integral, le puse frijolito negro, le puse chícharos, zanahoria picadita, muchas cosas le puse y sabes que le encantaron a los niños." I: "¡Qué bueno!" P: "Es lo que te digo que quiero que ellos coman [...]" *P: "[...] I made them brown rice, I put black beans on it, I put peas, chopped carrot, a lot of things and you know the kids loved them."* *I: "That's good!"* *P: "That's what I'm telling you that I want them to eat [...]"*
	Wearable	5	P: "Sí, pero mi hijo se encargó, mi hijo se encargo de, de [configurarlo]. Por ejemplo, cuando yo doy los 2500 pasos, se me pone, se me pone la lucecita verde y vibra, vibra el brazalete. ¡Eso me pasa como cuatro o cinco veces al día!" *P: "Yes, but my son took care of, my son took [set it up]. For example, when I take the 2500 steps, it puts on me, I get the green light and vibrates, the bracelet vibrates. That happens to me about four or five times a day!"*
	Goal setting	13	I: "[...] para esta semana ya para hacerlo más concreto, ¿qué sería una meta que usted quisiera a trabajar?" P: "Pues tú dime que. Yo, yo no, ahorita no tengo, no tengo [metas]. Tu ponme las metas." *I: "For this week, to have something more concrete, what would be a goal that you would like to work on?"* *P: "Well, you tell me. I, I don't, I don't have one [goal]. You set my goals."*
		5	I: "Le estoy preguntando, ¿qué es lo que usted estaba esperando, qué es lo que quería ver en cambio?"

			P: “Ah, yo pensaba que cambiando mi nutrición iba a bajar un poquito de peso, pero no estoy igualita.” I: “Okay, pues no hemos hablado mucho acerca de la nutrición y cambiar la dieta en general muy muy drástica, entonces el cambio no va a ser muy drástico tampoco.” P: “Ah, ah bueno, continuamos. I: “Sí señora y, ¿cuánto entonces le gustaría bajar de peso?” P: “Unas 10, unas 10 libras yo creo.” *I: “I'm asking you, what were you expecting, what did you want to see instead?”* *P: “Oh, I thought changing my nutrition was going to make me lose a little weight, but no, I'm the same.”* *I: “Okay, because we haven't talked much about nutrition and changing the diet in general very very drastic, then the change is not going to be very drastic either.”* *P: “Ah, ah well, let's continue.”* *I: “Yes, ma'am, and how much weight would you like to lose?”* *P: “About 10, about 10 pounds I think.”*
	Thanks to God	11	P: “Bien, estoy bien, gracias a Dios, fui con el doctor y, y, me infiltraron no sabes la columna y ya ando caminando un poquito mejor, y poco a poco se me ha ido quitando el dolor de la pierna. Pero todavía me queda la parte de abajo de la pierna pero ya me siento mejor, cada día me siento mejor.” *P: “Well, I'm fine, thanks to God, I went to the doctor and, and, uh, they did an infiltration on my spine and I'm walking a little bit better, and little by little it's been taking the pain out of my leg. But I still have the bottom of my leg but I feel better, every day I feel better.”*

I: Intervention Coach, P: Participant; English translations are italicized.