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Qualitative Process Evaluation of a Community-based Culturally-tailored Lifestyle Intervention for Underserved South Asians

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Abstract

Introduction: There are few examples of effective cardiovascular disease (CVD) prevention interventions for South Asians (SAs). We describe the results of a process evaluation of the South Asian Heart Lifestyle Intervention (SAHELI) for medically-underserved SAs implemented at a community-based organization (CBO) using community-based participatory research (CBPR) methods and a randomized control design (n=63).

Methods: Interviews were conducted with 23 intervention participants and 5 study staff using a semi-structured interview guide focused on participant and staff perceptions about the intervention's feasibility and efficacy. Data was thematically analyzed.

Results: Intervention success was attributed to: trusted CBO setting, culturally concordant study staff and culturally-tailored experiential activities. Participants said that these activities helped

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increase knowledge and behavior change. Some participants, especially men, found that self-monitoring with pedometers, helped motivate increased physical activity. Participants said that the intervention could be strengthened by greater family involvement and by providing women-only exercise classes. Staff identified the need to reduce participant burden due to multi-component intervention and agreed that the CBO needed greater financial resources to address participant barriers.

Conclusion: Community-based delivery and cultural-adaptation of an evidence-based lifestyle intervention were effective and essential components for reaching and retaining medically underserved SAs in a CVD prevention intervention study.

Keywords

process evaluation; cardiovascular disease; community-based participatory research; South Asian; qualitative evaluation; community-based intervention

Introduction

Process evaluations explore the context in which interventions are implemented and are especially useful in evaluating complex interventions that have multiple interacting components (Campbell et al., 2000; Oakley, Strange, Bonell, Allen, & Stephenson, 2006). In the context of a randomized controlled trial (RCT), process evaluations can be used, at a minimum, to evaluate intervention fidelity and participation (Craig et al., 2008). Beyond this, evaluations can also be designed to provide important information that cannot be elicited with quantitative outcomes alone. For example, process evaluations can be designed to answer different types of questions, such as: what context or conditions are needed for an intervention to work; for whom does the intervention work or harm; which components of the intervention were most effective and which ones need modification; and how can we improve the intervention or its delivery? (Craig et al., 2008; Curran, Bauer, Mittman, Pyne, & Stetler, 2012). Process evaluations are needed to inform larger-scale intervention implementation and delivery so that the benefits observed in an RCT can be translated across different contexts (Campbell et al., 2000; Craig et al., 2008; Oakley et al., 2006).

South Asian (SA)s (individuals from India, Pakistan, Bangladesh, Sri Lanka, Nepal and Bhutan) are the second fastest growing ethnic group in the United States (U.S.) (Together, 2012). SAs have a 3- to 5-fold increase in CVD compared to other racial ethnic groups (Joshi et al., 2007; Palaniappan, Wang, & Fortmann, 2004). Although genetics may play a role (Mozaffarian, Wilson, & Kannel, 2008), poor diet, physical inactivity, and overweight/obesity still remain the major lifestyle risk factors in SAs (Joshi et al., 2007; Ye, Rust, Baltrus, & Daniels, 2009). In the U.S., SAs are less physically active and have a higher prevalence of overweight/obesity than other Asian American groups (Ye et al., 2009). Importantly, SAs develop CVD risk factors even with small amounts of weight gain (Consultation, 2004), and thus, lifestyle interventions could substantially reduce their CVD risk.

Background

The South Asian Heart Lifestyle Intervention (SAHELI) study was a pilot randomized control trial of a culturally-tailored lifestyle intervention to reduce the cardiovascular risk of South Asian (SA) immigrants. With an increasing SA population in US and the higher predisposition to CAD mortality, SAHELI aimed to improve physical activity, dietary behaviors, psychosocial outcomes, and clinical cardiovascular disease (CVD) risk factors. Although similar interventions among SA immigrant community are seen in Europe (Andersen, Hostmark, & Anderssen, 2012; Bhopal et al., 2014; Vlaar et al., 2012), they are nil or limited in the U.S. (Brown, Smith, Bhopal, Kasim, & Summerbell, 2015; Islam et al., 2014). And process evaluations of similar interventions are limited to Europe (Morrison, Douglas, Bhopal, & Sheikh, 2014; Penn, Dombrowski, Sniehotta, & White, 2014), where social and behavioral contexts were identified that might have influenced the results.

The design and details of SAHELI intervention have been described previously (Kandula et al., 2013). SAHELI was a complex intervention that was implemented based on the principles of community-based participatory research (CBPR) and was designed using a multi-dimensional framework to target the deeper structures of socio-cultural context based on formative research in the SA community (Kandula, Khurana, Makoul, Glass, & Baker, 2012; Kandula et al., 2013; Tirodkar et al., 2011).

SAHELI Framework

SAHELI is based on constructs from the theory of planned behavior (TPB), social cognitive theory (SCT) and formative research by the study team (Azjen, 1991; Bandura, 1986).

The TPB states that in order to change behavior, people need to form an intention. Intention formation is influenced by three constructs: expected value or positive attitude (people see the value in making the change); subjective norm (significant others and peers also value the change) and self-efficacy (people believe they are capable of making the change). Both the TPB and SCT emphasize the importance of others in shaping people's behaviors. In particular, SCT suggests that self-efficacy is enhanced through social support, motivation, and by gradual mastery of self-regulation skills (e.g., self-monitoring, action planning, and problem solving). SAHELI also promotes behavior change by acknowledging and capitalizing on the social and cultural factors that influence lifestyle and CVD risk in SAs. We used established approaches to cultural tailoring and targeted the *surface* structures of culture (using appropriate images and pictures) and also incorporated the deeper structures of culture, such as explanatory models, values, social norms, family and social influence, and the cultural meaning of health behaviors. Similar to other evidence-based diet and physical activity interventions, the SAHELI intervention utilizes group classes, experiential activities, and motivational interviewing to promote the components of self-regulation that have been shown to be most effective in improving diet and physical activity, such as motivation, goal setting, self-monitoring, and feedback (Abraham & Michie, 2008; Artinian et al., 2010; Teixeira et al., 2010).

Description of SAHELI Intervention

SAHELI was a 16-week lifestyle intervention that included group classes, experiential activities, behavior change counseling, and telephone support. Group classes were held weekly for 6 weeks and lasted between 60–90 minutes. Each class covered a different topic (#1: What is Heart Disease and Understanding Your Risk Factors; #2: How to Get More Exercise; #3: Eat Less Fat and Salt; #4: Enjoy Fruits, Vegetables, & Grains; #5: Maintain a Healthy Weight; #6: Taking Care of Stress and Tension). Classes taught participants goal-setting techniques for creating and maintaining specific, measurable, and realistic goals with attention to physical activity, diet, weight, and stress management. Participants were taught about national recommendations for physical activity (e.g. 150 minutes of moderate intensity physical activity per week in bouts that are at least 10 minutes in duration) and diet (e.g. 7 servings of fruits and vegetables per day); however, they were encouraged to set a realistic goal based on their current behaviors. Participants were taught how to self-monitor physical activity with pedometers and were advised on how to gradually change their activity and diet towards recommended levels.

Individual telephone support started after classes ended and continued for 10 weeks. Phone counseling used a motivational interviewing framework to focus on self-reflection, behavior goals, and problem solving. Calls followed a semi-structured script, were digitally-recorded, and systematically tracked.

Community Partnership

For the SAHELI study, Northwestern University (NU) in Chicago, Illinois partnered with Metropolitan Asian Family Services (MAFS), a community-based organization (CBO) that provides social services to the underserved SAs; NU and the CBO had previously worked together on research studies using the principles of CBPR (Dave et al., 2014; Kandula et al., 2013).

Study partners worked collaboratively on the study design, outreach and study materials, ensuring cultural tailoring of the intervention, translation of study materials, recruitment, retention and SAHELI implementation. A few examples of how the partnership assisted in the cultural tailoring and refining of the intervention are below. The intervention was offered at the CBO which was a safe and trusted space for the community members. CBPR helped assure cultural tailoring of the intervention and adapting it to the low literacy groups e.g. offer diet classes at a local South Asian grocery store, accommodating participants with lower literacy by adding more pictures and expanding the reach to recent immigrants with limited literacy who may not be benefited from health care system approaches, tasting of healthy SA food recipes. Prior work by the team identified that SAs explanatory models for CVD encompassed psychosocial and spiritual factors in addition to biomedical model, which led to addition of an additional session in the intervention on how to manage stress and incorporating culturally salient stress management strategies like yoga and meditation (Kandula et al., 2012; Kandula et al., 2010; Tang et al., 2012; Tirodkar et al., 2011).

Based on feedback from the CBO, the study team offered the intervention to the control group participants at the end of the study, which further assisted with the recruitment efforts.

The intervention components that were evaluated in this qualitative process evaluation were: community-based group education classes on healthy lifestyle behaviors (diet, physical activity, weight, and stress) and individual telephone counseling using principles of motivational interviewing. The goal of the process evaluation was to understand participants' and study staffs' perspectives about the intervention's implementation and its components in order to further refine and test SAHELI in other settings and with larger populations.

Methods

Study participants

This study was approved by the NU Institutional Review Board.

Twenty-three intervention participants were randomly selected to be interviewed by two trained bi-lingual staff who were not involved in intervention delivery. Twenty participants were interviewed over the telephone and the majority of the interviews were conducted in Hindi. Three participants were interviewed in-person in a focus group discussion format.

Three study staff members from the CBO and two from the academic partner were also interviewed individually.

Roles of the staff members who were interviewed for the process evaluation:

Academic staff:

- NU Staff 1 – Advisor on the intervention content, interventionist, Health educator, study assessments
- NU Staff 2 – Advisor on the intervention content, interventionist, study assessments

CBO staff:

- CBO Staff 1 – CBO manager, advisor on the intervention content
- CBO Staff 2 – Co-investigator, advisor on the intervention content
- CBO Staff 3 – recruitment, retention, advisor on the intervention content

All interviews were digitally audio-recorded, which were translated and transcribed simultaneously into English by study staff. Participant interviews were conducted between July and September of 2013. Focus group and staff interviews were conducted in March and April of 2014.

Interview guide and procedures

The semi-structured participant interview guide (Table 1) was designed to understand participant perceptions of the SAHELI implementation, intervention components and overall experience in the study. The staff interview guide (Table 1) was structured to understand

which intervention components worked well and to elicit lessons learned about barriers and strategies for future implementation. Individual participant interviews were on average 25 minutes long and the group discussion lasted 60 minutes. Staff interviews were approximately 45 minutes long.

Coding and Data Analysis

The study team used thematic analysis to analyze the transcripts (Denzin & Lincoln, 2000). The study team used the interview guide to develop an initial draft of a coding guide, which was revised to include additional themes after an initial set of interviews and during the analysis. Two study team members (MJ and APT) coded transcripts independently; coded transcripts were compared and areas of disagreement were resolved through discussion that included an additional member of the team. Qualitative data analysis was carried out using ATLAS.ti (version 7). Descriptive statistics on sociodemographic data was calculated using Microsoft Excel 2010.

Results

The overall attendance rate for the six group classes in SAHELI was 78%, and after conducting individual make-up classes, 100% attendance was achieved. The majority of SAHELI participants were uninsured SA immigrants and two-thirds were women. Characteristics of SAHELI intervention participants (n=31) and the subset who participated in the process evaluation (n=23) are shown in Table 2.

Implementation

Participants and staff identified three important factors that contributed to successful implementation of SAHELI: (1) the community setting; (2) culturally concordant and multilingual study staff; and (3) cultural tailoring of experiential activities.

The CBO played a central role in recruitment and retention for the intervention; twenty one of the interviewed participants first heard about this intervention through CBO and community staff members motivated participants to stay engaged in the study. One of the participants said,

“Because it was at our office and I am a worker there, I quickly decided to take it. If it was far, or if it was different in timing, then it would be difficult to decide. Everything is good that is why it was easy to take the class.” (Female, 43 years)

The CBO also provided participants with transportation to the classes and this was identified as an important strategy for ensuring class attendance. CBO staff 2 spoke about the cultural concordance of the interventionists, “The study was done by my own people, who understand the culture, the food habits, and the lifestyle also. So that can be the best. If someone from a different culture studies, they will not understand the intricacies of our complex culture and complex food habits, and our cooking style, living style.” Getting this buy-in from CBO staff was important for recruitment.

Participants spoke about developing close and trusting relationships with the interventionist, who was multi-lingual and conducted the classes in participants’ languages. A 53 year old

female said, “We enjoyed a lot. We developed a lot of affection. She (the interventionist) kept on laughing and spoke to everyone lovingly. She knew what was in people’s heart.”

The study staff also stated the importance of having culturally concordant staff who understood how certain cultural and religious factors might affect study participation and health behavior. NU staff 1 said,

“When we were developing the SAHELI study, we saw that Ramadan (Muslim holy month) affects diet. In a lifestyle intervention study, that definitely impacts a lot, people are fasting during the day and eating at night. So we had to plan accordingly, again there are restrictions of blood draws during Ramadan. So we made a lot of arrangements and also kind of created a timeline in such a way that all the blood draws were done before Ramadan.”

Participants were enthusiastic about culturally-tailored class activities, and in particular, identified the nutrition activities as highly valuable (Table 4).

For example, using examples of specific foods that are found in SA grocery stores helped create new knowledge:

“A lot of the *masalas* (spices) that we use at home have a lot of salt in them. Like there is [Name of a spice packet], we got to know that there is forty percent salt in that. Now, even the family members now know that there is that much percent of salt in that spice packet.” (Male, 57 years)

In addition, participants expressed enthusiasm about activities teaching them how to incorporate physical activity in daily life. Interestingly, women expressed a preference for walking outside, yoga, and dancing, while men liked pedometer as a tool for self-monitoring.

Impact on Health Behaviors and Quality of Life

Participants reported that the intervention had a positive impact on their overall quality of life and well-being:

“For our health also, the knowledge has increased. For our wellbeing, and to keep our life good in the future, we learnt about it. And for me, so I know about my health, and I can care for myself and guide others ... How to maintain our life, we got guidance in that.” (Female, 43 years)

“The program is very good. A very big thank you for that from us. I was very happy. The way we used to live, and how not to get heart attack, we got knowledge.” (Male, 55 years)

Participants also described the impact on health behaviors. Male participants said that the pedometers, which were given to all participants with daily step-logs, motivated them to become more physically active:

“The one where per day we have to walk 10,000 steps. My walking increased. Now, mine becomes 11,000 or 10,000. Today’s, I will see and tell you right now. Today, mine are 11,937.” (Male, 51 years)

“It has saved me...If they hadn’t showed us all that, I probably would have died by now. My weight was 110 kilograms, I got it to 90 now.” (Male, 55 years)

Many participants also mentioned how the intervention helped them make dietary changes, such as, reducing the consumption of whole milk, incorporating raw salads and more fruits in their diet,

“Fruits, vegetables and all should be eaten more because I had not paid attention to that at all. I now eat little more of fruits, at least eat one fruit for sure. And I eat salad, like carrots, vegetables and all that.” (Female, 39 years)

Implementation challenges and solutions

Multiple challenges and barriers related to intervention implementation emerged in the interviews. These included: (1) Participant burden; (2) Linkage to healthcare; (3) Staff work load; (4) Incorporating family; and (5) Having women-only classes.

Participant burden—Participant burden was felt to be an important barrier by study staff. SAHELI included telephone support calls to encourage maintenance of healthy behaviors after group classes ended; in addition, three 24-hour dietary food recalls were conducted via telephone at baseline, 3-, and 6- month assessments. Study staff perceived these multiple contacts with participants to be burdensome and confusing to participants. NU staff 2 said,

“We were doing their baseline assessments, blood draws, accelerometers, food recalls, they were coming for their classes and the telephone counseling. So I feel like we are calling them so many times. Originally in the protocol, we were supposed to call them 12 times, sometimes as often as 2 or 3 times a week, and then we called them as soon as the classes were done, and I think we shut them down.”

Academic staff also mentioned that many participants were employed in shift work and had long working hours, which made it difficult to respond to the phone calls and few participants actually received support calls.

Participants who had received telephone support calls were asked about these calls: nine participants said they did not receive any telephone support call or they confused the support calls with phone calls for collecting dietary recall information. Academic staff suggested various ways of reducing participant burden in the future, such as incentivizing food recalls and using less burdensome methods for diet assessment.

Linkage to healthcare—The academic staff emphasized the ethical challenges they faced because a majority of participants did not have health insurance. Several participants had high blood sugar levels and were diagnosed with diabetes, but could not access timely health care. Study staff tried to link participants to free or lower-cost health care, but access to these services was delayed by long wait times or sliding-scale costs. The staff worked with other CBO staff to help one participant apply for insurance through the Affordable Care Act (ACA), but for many participants, immigration status precluded participation in the ACA.

Staff work load—Both academic and community staff agreed that implementing a lifestyle intervention in a community setting with medically underserved immigrants was

resource intensive, especially on staff time. Much of the increased staff load was due to offering intervention classes at multiple times and days to accommodate the study population's long work hours, efforts to keep participants engaged throughout the 6-month study period, use of 24-hour diet recalls and accelerometers for data collection, and making telephone support calls after group classes ended.

Incorporating family—Participants said that the intervention could be strengthened by making it more family-based, because they recognized the importance of family support and buy-in for lifestyle modification:

“You should tell people that this kind of program is there. More people are ready, but, one thing I didn't like about this program is that, from one family, only one person can participate in these classes. It should not be like this.” (Female, 32 years)

“There was something about cooking right, but with cooking, I can only suggest to my wife, because usually my wife is the one who cooks food right. So that is why I was telling her, but that time they didn't have availability for her. Per family, they were taking only one person right?” (Male, 58 years)

Women-only activities—Based on prior work with this study population, the study team had designed the intervention by separating men and women during the physical activity sessions. But female participants said they would have benefited from having more women-only opportunities to exercise,

“The only thing I think we should have is the ladies separate and the men separate. Because when the men are in the same room, the ladies cannot, they don't feel comfortable you know. It is a problem for the ladies. You feel more comfortable, and you can jump around, you can do the exercises.” (Female, 59 years)

Discussion

To the best of our knowledge this is the first qualitative process evaluation of a culturally-tailored, community based CVD prevention intervention for SAs living in the U.S.

This evaluation provides greater contextual information to understand the study's outcome results. SAHELI intervention was designed utilizing the intervention model (Figure 1). Although SAHELI did not show a difference in physical activity or saturated fat intake, which were the primary outcomes, between the intervention and control group, the results did find a significantly greater reduction in weight (−1.5 kg) and hemoglobin A1c (−0.43%) (Kandula et al., 2015), which are the two identified intermediate CVD risk factors (Figure 1). Through this process evaluation, participant burden was identified as a deterrent in ensuring accurate dietary recall and in maintaining continuity of intervention through telephone counseling. The evaluation also identifies the relevance and acceptability of some of the intervention components for underserved SAs.

The community setting and CBO partnership were critical for recruiting and retaining underserved SAs in the SAHELI study. Prior research has described the challenge of

recruiting SAs into research studies (Lai et al., 2006). Similar to SAHELI, the use of CBPR methods and partnering with trusted CBOs have been identified as ways to reach underserved and racial/ethnic minority for participation in clinical research (Douglas et al., 2011; McLean & Campbell, 2003; Parikh et al., 2010; Sadler, Lee, Lim, & Fullerton, 2010).

Cultural tailoring is used in many behavioral interventions; however, it is unclear which aspects of culture are most relevant for health behavior change and whether cultural adaptation of evidence-based interventions leads to better outcomes in minority populations. This process evaluation supports designing interventions to incorporate cultural adaptations of experiential activities (Islam, Wyatt, et al., 2013; Islam, Zanoziak, et al., 2013; Nierkens et al., 2013; Parikh et al., 2010) and utilizing culturally concordant staff for intervention delivery (Islam, Wyatt, et al., 2013; Islam, Zanoziak, et al., 2013; Morrison et al., 2014; Parikh et al., 2010; Penn et al., 2014; Vahabi & Damba, 2015). Participants said specific aspects of cultural tailoring were vital to engaging them in the intervention and for motivating behavior change. Addressing gender norms and preferences related to physical activity were important examples of cultural-tailoring among SAs in this study (Caperchione, Chau, Walker, Mummery, & Jennings, 2013; Grace, Begum, Subhani, Kopelman, & Greenhalgh, 2008). Men in our study found pedometers to be helpful for self-monitoring and increasing activity levels, whereas women expressed a strong preference for women-only exercise classes. This difference might be because SA women face multiple barriers to exercising such as, cultural, social, and religious barriers (Caperchione et al., 2013; Dave et al., 2014; Grewal, Bottorff, & Hilton, 2005; Morrison et al., 2014). Moreover, SA women's clothing is also not ideal for wearing pedometers. The small sample size of this evaluation precludes the reaching of any conclusion.

In addition, the use of experiential activities and social interaction in the group setting, as opposed to a didactic format, helped participants apply what they learned in their daily lives. This is supported by behavioral science research where interactive (Devine, Farrell, & Hartman, 2005; Fano, Tyminski, & Flynn, 2004) and experiential activities (Parikh et al., 2010; Resnicow et al., 2000; Weaver, Poehlitz, & Hutchison, 1999) led to an increased acceptability and behavior change. The success of group learning has been demonstrated in other ethnic and/or racial minorities (Feathers et al., 2007; Penn et al., 2014). Grewal, Bottorff, and Hilton (2005) identified the pivotal role of family among SA immigrants and participants in SAHELI study suggested that incorporating family members into group classes and targeting the whole family, especially with dietary advice, would improve the intervention.

In contrast to other studies where telephone calls have been used to counsel underserved participants (Delgadillo et al., 2010; Kanaya et al., 2012; Parra-Medina et al., 2011; Rosland et al., 2014; Saffi, Polanczyk, & Rabelo-Silva, 2014), our study found that telephone calls were not an effective modality for delivering additional behavioral counseling. This may have been partly due to the multiple telephone contacts that were occurring throughout the SAHELI study for different purposes (i.e. collection of dietary recalls, reminders to bring back accelerometers, reminder to attend class). In SAHELI, 12 telephone calls were administered or attempted within 3 months, whereas in other studies, telephone counseling was the only or one of the few intervention components in these studies and telephone calls

(a maximum of 12 in two studies) were spread out over the course of a year. In future interventions, spreading out the telephone calls over a longer period might help.

Based on the process evaluation, SAHELI will be modified to address some of the intervention's gaps and to also help participants sustain behavior change. SAHELI will continue to be implemented with community partners, and we will be also working with a local health department to improve linkages to health care for participants, especially those who are underinsured. Based on participant reported need for greater family involvement, the intervention will be modified to include family members in the group classes and will offer women-only exercise classes. Attempts will be made to reduce participant burden by reducing the number of study assessments and the intensity of the intervention may be increased by adding booster sessions after the core intervention.

Limitations

This process evaluation was part of a pilot randomized control trial with a small sample size. In addition, the study was set in a single CBO in Chicago that serves medically underserved SA immigrants, which may affect generalizability. Due to participant burden the evaluation interviews were done over telephone and were of a shorter duration which reduces the ability to capture additional in-depth information as well as social cues.

Conclusion

This process evaluation demonstrates that a culturally-tailored healthy lifestyle intervention in a community-setting was a promising model for engaging medically underserved SA immigrants in healthy lifestyle change and CVD risk reduction. Increasing the sustainability and scalability of SAHELI and other behavior change interventions in medically underserved communities will require reducing participant burden, using effective modalities for engaging participants in maintenance of long-term behavior change, and addressing the resource needs of community organizations that are implementing intensive, evidence-based lifestyle interventions.

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Figure 1:
SAHELI Intervention model

Table 1:

SAHELI intervention participant and staff interview guide.

Participant Interview Guide
<ul style="list-style-type: none"> • How did you learn about the program? • What were your thoughts about the six classes that you attended? Out of all the classes, what activities did you like the best? What activities did you like the least? How do you think we could improve the activities that you liked the least? • What is the most important thing you learned? • What did you think about the phone calls we made to set goals (telephone support calls)? • How was your experience about the three visits at (CBO name)? • How was your experience wearing the monitor (accelerometer) around your waist to monitor physical activity? • Did you use the pedometers we gave you during the exercise session? Do you think it was useful?
SAHELI intervention staff interview guide
<ul style="list-style-type: none"> • What are your thoughts about the process of preparing for the classes e.g. group meetings and reaching consensus practice sessions at (Community site) and preparations before the class? • What was your experience about the work load related to this study? Do you think it was fair? • How did you recruit participants into the study? How did you retain them into the study? Do you think we can do anything to improve the process of recruitment and retention? • Tell us about your experience with the baseline, 3 month and 6 month assessments. • Tell us about your experience with the six classes. Also, share how you felt about the make-up classes. Any suggestions or lessons learned. • Tell us about your experience with the 24 hour dietary recall and how participants as well as you perceived this experience? Any suggestions or lessons learned. • Tell us about your experience with the accelerometer wear and how participants as well as you perceived this experience? Any suggestions or lessons learned. • Tell us about your experience with the telephone support calls.

Table 2:

Participant characteristics of process evaluation in comparison to overall SAHELI intervention group.

Characteristics	Process evaluation (n = 23)	SAHELI Intervention Group (n= 31)
Average age (age range)	50 years (30–60 years)	50 years (30–60 years)
Gender		
Male	35%	35%
Female	65%	65%
Marital status (married)	91%	90%
Average number of years lived in U.S.	10 years (Range 1 – 36 years)	10 years (Range 1 – 36 years)
Foreign born	100%	100%
Religion		
Hindu	70%	68%
Muslim	30%	32%
Education		
Below high-school	26%	26%
Completed high-school	17%	19%
More than high-school	57%	55%
Limited English proficiency (speak English poorly or not at all)	22%	19%
Uninsured	57%	61%

Table 3:

Additional quotes on Activities liked and Impact on health behavior.

Class activities	
<p>"I learn how to buy the food by looking the food label. Before then the classes, I have not known that I was used to buying the food whatever I liked, I have not known that those foods affect my health condition. Just like that if we have more classes we can learn more different things." (Male, 30 years)</p> <p>"The best of all was about whole grains, that there is a lot of benefit from that, whole grains food should be eaten, less oil should be eaten, less salt should be eaten." (Male, 48 years)</p> <p>"I said that I pray in the morning time and I needed something peaceful, that's why they gave me cassettes. After I spoke with the doctors many times, they asked me not to worry, but even if I don't want to worry, it happens automatically. My tensions have increased since the past 3–4 years. That's why I said for 5 minutes I will do yoga and exercise. I want to be relieved of stress and they gave me cassettes, and I do and follow up that plan so this works out for me." (Female, 53 years)</p> <p>"In how much quantity it can be eaten, like with fish, how many slices of fish. And we should eat 3 cups of vegetables and 2 cups of fruits, that was told to us ... the most I liked was about was that every day we eat food, in selecting that, in deciding that, we got help." (Female, 43 years)</p> <p>"About eating, I got to know that what thing, how much, what is written (on the label), when we had gone to <i>Patel</i> (a local SA grocery store). We were told that what kind of food, how much, calories is how much, to note like this, I didn't know about this." (Female, 60 years)</p>	
Impact on clinical risk factors and lifestyle behavior	
<p>"I have also started eating that (whole grains) now. I eat quinoa. I eat brown rice." (Female, 44 years)</p> <p>"I am following whatever I learnt from there, I cut down lot of things, such as, bread and rice, before I used to eat a lot but not now. And sugar, I completely cut down the sugar." (Female, 59 years)</p> <p>"My husband, he is fat, it is controlled. I told him. Otherwise every day, at least 2–3 days a week he eats <i>samosa</i> (deep fried snack). Stopped it. I said in our metropolitan, Northwestern people came. They told what happens by eating oily things. He stopped eating samosa." (Female, 53 years)</p> <p>"First when my report came, first time, my sugar in fasting was 145 on May 15th. On August 20th which I got, my sugar, glucose is 103." (Male, 51 years)</p> <p>"We used to eat salad, a little bit, but now we eat a little more." (Male, 57 years)</p> <p>"We were going in a negative direction, including me. My weight was too much. I would eat anything. But I learnt from these classes. Even when I went to Pakistan for 3 months, and since 6 months I have the same weight, all due to these classes. I would remember immediately that this is not good for you, and so I learnt the right things." (Female, 32 years)</p>	

Table 4:

Frequency with which participants mentioned class activities they liked.

Class activities listed in a decreasing order of likability	N = 23
Exercise activities (includes activities of walking and / or dancing to SA music and / or demonstration of resistance bands)	21
Whole grains (includes demonstration of whole grain)	11
Portion control (building a plate with samples)	9
Stress reduction (yoga and relaxing)	8
Nutritional label reading	5
Grocery store field trip	4
Food tasting	4