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Research Article

Eliciting Preferences for Small Change Strategies in Project SCALE (Small Changes and Lasting Effects) a Behavioral Weight Loss Intervention Trial

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Abstract

Introduction

Racial and ethnic minority populations experience a disproportionate burden of obesity and its health related complications. Developing practical interventions at relatively low cost that result in sustainable weight loss in these vulnerable populations is crucial. The objective of this study was to explore how Black and Latino adults perceive of a small change approach to weight loss using one of thirteen tested strategies to reduce caloric intake.

Methods

Six focus groups of adults were conducted in clinical and community based settings in two neighborhoods in New York City. Data were analyzed through sequential steps of open, axial and selective coding. Themes describing participant's preferences about each of the small change strategies were derived and used to shape the final intervention strategies.

Results

Five themes emerged in the selection of the small change eating strategies. Participants selected strategies based on their prior experiences, social and cultural context, habitual norms, and their self-efficacy for utilizing a strategy. The small change strategies deemed most practical were: 1) Using a smaller plate for the main meal; 2) Making half of the main meal vegetables; 3) Placing snacks in inconvenient locations; 4) Eating breakfast every day; 5) Drinking water instead of sweetened beverages; and 6) Eating dinner at home at least 6 days a week.

Conclusions

Lessons learned about the specific selection of strategies and those best suited for the target population were used to shape the next phases of the project.

Keywords: Eating; Weight loss and weight gain; Minority groups; Obesity; Focus groups; Eating preferences

Introduction

Obesity is a major health problem in the United States that disproportionately affects Black and Hispanic adults [1,2]. An essential component to the treatment of obesity is the adoption and maintenance of healthy dietary and physical activity habits. Unfortunately, the adoption and long term maintenance of these habits is difficult, and poses an even greater problem in vulnerable and underserved populations [3]. While US environments in general have become "obesogenic", the food marketing and physical activity environments of minority populations is even less favorable than that of whites, thus making adherence to recommendations for healthy eating and active living even more difficult [4]. As a result, there remains a need for developing sustainable behavioral interventions that will reduce obesity-related behaviors in high risk populations.

In 2008, a Task Force of the American Society for Nutrition, proposed promoting small changes in diet and physical activity as an alternative strategy to preventing further weight gain in the population at large [5]. Several studies have demonstrated the direct impact of various small eating behavioral changes on weight loss. Small changes in the study by Lutes et al consisted of self- selected goals that participants created based on their eating patterns and the Stoplight Food Guide, a simplified tracking system originally designed for children to categorize foods based on nutritional and caloric content [6]. Lally and colleagues provided a list of ten tips that consisted of seven small change behaviors associated with negative energy balance such as eat five servings of fruit and vegetables a day, two behaviors designed to improve awareness of food intake such as do not perform other activities while eating and one tip to promote routines such as eat at the same time each day [7]. Lastly in the EMPOWER study, small changes were determined by a participants choice to alter the quality, quantity, or frequency of a current dietary or physical activity behavior. Given the variability of the small change ideas were used in previous studies, we sought to learn more about the factors that inform people's decision in selecting small change strategies for weight loss in order to refine and guide our future intervention.

Thus, among Black and Hispanic adults in two low income New York City neighborhoods, we qualitatively explored the cultural, social, and psychological factors that could impact the target population's selection and day to day use of thirteen research-based small change eating strategies.

Methods

This study was the first phase of a recently completed three phase project entitled

"SCALE: Small Changes and Lasting Effects". Details of the study design of the trial have been published previously [8]. This study was approved by Lincoln Medical and Mental Health Center of the Health and Hospital Corporations of New York City.

Recruitment and Design

Phase I of SCALE was conducted from September 2009 to May 2010. Participants were recruited through faith based organizations, community based organizations and ambulatory care centers in two low income neighborhoods (Harlem and the South Bronx) of New York [9]. Adults were eligible to participate if they were 21 years of age or older, self-identified as Black or Hispanic, considered themselves to be overweight or obese, and had previously tried to lose weight during their adult life. We used purposive sampling to recruit participants into six focus groups. All groups were conducted using a standardized script. Half of the groups were conducted in Spanish. Each focus group session lasted approximately 2.5 hours. Two trained moderators, of which one was bilingual, facilitated over the groups. The groups were held at several partnership sites on different days and times of the week in order to maximize participation of individuals with varying work schedules. At each group session participants were presented with thirteen small change eating strategies (Table 1). These 4 strategies were derived from the general literature and field experiments conducted by Brian Wansink and colleagues at Cornell University Food and Brand Lab [10-14]. Participants were asked to vote via paper ballot for the top six strategies that they felt could be practically adopted by themselves, their family and/or social networks. This methodology was implemented in order to ensure that in debt discussions could be conducted about the highest ranked strategies in a reasonable time frame versus a limited discussion of all thirteen. In the case of a tied vote, both tied strategies were discussed.

Once the votes were tallied the groups were presented with the top six strategies and asked the following questions.

1. *What are some of the reasons that this strategy might work well for you when trying to lose weight ?*

2. *What are some of the reasons that this strategy might work for your family members, friends or people in your community who are trying to lose weight ?*

3. *What are some of the difficulties that you might have in trying*

to use this strategy to lose weight ?

4. *What are some of the difficulties your family members, friends or people in your community might have in trying to use this strategy to lose weight ?*

Upon completion of the group discussion participants completed a brief survey that included questions about basic demographics, general health, and eating behaviors. Participants were given a $20 gift card as compensation for their time.

Data Analysis

Descriptive statistics were conducted to summarize the characteristics of the participants. Qualitative responses were audio taped, translated and transcribed verbatim for analysis. The Spanish transcripts were also back translated. Analysis of qualitative data from the focus group transcripts was aided by the use of the Ethnograph® qualitative software by three investigators (coders) and systematically analyzed line by line to identify specific concepts.

Table 1. Small Change Eating Strategies

Strategy (description)	Rationale
Use Smaller Plates-Use a 10 inch plate for the main meals	Package, serving and dishware size all influence how much people eat. Adults eating on a larger plate or bowl have been shown to consume on average > 30% more than aged matched controls eating on a smaller size plate or bowl [10,22]
Half-Plate Rule-when eating the main meal of the day half the Plate should be vegetables and/or fruits and the other half protein and starch.	Increases percentage of lower density foods being consumed while still maintain volume and satiety stay high [11]
Keep Serving Dishes on the Counter-Leave no bowls of food on the table (except salad).	Moving from the table to fill plate interrupts eating scripts [23]
Relocate Snack Food to Inconvenient Location-Put snack food away in an out of sight hard to reach location.	Discourages frequent snacking [24]
Do Not Eat When the TV is On-Do not eat your main meals while watching TV.	Encourages more accurate monitoring of what is eaten [25]
Eat Breakfast Daily-Make sure you eat breakfast each morning. If possible eat a hot breakfast.	Reduces likelihood of snacking and overeating at lunch; increases protein [26]
Use the Fruit + Vegetable Rule-At every dinner or lunch eaten at home, place both a fruit and a vegetable on the table.	Increases percentage of fruit and vegetables being consumed [23]
Use the Fruit-Before-Snack Rule-Only eat a between-meal snack if you eat a fruit first.	Inconvenience reduces snacking of high calorie dense foods [24]
Using the Equal Water Rule- Drink 12 ounces of water for every can or glass of soft drink.	Is believed to reduce volume of soft drinks consumed [11]
Limit Fast Food-Limit fast food to emergencies; prepare food whenever possible.	Fast food has high caloric density; limiting fast foods may reduce overeating [11]
Don't Skip Meals-Bring fruits and vegetables along if you can't sit down to eat.	Reduces overeating and snacking due to hunger before meals [26]
Eat at Home-Eat your main meal at home at least 6 days a week.	May reduce the amount of calories consumed at a meal [26]
Stop Clean Plate club-Leave some food on the plate	May reduce overeating [24]

Concepts were assessed during an iterative process to discern specific categories based on similarities and differences to each other or relationships to certain phenomenon. Categories were then grouped according to over-arching themes.

Three additional investigators (corroborators) independently reviewed all transcripts. Each coder-corroborator pair met to compare and discuss their independently determined categories. The three coder-corroborator pairs then met and through consensus arrived at a final set of categories, themes and recommended strategies for piloting testing reported here. Strategies were ranked based on total cumulative votes. The highest achievable score for any strategy was 67 based on 100% selection by all participants. In the case of a tie both strategies were discussed in depth, all codes from each group session were reviewed until the coder-corroborator team reached consensus about the final ranking.

Results

Description of Sample

A total of 69 participants attended the six focus group sessions (Table 2). Two participants attended more than one group session since they accompanied participating family members. Thus 67 unique participants are reported in this analysis. More than half of participants (60%) self-identified as Hispanic. The mean age of participants was 54 years; 72% were women. Overall, 42% were married, and 46% had one or more children residing in their household; 74% had a high school education or more, and 30% were currently employed. The groups mean measured BMI was 34 kg/m^2. 74% of participants reported they weighed too much and 73% had been advised by a health care provider to lose weight. Only 27% of participants reported eating five or more servings of fruits and vegetables daily. More than half (53%) described their health as fair or poor.

Small Change Strategy Selection

Tallies of participant's votes resulted in group discussions of seven strategies due to a tie vote listed in Table 3. Five themes emerged regarding the factors that inform people's decision in selecting small change strategies. These themes and participant sample quotes are described next.

Prior Experiences

Participants used past experiences with changes made in their eating habits in order to lose weight as their guide in selecting or eliminating certain strategies as a modality that they would consider for future use. Participants described skipping meals, eliminating particular foods (i.e. sweetened beverages), substitution of food items (i.e. baked instead of fried chicken), portion control, avoidance of eating cues, timing of meals and the use of commercial or prescribed diets as modalities previously used to eat healthier and lose weight. Thus participants tended to look for commonalities between prior strategies and the ones presented. One participant had this to say, *"I don't think you should stop eating any particular food. You should just eat a small portion. You can eat whatever you want, but you should always eat a small portion of any food."* Smaller portions thus translated into participants selecting the smaller plate strategy for the main meal because this would naturally cut down the portion size of the meal without inciting feelings of deprivation.

Cultural Context

The second theme described the cultural context in which participants selected and/or rejected particular strategies. Participants in the Spanish speaking focus groups described conflicting interests with *"Stop the clean plate club"* and *"Keep serving dishes on the counter"* strategies. One participant stated *"Spanish mother's don't allow that .... and I would imagine this goes for most of you here in your homes your mother, your grandmother would not allow you to leave anything on your plate. You eat what you are given. You have to eat all of it."* Another participant had this to say *"This is really important because in our culture we teach our children to eat everything on their plate…I was taught that in my house...you don't throw food away. You have to eat it all."* Group discussions provided insight into the formation of eating habits during childhood in households where there was food scarcity. Participants discussed the impact of hunger and food scarcity on their current eating habits. Most participants did not endorse imposing these same practices on their children and/or grandchildren because of a greater abundance of food in their household's. Thus the cumulative low ranking of the *"Stop the Clean Plate Club"* as a small change strategy endorses the importance of cultural context in selecting the strategies.

Habitual Norms

Strategies were seen as more favorable when they were not disruptive to daily norms of the participants and their social network members. An example of this was among two of the focus groups where there were votes for the *"No TV While Eating"* strategy. Participants reported that discontinuation of TV during meal times could lead to undesired family discord due to changing a *"family time"* ritual. The latter sentiment was especially reverberated in the participants with young children in the household. Thus in spite of initially receiving favorable votes the *"No TV While Eating"* strategy was voted off the list by the groups after further in-depth discussions.

Table 2. Demographic and Health Characteristics of Focus Group Participants (N=67)

Mean age (range)	**54 (26-81)**
Female %	72
Education %	
Less than High School	26
Finished HS or GED	16
Some college or more	58
Marital Status %	
Single never married	21
Married	42
Divorced	31
Currently employed %	30
Mean Hours worked per week (range)	39 (15-96)
# of children in the home %	
0	58
1	18
≥ 2	24
# of other adults in the home %	
0	11
1	23
≥ 2	66
Hispanic %	60
Race %	
Black	48
White	21
Pacific Islander	1
American Indian	3
General health %	
Excellent	8
Very good	18
Good	22
Fair	45
Poor	7
Body Mass Index (range)	34 (21-52)
Food shopping, All responsibility %	52
Food preparation, All responsibility %	59
Meal planning, All responsibility %	52
Weight self-description %	
Too little	1
Just right	25
Too much	74
BRFSS fruit % vegetable intake %	
Less than 5 servings	64
5 or more servings	36
Advised by a health care provider to lose weight %	73
Advised by a family to lose weight %	61

HS= High School; GED= General education diploma; BRFSS = Behavioral Risk Factor Surveillance System

Self-Efficacy

Participants' preferences for a particular strategy were also guided by their personal belief in their ability to overcome certain aspects of their physical and/or social environment in order to achieve their weight loss goal. The following participant quotes illustrate this idea: *"Well I can say for years I wanted to lose weight. During the workday around 5:00 o'clock every day I would go downstairs to the dessert shop and try to find me a doughnut, the biggest doughnut I could find or a piece of cake, and I would do that at least four days a week and then I said, you know what I'm going to stop doing that. So I put my mind to it and decided I'm not going to go downstairs every day. Then I cut down to maybe like twice a week and all of a sudden, I just didn't go down at all."*

Social Network Influence

The last theme relates to the influence of social network members on the ability to adopt certain strategies. Participants considered the influences of their work and home environment on what and when they eat in particular. For example *"I think if you are single it's easier to use the small plate strategy. You can't force it on them (your family) but if they see you using it maybe they might say okay I will try it."* In all groups participants provided examples of how members of their family and social networks tangibly helped or made it more difficult for them with previous weight loss attempts. Helpful examples included healthy grocery shopping (i.e. more fruits and vegetables purchased). While harmful efforts included bringing snacks in the home and food preparations not in congruence with the participants diet (i.e. fried rather than baked).

Adaptation of Small Change Eating Strategies

Through consensus discussions about the individual, cultural and gender-specific preferences that existed for each strategy, the coder-corroborator team revised the rankings of the *"No TV While Eating"* and the *"Fruit + Vegetable"* strategies. The latter strategy was lowered in ranking due to misinterpretation of the strategy by participants. Quotes regarding utilization of strategy demonstrated that participants interpreted it as eating a fruit and vegetable at each meal. However the strategy is about visual cues and triggering increased consumption by having the items on display (i.e. in a fruit bowl on the dining table). As previously described the *"No TV While Eating"* strategy was reduced in ranking by focus group consensus after group discussion.

Thus the following six small change strategies with adaptations (Table 3) represented the opinions of participants regarding which strategies would best fit implementation in the pilot (feasibility) phase of the study:

Table 3. Cumulative Votes for Each Small Change Strategy.

	Total Votes (n=67)	Initial Rank	Revised Rank
Half Plate of vegetables/ fruits salad	90% (60)	1	1
Small Plate	64% (43)	2	2
Eat Breakfast daily	63% (42)	3	3
No TV while eating	55% (37)	4	
Equal water	55% (37)	4	4
Out of Sight Snack	54% (36)	5	5
Fruit + Vegetable	48% (32)	6	
Eat at home rule	46% (31)		6
No dishes on the table	45% (30)		
Limit fast Food	33% (22)		
Stop the clean plate club	27% (18)		
Don't skip meals	25% (17)		
Fruit before snack	15% (10)		

Small plate strategy

This strategy required no adaptations and was well received. Participants described various advantages to this strategy such as *"smaller plates prevent overeating", "by using a smaller plate you will not feel like you are giving up anything"* and *"if others in your house don't want to use smaller plates you can still do it by yourself."* The challenges raised by participants included the cost of potentially buying new dishes and that it may be difficult when eating out to get a restaurant to put your food on a smaller plate.

Half of the main meal should be vegetables

Diabetes was a frequently-discussed personal health condition. All group discussed the negative effect that "too much" fruit intake might have on glycemic control. Thus the strategy was adapted to encourage increased vegetable consumption only. A few of the benefits of this strategy described by participants included the variety of meals that could be created using different vegetables and the benefits for people with diabetes in the replacement of sugar and starches by vegetables. A lack of availability of fresh vegetables and the high cost of fresh vegetables in certain neighborhoods as well as children's resistance to eating vegetables were described as potential challenges to the adoption of this strategy in the context of family and/or social networks.

Out of sight snack rule

Participants described the benefits of trying this strategy especially in households with children "*children are used to having snacks available."* While others who live alone or do not share the food shopping responsibility with others felt *"it requires a lot more self-control; it is easier to just not buy them."* Thus the out of sight snack rule would fit better in households where they may be competing food agendas or individuals with more

self-control. For those households where the individual may describe less control and have no competing food agendas the strategy might work best as avoid purchasing snack foods. One participant said this about having snacks in the home "*It (the snacks) calls me by name. That's why I've got to leave them at the store or else I will hear the snack calling me and the next thing is that I will find it."*

Eating breakfast every day

In general participants expressed a general acceptance of this strategy due to their familiarity with the saying "*breakfast is the most important meal of the day."* The most common barriers to the utilization of this strategy were time, lack of hunger in the morning and the lack of excitement about breakfast foods. One participant said *"I think there are some people that just don't have the time to eat breakfast because of their schedule."* Another said the following *"Breakfast doesn't wake me up. It doesn't do anything for me."*

Drinking water instead of sweetened beverages (formerly the equal water strategy)

While this strategy was presented as drinking equal amounts of water if a sweetened beverage such as soda is consumed, participants unanimously felt that individuals should be encouraged to drink water instead of sweetened beverages. Drinking water was felt to be an easy choice because advertisements have made water popular (i.e. vitamin water), it's inexpensive and there are multiple health benefits from water consumption. "*Our society as a whole is more water conscious now"* and *"there are no negatives to drinking water"* were two examples of why the selection of this strategy was felt to be easy. The only reported barrier to the selection of this strategy was the recognition that *"some people just don't like the taste of water."*

Eating dinner at home at least 6 days a week

While for some this strategy was perceived as easy to adopt due to childhood habits like eating dinner with the family, for others it was felt to be a challenge due to busy schedules, lack of a desire to cook and living alone with no one to help with food preparation. An example of the latter was the following statement "*Some older adults order out if they don't have any help."*

Discussion

As part of the first phase in developing a behavioral intervention for weight loss targeted at Black and Hispanic low income neighborhoods in NYC, we sought to evaluate the attitudes and preferences of thirteen small change behavioral eating strategies before implementation in a feasibility pilot. Using a mixed methods approach, we learned several key elements about the selection of particular strategies as well as potential barriers and facilitators to their adoption in the target population. We found that the selection of small change eating strategies was driven by five themes. The first related to participants' previous weight loss experiences and their perception of how a particular strategy may result in weight loss. This finding is consistent with the idea that individuals need a lay theory of how a particular strategy might work to be able to believe that it might be a useful approach [15]. Second, the adoption of particular strategies can be shaped by cultural norms. An example of such was the *"No clean Plate Rule"* while a plausible strategy for reducing total calorie intake, not one that may easily be adopted in populations where it is not culturally acceptable to leave food on the plate or have experienced food scarcity during their childhood. Third, strategies were more acceptable if they did not disrupt the normal patterns of life. By definition habits are resistant to change even when they are in opposition to good intentions (i.e. wanting to lose weight). The ultimate goal of small change strategies is the conversion of these strategies into lasting habits. Once an eating behavior becomes a habit, food choices can be virtually automatic. It becomes easier, for example, to respond to environmental cues that support the habit of eating healthy foods and ignoring cues that encourage consumption of those that are high in calories and low in nutrients. Fourth, central to behavior change is self-efficacy. Based on the social cognitive theory [16]. People tend to pursue tasks they know they can accomplish and avoid those they believe exceed their capabilities. Lastly, the importance of social networks and their influence on the selection of strategies was identified. Research has shown that people eat more with their friends and family than when they eat alone and the quantity of food increases as the number of fellow diners grows [17]. The gap in research remains how best to tap into social networks as a tool for obesity prevention.

Our study had several limitations. First there were relatively few men involved in the focus group interviews. This is reflective of the higher ratio of women to men within the settings where we recruited. It is also reflective of the gender difference in the desire to lose weight. Second the opinions of these participants may not be generalized to all Black and Hispanic adults in NYC or other urban cities. In particular the Hispanic population is comprised of various ethnic sub-groups and thus there may be important variations between these various sub-groups. Third, we studied only thirteen of a multitude of possible small change behavioral strategies that have equally robust scientific literature to support their usage.

In spite of these limitations our results have provided important guidance in the implementation of our intervention. The potential importance of tailoring interventions for weight loss was recognized by the NHLBI Obesity Initiative Expert Panel several years ago. Since then there have been several studies to tailor weight loss interventions [18,19] and programs in Black and Hispanic populations. While short term weight loss

and the reduction of obesity related diseases such as diabetes among Black and Hispanic populations have been successfully achieved in several trials, weight loss maintenance remains the greatest challenge [20,21].

If small change strategies are to work for a variety of individuals, there will be a need for a self-assessment of individual eating challenges with the goal of matching challenges in the social, physical environment and cultural environment with the small change approaches that directly targets it. While the individual who *"sits down with the remote control and eats leftovers"* may receive the greatest benefit from a strategy such as turning off the TV while eating, this may not hold true for the person whose challenge is *"snacking all day, grabbing things to eat."* The latter individual may fare better from a small change strategy of not skipping meals or eating a fruit before snack. Thus in order for these future small change eating strategies to work they will need to be supported by clear connections to weight loss and be flexible enough to fit into participants' social and physical eating environments because *"one size does not fit all".*

Conflicts of Interest

There are no potential conflicts of interests in regards to the authors of this manuscript and any funding sources for the study.

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