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A QUALITATIVE ANALYSIS OF BARRIERS TO AND FACILITATORS OF
SUCCESSFUL WEIGHT LOSS

BY
ALYSON DROOGER

A thesis submitted in partial fulfillment of the requirements for the
Master of Science
Major in Nutrition, Exercise, and Food Science
Specialization in Exercise Science
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2016

A QUALITATIVE ANALYSIS OF BARRIERS TO AND FACILITATORS OF
SUCCESSFUL WEIGHT LOSS

This thesis is approved as a creditable and independent investigation by a candidate for the Master of Science degree and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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ABBREVIATIONS

MRP Meal Replacement Program(s)

MS MS

LS LS

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ABSTRACT

A QUALITATIVE ANALYSIS OF BARRIERS TO AND FACILITATORS OF
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ALYSON DROOGER

2016

Background: Along with the United States obesity epidemic comes extensive weight loss attempts. One way people are attempting to lose weight is through meal replacement programs. Much work has been done to study strategies of structured weight loss programs and examine their success. Limited work has been done to study the specific barriers and facilitators of the real life participants who join weight loss programs. The purpose of this study is to identify, through qualitative research methods, the barriers to and facilitators of weight loss while participating in a meal replacement program.

Methods: Twenty-nine members of a meal replacement program participated in six focus groups conducted by a moderator using open-ended questions and probes. Focus groups were held in a private room and audio tape-recorded. Tapes were transcribed verbatim and content analysis was used to analyze transcripts for common weight loss themes.

Results: High internal motivation, adherence to the program, receiving support from family, engagement in physical activity, use of program products, and helpful information provided by the health coach were perceived as key facilitators for weight loss. Barriers included problems with physical activity, trouble adhering to the program, struggling in social settings, lack of health coach knowledge, difficulty with nutrition outside of the program, and lack of consistent information provided by the health coach.

Conclusions: To improve weight loss success, future studies should build upon the facilitators and address the barriers of each weight loss program.

INTRODUCTION

The prevalence of overweight and obesity in the United States has risen to epidemic proportions. Over two-thirds of American adults are overweight or obese.¹ Data from the 2003-2004 cycle of the National Health and Nutrition Examination Survey show similar data to present day obesity rates, indicating rates may be leveling off.¹ Even so, overweight and obesity remain a widespread and significant problem. Both are associated with a host of negative health effects including diabetes, hypertension, high cholesterol, asthma, arthritis, and fair or poor health status.² Moreover, significantly more deaths are associated with obesity than normal weight.³ Obesity is also inflicting a large burden economically. In 2009 the National Health Expenditure Accounts (NHEA) reported that annual obesity-related inpatient, non-inpatient, and prescription drug spending could be as high as \$147 billion per year. In comparison, in 2012 the national expenditures of ‘nursing care facilities and continuing care retirement communities’ were \$151.5 billion per year.⁴ This shows the annual spending for obesity alone is approaching that of everyday living in seniors, which is alarming for both public and private payers.

Despite a high prevalence of overweight and obesity among adults in the US, survey data from 2004 indicate 31% are trying to lose weight.⁵ The three most common weight loss strategies used by nearly half of the survey respondents were eating fewer calories, eating less fat, and increasing physical activity.⁵ These are proven successful strategies for weight loss but a majority of Americans have problems making them permanent lifestyle changes. As such, many Americans are turning to weight management programs to assist in losing weight. A number of these programs help participants make lifestyle changes by providing a meal plan to guide them through a

healthy diet and giving tips for proper physical activity. Adhering to structured meal plans is one of the most vital aspects of losing weight.⁶ Heymsfield et al. conducted a meta-analysis of randomized controlled studies, comparing partial meal replacement (PMR) programs to a control group on a low-calorie diet plan. Overall, PMR weight loss was either equal to or significantly greater than that of the control group.⁷ Weight management programs with food provisions or prepackaged meals allow the user to observe what constitutes a healthy meal and how their food should be prepared. Participants learn how to correctly estimate calories and portion size, how to plan meals and how to better control their hunger.

While much of the weight management literature has focused on specific diets that facilitate weight loss⁸⁻¹⁰ and characteristics of individuals who successfully maintain weight loss,¹¹⁻¹⁴ little is known about the barriers to and facilitators of weight loss itself. In studies of individuals who had previously lost weight, barriers were noted to be things like lack of accountability to and no support from others, no self-motivation, lack of self-control and willpower¹⁵ difficulties in changing food habits, health problems, lack of self-control, insecurity, high costs of some diets, and social relations¹⁶ while facilitators were noted to be things like accountability to and support from others, planning meals ahead of time, weekly sessions with the dietician, readiness for change, and self-motivation¹⁵ self-determination, support from family/friends, and project-related support.¹⁶ No studies have examined barriers to and facilitators of weight loss in individuals currently participating in a weight management program. This information could allow for the tailoring of weight management programs to address barriers and enhance facilitators, ultimately improving weight loss success. Therefore, the purpose of this study is to identify, through

qualitative research methods, the barriers to and facilitators of weight loss while participating in a meal replacement program.

LITERATURE REVIEW

This section is a review of the literature. It will begin with an overview of overweight and obesity and the diseases associated with it. Health and economic costs linked to obesity will be addressed. Information of specific weight loss strategies and their respective success rates will follow. Barriers and facilitators to weight loss are provided, focusing on what helps people succeed or leads to failure when implementing said weight loss strategies. Finally, gaps in the research are addressed.

Obesity and its Costs

Obesity (and the many health concerns associated with it) is one of the largest health problems in the United States. While over two-thirds of American adults are overweight or obese (an estimated 97 million people),¹⁷ the issue appears to have plateaued. Obesity prevalence among adults did not change between 2003-2004 and 2011- 2012.¹ But, prevalence is still too high. Overweight and obesity contribute to deadly diseases and health problems including stroke, heart disease, diabetes, and cancers, and overall morbidity and mortality.^{2,18} Obesity has also been associated with osteoarthritis, sleep apnea, and respiratory problems.¹⁹ Weight loss has been positively associated with decreased blood pressure, triglycerides, and cholesterol levels, all of which would contribute to a lower prevalence of disease.²⁰

Finkelstein and colleagues noted a 37 percent average increase in medical costs attributable to obesity between 1998 and 2006.⁴ It is likely this monetary burden has increased in correlation with the ongoing rise of obesity since this 2006 data. In 2009, the National Health Expenditure Accounts (NHEA), the gold standard for data on health

spending, estimated annual obesity-related medical spending (i.e., inpatient, non-inpatient, and prescription drug spending) could be as high as \$147 billion per year.⁴

Costs related to obesity go beyond economics. Each year, an estimated 300,000 people in the United States die of obesity-related causes -cite 2 and 18. Flegal and colleagues studied the number of excess deaths in the United States associated with overweight and obesity in the year 2000 and found increased mortality associated with obesity, especially relative to those who were normal weight.³ The direct link between obesity and many health concerns, as well as the burden of health care costs, makes reducing the prevalence of obesity a public health priority.

Guidelines for Weight Management

Obesity is a multifactorial disease involving the integration of social, behavioral, cultural, physiological, metabolic and genetic factors. Therefore, weight loss is a complex process as well. The goals of weight loss and maintenance go far beyond self-gratification. Benefits include weight gain prevention, improvements in physical and emotional health, improvements in lifestyle changes (i.e., nutrition and exercise behaviors).²¹ The *Practical Guide to the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults* describes how medical practitioners can provide obese patients the treatment, advice and care they need to lose weight and effectively keep it off.¹⁷ The guide advises a two-step process for obese patients: assessment and management. Assessment involves determination of the degree of obesity. Management involves the weight loss and maintenance process. An initial 10 percent reduction in body weight is recommended as it reduces disease factors.²¹ The Institute of Medicine defines

clinically significant weight loss as a loss of at least 5% of starting body weight in one year.¹³ The guide provides various strategies used for weight loss, stating the initial therapies obese patients should undergo are dietary therapy, increased physical activity, and behavior therapy. Dietary therapy instructs patients how to decrease their caloric intake by diet modification.¹⁷ Low-calorie diets are often implemented, containing 1,000-1,200 kcal/day for women and 1,200-1,600 kcal/day for men. Increased physical activity is a vital part of weight loss and weight maintenance. Physical activity can be initiated slowly and increased gradually to ensure safety and enjoyment for the patient. A moderate level of physical activity for 30 to 45 minutes, 3 to 5 days per week, is encouraged. Behavior therapy is an important but often overlooked component. It provides techniques for overcoming barriers (predicted and unforeseen) with dietary therapy and/or physical activity.¹⁷ Strategies that encourage higher weight loss include increase intensity of treatment, extend the length of treatment, enhance motivation (through monetary incentive or a social support partner), medication, or teach maintenance-specific skills.²²

A systematic review conducted by Franz studied the types of interventions contributable to successful weight loss outcomes. Results showed weight loss, on average, plateaus at approximately 6 months into the weight loss attempt. Because of this, the research team suggested the emphasis of a weight loss program should evolve from weight loss only to weight loss with continued maintenance. Food and meal planning was among the most successful weight loss and weight management strategies.²³ Similarly, Barte and colleagues recommend a program with a focus on prevention of weight regain. The various practices taught to enhance this could include dietary improvements,

increased physical activity, and regular self-monitoring of weight. Self-monitoring of weight allows the individual to stay aware of their current weight status and it holds them accountable for any weight loss or regain.²⁴

Meal Replacement Programs

One way people are combating obesity is through weight management programs. The Academy of Nutrition and Dietetics (AND) accredits successful weight loss and management to a lifelong commitment to a healthy lifestyle change. Emphasis should be placed on diet and physical activity.²¹ Weight management programs—more specifically, meal replacement programs—help create sustainable and enjoyable eating patterns by providing the user meals to replace their current daily dietary habits in hopes it will be a much healthier option than the meals they were eating on their own.⁶ Meal replacement programs may also increase program participation and adherence.

Studies have been done to investigate MRPS and participants' compliance to and satisfaction with them. Wing and colleagues found weight loss participants utilizing meal replacement programs with food provision had a higher rate of adherence to the program than those without food provision. Results indicate this is because of the simplicity of these programs. The program is easy to follow because the food suggested for weight loss is provided to them. The study suggested meal replacement is effective because it increases the accuracy of calorie estimation, improves the types of food bought and stored at home, and provides a program structured in a way to improve eating habits.⁶ The meals require no preparation, are portion-controlled, and they eliminate the food variety that can stimulate overeating.²⁵ Meal replacements may be particularly useful for

individuals who have difficulty achieving a weight loss adequate to control the multiple illnesses associated with obesity.²⁰

Wadden et al. studied MRPs in a specific population. Their study contained more than 5,000 adults with type 2-diabetes and showed participants' weight loss was directly related to increased consumption of meal replacements.¹³ Obedience to treatment recommendations also showed greater weight loss.¹³ Davis and colleagues conducted a study on 90 obese participants randomly assigned to one of two groups: a meal replacement plan or an isocaloric food-based plan. The participants had an active weight loss period of 16 weeks and a 24-week long maintenance period. At the end of 16 weeks, 92.9% of the meal replacement participants had lost $\geq 5\%$ of their body weight versus only 55% of the food-based participants (the Institute of Medicine (IOM) defines clinically significant weight loss as a loss of at least 5% of starting body weight in one year). Body-fat percentage was also significantly different between groups, with a 13.6% reduction in the meal replacement and only a 2.7% average reduction in the food-based.¹³ Further validating the success of MRPs is a meta-analysis by Heymsfield and colleagues. Researchers showed partial meal replacement programs result in equal or even significantly greater weight loss amounts than reduced calorie diet (RCD) plans.⁷ This statistic, along with others described above, indicates short-term success but long-term success proof is severely lacking.

Poston et al. conducted a study on 100 individuals using one of two interventions: meal replacement (MR) – meals provided through the program to substitute for meals throughout the day— or meal replacement augmented with snacks. The MR group was told not to snack and the MRPS group was instructed to snack three times a day. Results

indicated all participants lost significant amounts of weight regardless of intervention assignment. The addition of snacks to the MR program did not harmfully affect weight loss.²⁶

Barriers to and Facilitators of Weight Loss

Metzgar et al. administered a study to explore barriers and facilitators to weight loss and weight maintenance by conducting focus groups. Participants were volunteers from a group of women who had previously taken part in a weight loss study, which included a weekly nutrition intervention led by a registered dietitian. Of the 51 women who were involved in the initial study, 23 volunteered for the present study.¹⁵ Seven focus groups were conducted with the same moderator in charge each time. Each focus group included 11 open-ended questions. Questions included weight loss and weight management success and limitations, barriers and facilitators to weight loss maintenance, and strategies relating to weight regulation and eating patterns. The moderator and co-facilitator analyzed focus group transcripts independently before coming together to compare and confirm. They found key facilitators to weight loss included accountability to and support from others (friends, family, coworkers, and study investigators), planning meals ahead of time to avoid temptation, weekly sessions with the dietitian, self-motivation, and readiness for change. Lack of accountability to and no support from others, no self-motivation, lack of self-control and willpower arose as key barriers to weight loss.¹⁵

A majority of information in the Metzgar study focused on weight maintenance rather than weight loss. One study conducted and aimed specifically at finding barriers

and facilitators to weight loss was done by Hammarström and colleagues in 2014.¹⁶ A Swedish population of middle-aged to older women participated in a weight loss intervention, after which a smaller group of 12 women was selected to take part in the present study. Structured interviews were conducted with open-ended questions regarding barriers and facilitators to weight loss. All but two of the study authors did not take part in the intervention process. Data analysis was conducted by each author according to qualitative content analyses, with coding done separately first and then together for comparison.¹⁶ The researchers identified categories and sub-categories for barriers and facilitators to weight loss. Barriers included difficulties in changing food habits, health problems, lack of self-control, insecurity, high costs of some diets, and social relations. Facilitators were self-determination and support (from family and friends and from the program).¹⁶

Coaching

Health coaches do not provide treatment; rather, they supplement treatment, act as a motivator, provide accountability, and offer information to promote behavior change. Research suggests adding health coaches to weight loss programs may enhance health outcomes.²⁷ Leahey and Wing conducted a 6-month study to examine efficacy of 3 types of health coaching: professional, peer, and mentor. Professionals are health care providers that offer information and support. Peer coaches are those who are currently facing the situation (i.e., overweight or obesity) and can offer support as they go through the same ordeal. Mentors have previously faced the health problem and have shown they can successfully overcome it. The study revealed all three types of coaches are sufficient and

can offer adequate approaches to weight loss treatment. The results were consistent with previous findings that social influence occurs among peer coaches and mentors and mentees.²⁷ Franz and colleagues conducted a systematic review to determine what types of weight loss interventions contribute to successful outcomes. They found the studies that simply told the participants to lose weight without advice or support experienced minimal weight loss through all time points.²³

While programs exist that utilize health coaching, they have not been well researched. Medifast, Inc. is a weight loss program which uses meal replacements to assist participants. Take Shape for Life is the coaching arm of Medifast, Inc., offering a Health Coach to guide the patient to their goal, helping them to learn new habits along the way to help them be successful weight maintainers as well. However, Take Shape For Life is not researched and as a result, is not fully understood.¹⁰

Gaps in the Research

Research has shown the success of individual components of weight loss programs but has lagged behind in pulling together all those pieces and reporting how together they impact success. For example, meal replacements and health coaching are two individual components that have been shown to impact weight loss, but it is unclear what impact the two have when combined, and what barriers and facilitators individuals face when participating in a program with both of these components. More needs to be done to explain why each component does or does not work for an individual. Despite existing research outlining diet-related factors for successful weight loss, and evidence suggesting health coaches can further impact weight loss success, there is little research

examining the impact of health coaches on weight loss in addition to a meal replacement program. Furthermore, there is no research examining what participants in these types of programs note to be barriers to or facilitators of their success.

Along with the United States obesity epidemic comes extensive weight loss attempts. Much work has been done to study strategies of structured weight loss programs and examine their success. This study will work to fill the research gaps by involving participants from a weight loss program and asking them specific questions related to barriers and facilitators of weight loss as a whole. With this study, the research team will strive to find how key aspects of the weight loss process can be transformed to contribute to long-term weight loss success. This study aims to provide valuable information for the weight loss process.

MANUSCRIPT

BACKGROUND

Obesity has been linked to several diseases and health problems: stroke, heart disease, diabetes, cancers, osteoarthritis, and respiratory problems, among others.⁴ Medical spending, more specifically obesity-related medical spending, is estimated to be as high as \$147 billion per year.⁴ Finkelstein and colleagues noted a 37 percent average increase in medical costs attributable to obesity between 1998 and 2006.⁴

The Practical Guide to the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults provides strategies used for weight loss, stating the initial therapies obese patients should undergo are dietary therapy, increased physical activity, and behavior therapy.¹⁷ Other research teams recommend an emphasis on not only weight loss but should also evolve to weight loss with continued maintenance and prevention of weight regain.^{23,24} One way people are combating obesity is through weight management programs. The Academy of Nutrition and Dietetics accredits successful weight loss and management to a lifelong commitment to a healthy lifestyle change. Emphasis should be placed on diet and physical activity.²¹

Research suggests adding health coaches to weight loss programs may enhance health outcomes, as shown by Metzgar et al. and Hammarström et al.^{15,16} Both aforementioned research teams studied barriers to and facilitators of the weight loss process and found facilitators included accountability to and support from others (a role the health coach could fill, along with family and friends). Barriers were difficulties in changing food habits, no self-motivation and lack of support from others (also a role the health coach could fill).^{15,16} Health coaches supplement treatment, act as motivators,

provide accountability, and offer information to promote behavior change.²⁷ However, there are limited programs that provide health coaches and therefore limited research.

Along with the United States obesity epidemic comes extensive weight loss attempts. Research has indicated pieces of a successful weight loss program but has lagged behind in reporting how individuals bring each piece together to achieve success. Much work has been done to study strategies of these attempts and much more work will be done in the future to review their success. This study will work to fill the research gaps by involving participants from a weight loss program and asking them specific questions related to barriers and facilitators of weight loss as a whole. The purpose of this study is to identify, through qualitative research methods, the barriers to and facilitators of weight loss while participating in a proprietary meal replacement program with health coaching.

MATERIALS AND METHODS

Program Background

Profile by Sanford® is a weight management program developed by a team of physicians and scientists at Sanford Health, consisting of multiple phases of meal replacement and health coaching. The health coaching piece involves one-on-one interaction between the member and a health coach, who works to provide advice with every aspect throughout the weight loss process. Each member meets, often weekly, with a different health coach each time. The phases of Profile® are Reduce (where members replace at least two regular meals per day with the meal replacement products), Adapt (which transitions members off of the meal replacement products while teaching them the skills they need to be successful at food selection and preparation), and Sustain (the weight maintenance phase, providing members the opportunity to practice their new

healthful behaviors under the direction and support of the Profile team). The rate of progression through each phase differs according to each individual participant. The meal replacement products available for purchase are fortified with vitamins and minerals and are high in protein to increase satiety. The meals are prepackaged and are offered in more than 70 flavors and varieties. Each participant is urged to interact with a health coach, who will help each participant through his or her weight loss journey.²⁸ The Profile Coach answers questions and provide information about nutrition, exercise, lifestyle and behavior modification.

Upon signup, each member is provided a digital Smart Scale. After each use of the scale, the information recorded uploads automatically to the participant's personal Profile® page and can be seen by the participant and his/her coach at any time. Each participant's personal plan is designed with focuses on nutrition, lifestyle, and activity changes.²⁸ The coach educates the participant on these phases throughout the weight loss process. Helping the participant achieve and maintain long-term weight-loss management success is a vital goal of the Profile by Sanford® program.²⁸

Participants and Recruitment

Profile® staff provided an Excel file to the research team containing the following information: member user identification number, start date of the program, beginning weight in pounds, current weight in pounds, gender, height, current phase, start date of the phase, city and location of Profile® store. With these data, the research team calculated individual participants' percent change in body weight since their first weigh in. This information was used to place participants into tertiles of weight loss. Those in

the highest tertile were classified as more successful (MS), and those in the lowest tertile were classified as less successful (LS). In order to be eligible for the study, individuals had to have been newly enrolled in the program for a minimum of 8 weeks and no more than 12 weeks. This timeframe was chosen because 8 weeks was perceived as long enough participation time to have seen weight loss results, where 12 weeks was identified by program staff as the timeframe where members start transitioning to the next phase.

During the first wave of recruitment, potential participants were emailed by Profile® staff regarding study components. If interested, they were instructed to email a member of the research team. Upon receiving an email, research personnel set up a phone call with the participant to discuss the details of participation. If the potential participant remained interested, his or her contact information was documented and a study visit was scheduled. Through this method of recruitment, 15 MS and 4 LS participants were scheduled to take part. During the second wave of recruitment, potential participants were called by Profile® staff. If interested, contact information was documented and a study visit was scheduled. With this method, 10 MS were scheduled. All participants gave written consent and the protocol was approved by the South Dakota State University Institutional Review Board. Ultimately, 29 participants of the Profile® program completed the study visit while 28 (23 female) completed both the study visit and data collection.

Data Collection

Focus groups were conducted to promote discussion among participants and encouraged sharing of ideas, perceptions, and experiences with the Profile by Sanford®

program and with weight loss in general. Questions were designed to elicit responses regarding internal and external barriers to and facilitators of all aspects of the weight loss process. Questions were developed both from the weight management literature and the Profile by Sanford® coaching experience. A total of six focus groups took place. Focus groups ranged from 2 to 10 participants per session. At the beginning of each focus group, a purpose statement was read to ensure consistency of information provided. Participants were then asked 2 closed questions and 8 open-ended questions. Each focus group was led by the same moderator with a co-facilitator also in attendance to take notes and assist in distributing information. Each focus group lasted approximately one hour. Focus group meetings were recorded and were transcribed by a transcription service (TranscribeMe).

In addition to focus group questions, participants completed a questionnaire capturing information about health history, dietary restraint/disinhibition, body image, and engagement in the Profile® program. Physical activity and sedentary time were assessed for one week via accelerometers, which capture frequency, intensity, and duration of movement. Finally, a food frequency questionnaire was completed to allow for objective classification of diet patterns.

Data Analysis

Focus group transcriptions were imported into NVivo 10 qualitative software (QSR International Pty Ltd. Version 10, 2012) for analysis using content analysis theory.²⁹ Researchers read and examined the data in great detail and used the data to gain a sense of what patterns or themes were emerging. In this study, initial data analysis

focused on looking for themes for weight loss among Profile® participants. Examples of themes (or “nodes”) include nutrition, physical activity, internal or external motivation, and environmental situations (work settings, social settings, home settings). A complete list of nodes with definitions can be found in **table 1**. These themes would ultimately be separated into barriers or facilitators. Two researchers worked to code each response separately. Once the initial coding of questions was complete, researchers met to come to a consensus over discrepancies. Researchers then updated their codes in order for the data to be recoded into barriers and facilitators. Once the data were updated, two additional researchers reviewed the coding. After finalizing the coding of focus group responses, a coding comparison was ran to determine the kappa coefficient between coders to test for consistency. A kappa coefficient is a statistical measure which takes into account the amount of agreement that could be expected to occur through chance.³⁰ Kappas across all nodes were to be 0.4 or higher (average 0.66), as recommended by McHugh.³¹ From here, queries were run to identify common themes in the data and examine the frequency of themed responses across the barriers and facilitators and between MS and LS. Assessing the frequency of these themes allowed for determination in shaping the barriers and facilitators perceived by the participants in the Profile® program.

The barriers to and facilitators of weight loss among all participants are reported as the frequency of references within each theme. The barriers and facilitators that emerged by group (LS vs. MS), are reported as the percent coverage of each theme $((\text{frequency of theme references within each theme})/(\text{total references}) \times 100)$ to account for sample size differences between groups. The differences in barriers to and facilitators of weight maintenance that emerged between groups (MS vs. LS) are reported as a

difference in the percent coverage of each theme ($|\% \text{ coverage of MS} - \% \text{ coverage of LS}|$).

RESULTS

Participants in the study were mostly female ($n=23$, 82.14%) with a mean age of 49 years (± 2.14 years). Complete demographic information for focus group participants can be found in **table 2**.

Focus Group Questions

Motive for Beginning the Program

The opening question in each focus group asked participants why they decided to join the meal replacement program. Many named external factors in their decisions:

“Other people that I knew were successful.” “Some friends joined and shared their stories.” “My wife was doing it.” “A co-worker of mine ... did it and she looked amazing, and she gave me hope.”

Internal motivation, the weight loss facilitator discussed most often, was referenced many times throughout the opening question. One woman reported she was borderline diabetic before starting the program and as she lost weight, her diabetes scare did, too. Others reported their own internal motivators:

“I felt terrible ... I just needed to for health-wise, I felt, to feel better.” “Tired of being overweight.”

Strengths of Weight Loss Phase

Participants were asked about the strengths of the weight loss phase of the program. Many discussed the ease and convenience of the plan laid out for them.

“It’s easy to follow” “It’s convenient.” “I liked that it allowed you to customize it to your own preferences and needs.” “The product tastes good. It’s easy to work into a work schedule.” “It’s relatively easy to follow. It’s pretty cut and dried.” “A benefit is ... there’s a plan laid out for you.”

Weaknesses of Weight Loss Phase

Weaknesses of the weight loss phase were broader in each individual answer.

Some individuals cited the cost:

“The product is very, very expensive.” “I was on the program until I went broke, it was really that simple.”

Others noted lack of variety:

“[I’m] not inventive in the kitchen. I wish somehow they could ... incorporate that option where you learn how to make some of those things.” “Not enough of a variety for me.” “I got shaked out.” (Referring to the daily shake as a MR.)

And others discussed miscellaneous personal reasons:

“I cook for my kids in the household and so when I’m cooking them things, it’s really hard.” “If I was trying to do even regular activity I was getting a little bit light headed. ... Then I would just feel horrible.” “The first day is tough ... when you come home with this big bag of stuff ... it was just a little overwhelming.” “I think it’s a lot of food to eat during the day.”

Health Coach Meetings

Participants had a variety of opinions about their experiences working with a health coach. One thing discussed was the consistency (or lack thereof) of having the same health coach each time:

“My coach ... does a good job in relating to me ... He knows how to speak my language.” “They knew what they were talking about.” “My health coach ... he’s very patient ... I find him to be pretty supportive.” “I think for me having the same coach was key to me getting to my goal weight.” “You develop that relationship where I’m not only eating and following the program, I don’t want to let her down either.”

Others enjoyed a different coach each time to gain a different perspective.

“It was actually nice, because you get somebody else’s perspective, and somebody else’s hints.”

Another discussion point was the knowledge and personality of the health coaches, and the support provided by each:

“They’ve all been very knowledgeable ... I just haven’t really found one that I’ve really connected with and that I felt was meshing with me.” “The ones that I’ve had have been really young, and so I feel like there just wasn’t that understanding of what my lifestyle is.” “A couple that I’ve had have been very soft-spoken ... but sometimes I do need somebody to give me a little bit more of a push.” “I think they were fine as far as I go in and have a particular question ... but I didn’t feel like I was getting any additional information. If I wasn’t asking for it, they weren’t giving it to me.”

Success Outside of the Program

When asked what contributed to their successes outside of the MRP itself, participants noted motivation from different sources. As one woman said:

“My kids are super proud of me ... A big thing for me is just people are really proud of you.”

A variety of other facilitators were noted.

“For me it’s definitely been coworkers ... Just having other people that I worked with that were doing it.” “My husband has been supportive.” “For me personally ... vanity. I like the way I look now compared to where I was six months ago.” “I got to go off my meds because my sugars were better.” “I love that scale, then I run to the computer and I can see it go down and up, that’s the best.” “Looking in the mirror and seeing the weight loss, having people tell you ... any evidence that shows me I’ve lost weight motivates me to keep doing it.”

Barriers to Success Outside of the Program

Next, participants were asked what may have limited their success on the program outside of the MRP itself. Lack of self-discipline and scheduling was mentioned throughout the focus groups.

“I just want food right now and knowing I can walk across the street to a restaurant and get it right away, it’s that. The fact that I don’t like preparing food.” “My own head. There’s nobody else in my way except me sometimes.” “My biggest struggle is ... being a busy working mom.” “I’ve been doing a lot of travelling.”

Many others mentioned social settings.

“The social aspect of it ... my friends want to go to the bar ... I have to say no, or when I do, I feel guilty about it.” “I’ve got a lot of buddies who like to drink beer ... that was tough.” “My social life is going out to eat ... that is hard for me, to watch them order their stuff.” “Sometimes you almost feel like it causes you to limit your social activity because you have to make a choice.”

Physical Activity Aspect of the Program

Participants were asked of their perception of the physical activity information they were to follow throughout the weight loss phase. A large majority of participants reported not being informed of the recommended physical activity levels they should be attaining.

“I like the program, but I don’t know that they stress enough about exercise.” I wasn’t told a thing [about physical activity].” “They don’t tell you what to do, just do *something*.”

Nutrition Information

Finally, participants were asked about the nutrition information. They discussed cheating on the nutrition plan in the program.

“The biggest challenge is just looking at your grocery list and planning ahead so that you can make good choices.” “Willpower. I have zero and I admit it.” “I’ve changed some things, but my willpower is only so strong.” “As I transitioned (to store-bought food), it was a little bit more challenging just because I had more choices to make.”

Themes of Referenced Facilitators Across All Participants

A total of 257 references were made regarding facilitators during focus groups. These were categorized into 6 parent nodes, 9 child nodes, and 18 baby nodes. The most commonly discussed facilitator among all participants fell into the general theme “aspects of MR program” (130), as seen in **Figure 1**. The most discussed specific themes in terms of overall facilitators for weight loss included: internal motivation (occurred in 12.1% of all facilitator references), adherence to program (9.3%), family (8.2%), physical activity (6.6%), consistency of health coaching information (5.8%), and knowledge of the health

coach (5.5%). A complete list of themes and frequencies of discussion is included in **Table 3**.

Themes of Referenced Barriers Across All Participants

A total of 175 references were made regarding barriers during focus groups. These statements were categorized into 8 parent nodes, 9 child nodes, and 19 baby nodes. The most commonly discussed barrier, just as its facilitator counterpart, occurred under the general theme “aspects of the MR program” (87), as seen in **Figure 2**. The most discussed specific themes in terms of barriers to weight loss included: physical activity (10.9%), adherence to program (8.6%), social settings (8.6%), knowledge of the health coach (6.9%) and nutrition (7.4%). A complete list of themes and frequencies of discussion is included in **Table 3**.

Themes of Referenced Barriers in More vs. LS Groups

Results were further analyzed within and between the MS and LS groups. When examining barriers within the MS group, physical activity was the most discussed (occurring in 12.1% of barrier references). Other highly discussed themes included social settings (9.1%), nutrition (8.3%), knowledge (7.6%), adherence to program (7.6%), and use of program product (6.8%). Barriers within the LS group included adherence to program (11.6%), stress (9.3%), while social settings, consistency of coaching assignment, physical activity, and health coach personality each had a 7% frequency. Referenced barriers within the MS group can be seen in **Figure 3**. Referenced barriers within the LS group can be seen in **Figure 4**. Differences in barriers to weight loss between groups can be found in **Figure 5**.

Themes of Referenced Facilitators in More vs. LS Groups

Facilitators of weight loss among the 'MS' group included internal motivation (15%), adherence to program (9.5%), family (8%), physical activity (7%) and work settings (6%). Facilitators within the LS group consisted of adherence to program (9.4%) and family (9.4%), while consistency of health coaching information, knowledge of the health coach, nutrition and consistency of coaching assignment each had a 7.5% frequency. Referenced facilitators within the MS group can be seen in **Figure 6**. Referenced facilitators within the LS group can be seen in **Figure 7**. Differences in facilitators of weight loss between groups can be found in **Figure 8**.

DISCUSSION

This study included twenty-nine men and women from a specific MRP. Each participant took part in a focus group detailing their personal experiences with and opinions on the program. They discussed three main facilitators (internal motivation, adherence to the program, and family) along with several subsidiaries. Likewise, the same participants experienced three main barriers (physical activity, adherence to the program, and social settings) along with several subsidiaries. Results were also compared within groups of MS and LS individuals. LS participants noted the main barriers to weight loss were adherence to the program and stress while facilitators included adherence to the program and family. MS participants discussed barriers to weight loss being physical activity, social settings and nutrition while facilitators were internal motivation and adherence to the program.

Overall, internal motivation was the most referenced facilitator among

participants, showing those who achieved weight loss did so because of self-determination and the will to adopt a lifestyle change. Adherence to the program arose as a top facilitator, piggybacking on the internal motivation reference, showing those who adhered to the requirements and suggestions of the program achieved their weight loss goal more so than if they would have strayed from the program. Participants discussed welcomed support they received from family members throughout their weight loss journey, citing that support that helped them stay on track. This is consistent with the findings of Metzgar et al., where women identified accountability to and support from others, self-motivation and awareness of food choices as key facilitators in their weight loss process.¹⁵ Physical activity also arose as a facilitator. Participants talked not only about the engagement in physical activity being beneficial, but also the information they received from the program or a health coach on required amounts and types of physical activity they should be attaining daily. Knowledge of the participants' health coach and the consistency of information provided by him/her were also highly discussed facilitators among both groups. Participants discussed the accountability they felt toward their coach, adding to the motivation to lose weight so as not to let their coach down. They cited support and knowledge received from the coach during each session. This shows meeting with a health coach is beneficial if utilized to its full potential.

Adherence to the program was present overall as both a facilitator of and barrier to weight loss, showing how one's ability to follow the requirements of the program can aid in weight loss, but can also greatly hinder it if the individual is unable to follow the program plan for some reason. It is important to note this may be a battle within oneself more than a battle with the program. Other main overall barriers discussed (physical

activity, social settings) also show potential struggles with self. Both ‘More’ and ‘LS’ groups discussed lack of willpower and many real life situations where they were faced with food not a part of the program’s nutrition plan, especially in settings where food is more readily available. Social settings, having children with busy schedules, cooking for the family, and the convenience of restaurant food created barriers to weight loss in themselves. This suggests the problems individuals have throughout the weight loss process do not occur because of aspects of the program, but because of what is going on in their own lives. This is similar to research conducted by both Hammarström et al., where participants cheated on the program because they could not find motivation to change their food habits¹⁶, and Metzgar et al., where participants cited environmental pressures as a barrier to their weight loss process.¹⁵ This consistency with previous research shows more work needs to be done to prevent these external struggles during the weight loss process. MRPs should consider putting more focus on how to attain weight loss success in real life situations and less on the logistics of the weight loss process itself. For example, instead of laying out the nutrition plan and physical activity plan without much more instruction, programs should help the individuals overcome the barriers they face when it comes to sticking to these plans. Again, health coaching could be an optimal way to address this issue.

Internal motivation was the most discussed facilitator for MS participants. It can be speculated those MS at weight loss would have higher motivation within themselves to continue the process. These same participants also found adherence to the program, support from family, and physical activity helpful in the weight loss process, mirroring the results of the facilitators throughout participants as a whole.

MS participants discussed social settings and nutrition as barriers, citing meal planning in places outside of the home and food use outside of the MR product proved to be difficult in the weight loss process. However, the top barrier for MS participants was physical activity. Physical activity was not discussed in any consistent manner throughout the program. Participants noted how their health coach and the program in general did not speak consistently about physical activity requirements. Each health coach was left to his or her own devices as far as relaying any physical activity information to the Profile member. Some participants were taught specific exercises to do while others were not told about physical activity at all, and still others fell somewhere in between. Regular physical activity is a common strategy of many who have maintained weight loss. An initial 10 percent reduction in body weight is recommended in the weight loss process as it reduces disease factors.²¹ Physical activity aids greatly in this initial weight loss, thus weight management programs need to place more emphasis on it. Physical activity should be brought up early in the program and stressed much more than it is.

Opposite of its place in the MS group, internal motivation was at the bottom of the list of facilitators for LS participants, indicating a key difference between those who are more and LS at weight loss. Adherence to the program was a highly noted facilitator among those in the LS group, showing, unsurprisingly, following the program's guidelines resulted in successful weight loss. LS Participants also found support from family helpful, along with consistency of information provided by the health coach, and knowledge of the health coach. Consistency of information provided by the health coach was discussed as a facilitator more within the LS group, showing those individuals found the help they needed from their coach to attain weight loss, if only for a short time.

Adherence to the program also presented itself as the top barrier for LS participants. Part of adhering to the program is finding the motivation to stick to it, and that may explain why internal motivation was not present for these individuals as a facilitator. Stress was a highly ranked barrier for the LS group, and many participants discussed family and work demands that proved too stressful to adhere to such a demanding lifestyle change as the MRP. Consistency of coaching assignment was fairly high on the list of LS barriers. Members of this specific MRP are provided the option of a health coach but are not offered the same health coach at each meeting. Participants in this study discussed the advantages and disadvantages of this “coach-hopping” experience. Many disliked it and advocated for themselves to be assigned to one health coach only. However, many did not advocate for themselves and thus were meeting with a different health at every session. This presented as a barrier to LS participants as they believed they would have seen higher weight loss had they established a relationship with a health coach. Participants also spoke of a lack of connection and understanding from their health coach, and not receiving the push they were looking for. This shows how important and helpful a health coach can be, but only if they are utilized and well educated in their profession.

CONCLUSIONS

Very few studies have analyzed barriers to and facilitators of weight loss. This study showed major barriers to and facilitators of the weight loss process when taking part in a meal replacement program that utilized health coaching. Internal motivation, adherence to the program, and family are the main facilitators while the main barriers

include physical activity, adherence to the program, and social settings. Participants in this study often discussed support from others as a crucial part of their weight loss journey. It is important in future studies to include participants' support systems inside and outside of the weight loss program.

Individuals on MRPs could potentially be MS if programming considered real life situations. MRP staff and coaches should be well aware of situations a member may come across so they can be prepared to assess and address these in a timely manner. These programs give nutrition and exercise guidelines but the question of how they are to help with motivation or busy schedules remains. MRPs and future studies should also pay more attention to the health coach/participant relationship. Program adherence is instrumental in achieving maximum weight loss, and an experience with a health coach is also helpful throughout the weight loss process, but it remains unclear how programs and health coaches work best together.

Figure 1. Facilitators of Weight Loss Among All Participants: Themes are organized into hierarchies moving from general topics at the top to more specific themes. N=frequency of references within each node, 1st row after facilitators= parent nodes, 2nd row= child nodes, 3rd row= baby nodes.

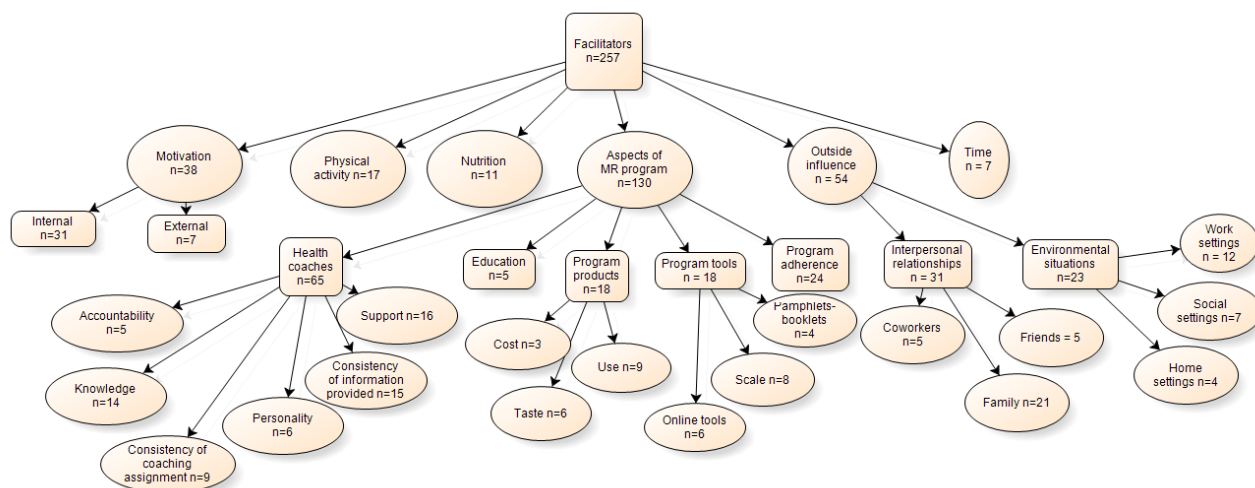


Figure 2: Barriers to Weight Loss Among All Participants: Themes are organized into hierarchies moving from general topics at the top to more specific themes. N=frequency of references within each node, 1st row after facilitators= parent nodes, 2nd row= child nodes, 3rd row= baby nodes.

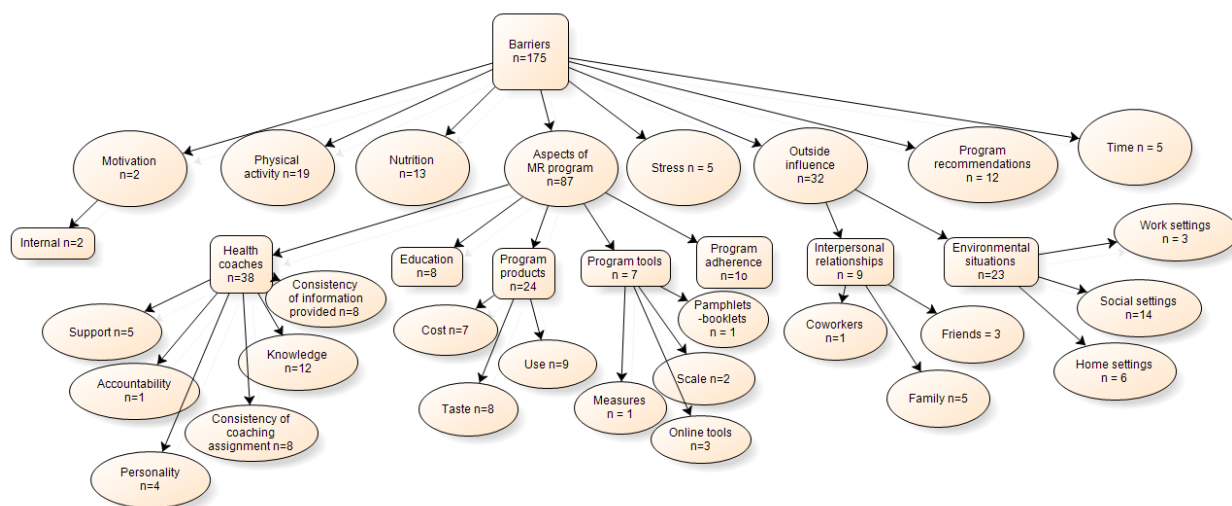


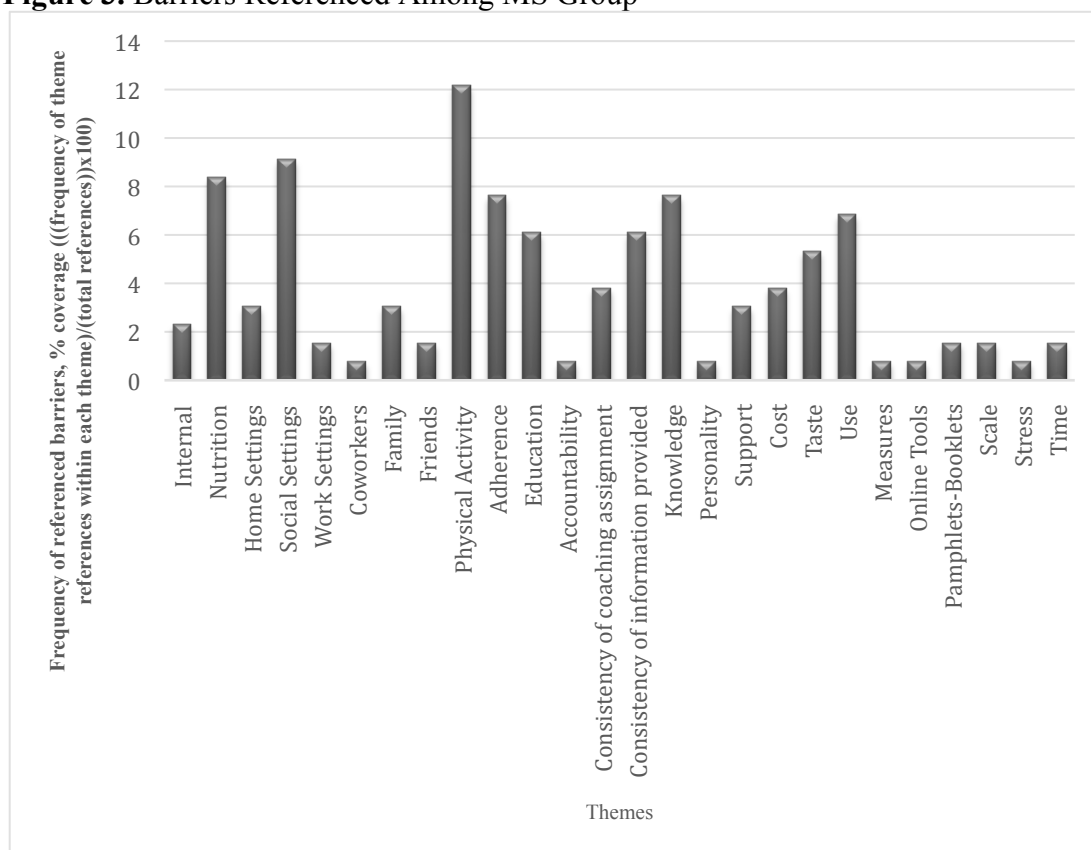
Figure 3. Barriers Referenced Among MS Group

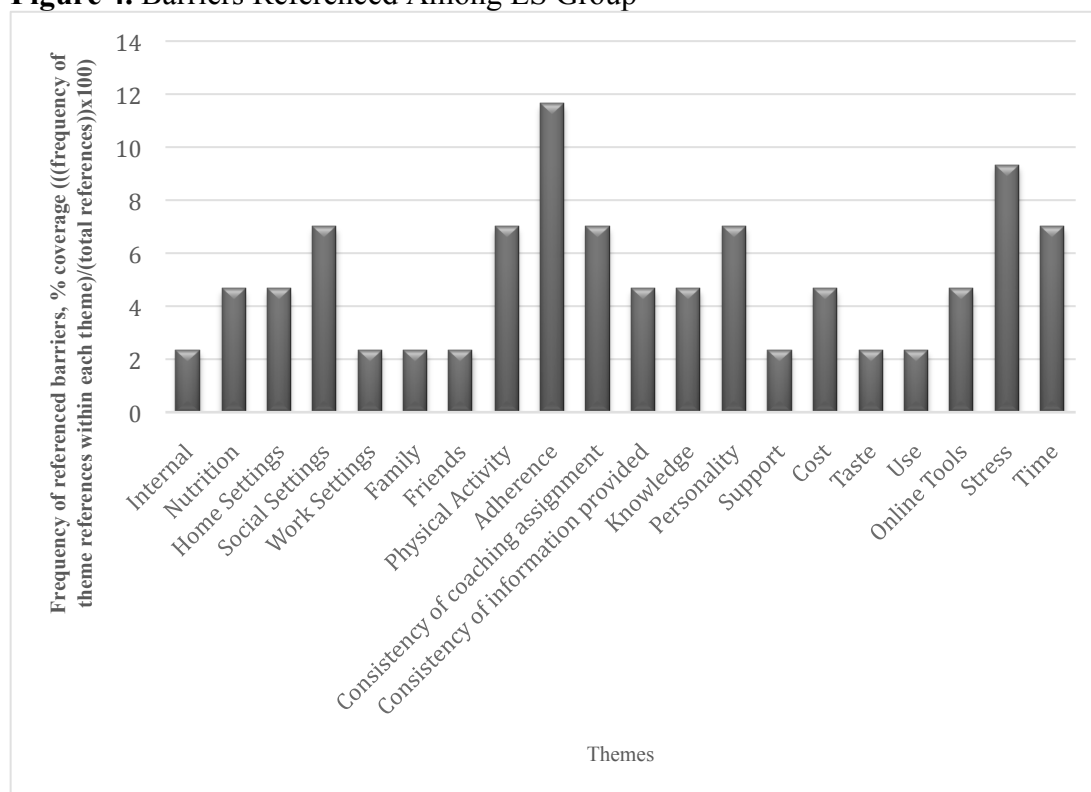
Figure 4. Barriers Referenced Among LS Group

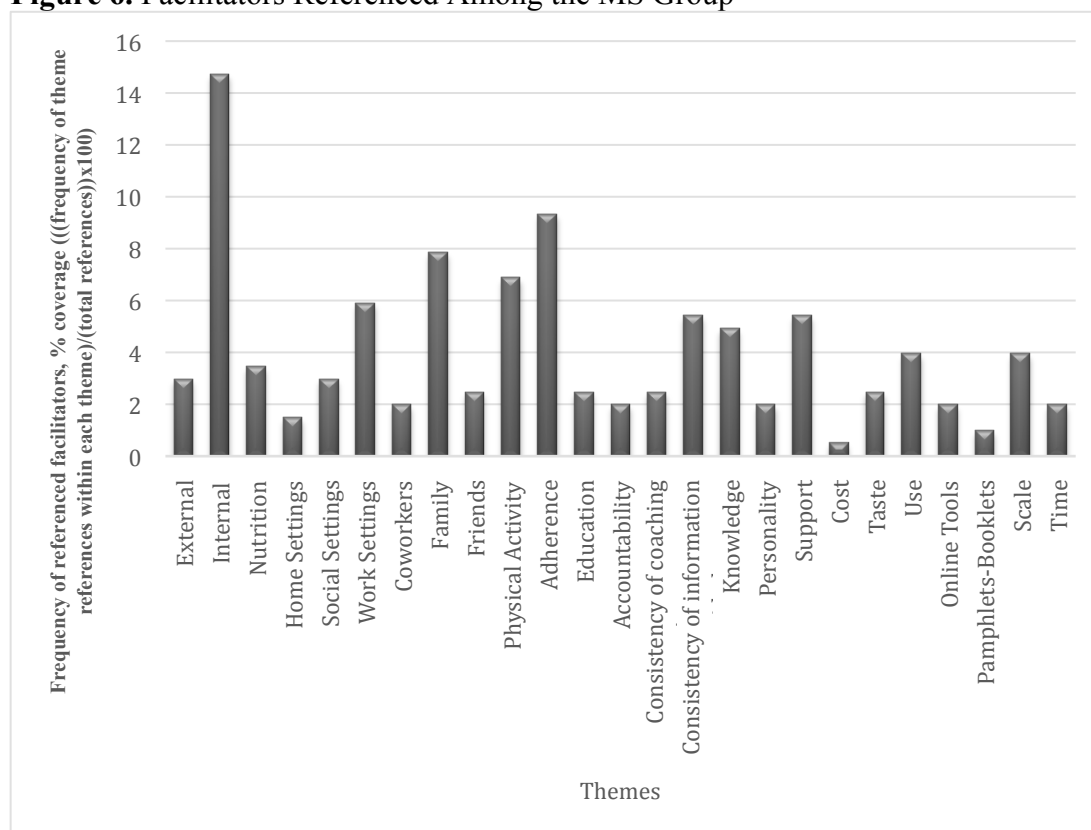
Figure 6. Facilitators Referenced Among the MS Group

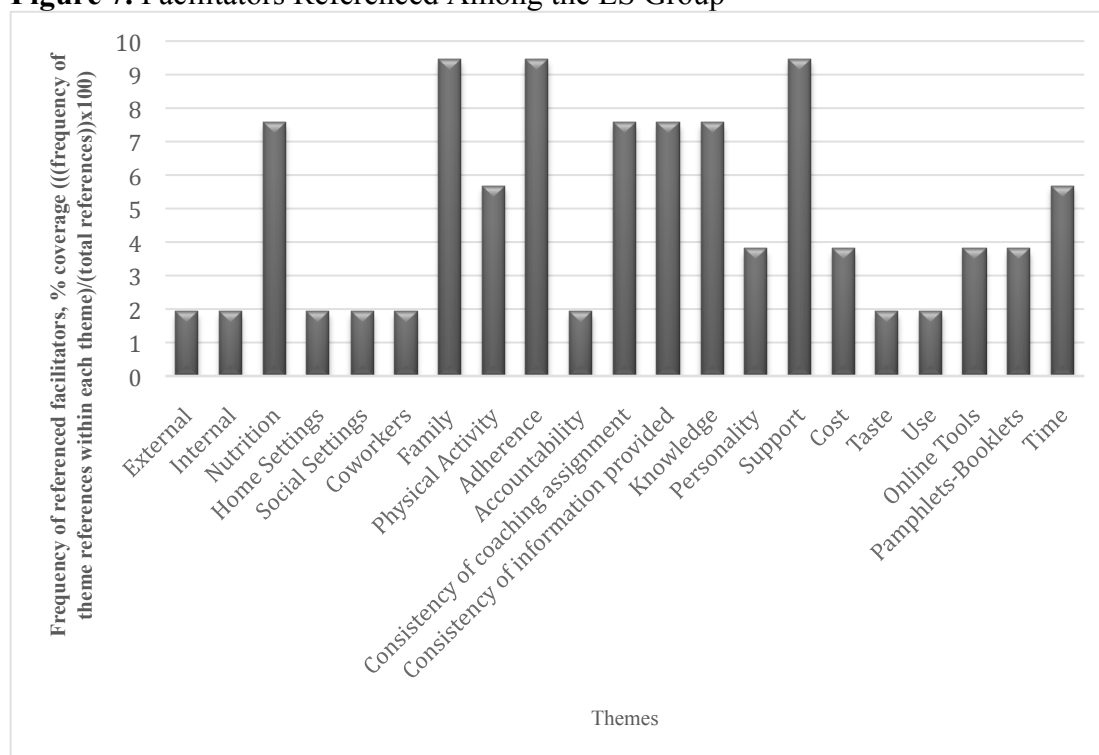
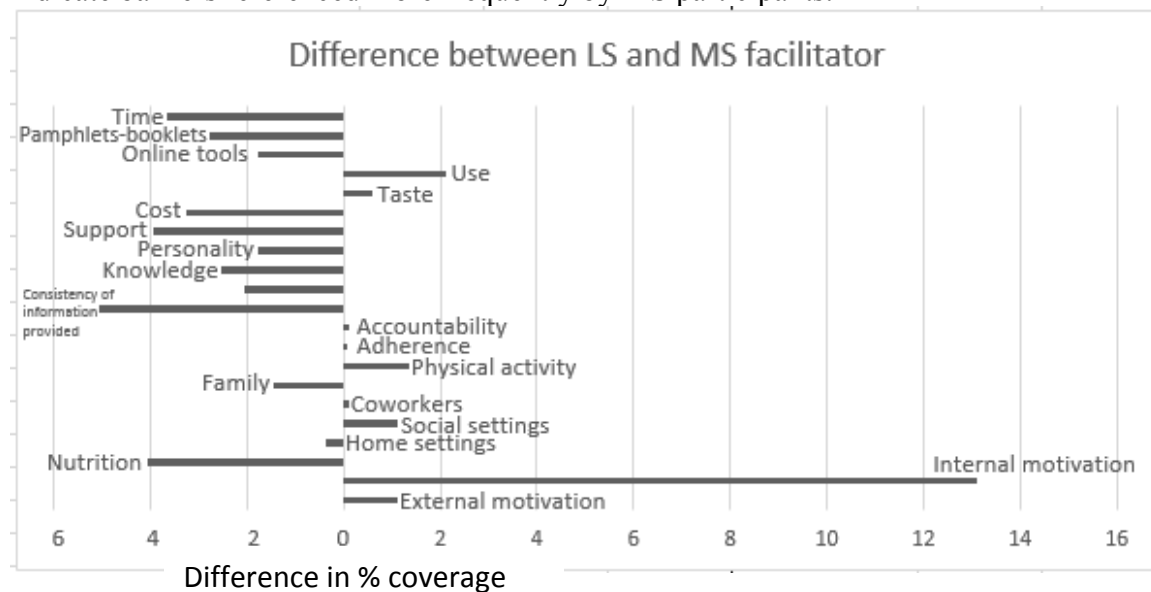
Figure 7. Facilitators Referenced Among the LS Group

Figure 8. Differences in Facilitators to Weight Loss Between Groups: All facilitators located to the left of the zero on the x-axis indicate barriers referenced more frequently by LS participants. In contrast, all facilitators located to the right of the zero on the x-axis indicate barriers referenced more frequently by MS participants.



% coverage of LS - % coverage of MS

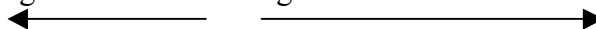


Table 1. Definitions of themes used in coding

Node	Defined
Motivation	
External	Motivation From An Outside Source
Internal	Motivation From Within Themselves
Nutrition	Anything Discussed Outside Of Profile Food Products
Outside Influence	
Environmental Situations	
Home Settings	Situations Taking Place At Home
Social Settings	Situations Outside Of Work Or At Home
Work Settings	Situations Taking Place At Work
Interpersonal Relationships	
Coworkers	Anything Discussed About Coworker Relationships
Family	Anything Discussed With Family Specifically
Friends	Discussions About Friends
Physical Activity	Discussions Of Physical Activity, Whether Within The Program Or Outside
Stress	Stresses Of The Participants Whether At Home, Work, From The Program, Etc.
Time	How Much Time Each Participant Has To Put Towards Healthy Living
Profile Program	
Adherence	Ability to stick to the MRP
Education	Knowledge gained (or not gained) about healthy living as a result of program participation
Health Coaches	

Accountability	How accountable participants feel their health coach (HC) hold them
Consistency of Coaching Assignment	Did participants have the same or different HC throughout
Consistency of Information Provided	Did each HC give participants consistent information
Knowledge	How knowledgeable the HC seemed about the program and healthy living
Personality	Whether the HC was personable
Support	Was the HC supportive or not
Profile Products	
Cost	Cost of the program and the products
Taste	Taste of the MR
Use	How the participants used the products in everyday life
Program Tools	
Measures	Height, weight, circumference measurements
Online Tools	Utilization of online information
Pamphlets/Booklets	Utilization of pamphlets provided by each profile store
Scale	Utilization of scale provided
Program Recommendations	Recommendations from participants regarding program improvement

Table 2. Demographic information for study participants (N=28)

Sex (N, %)	
Females	23, 82.14%
Males	5, 17.86%
Mean Age (Y)	49 \pm 2.14 (Range 28-70y)
Education (N, %)	
Did Not Complete High School	1, 3.57%
High School Graduate	2, 7.14%
Some College, No Degree	4, 14.29%
Associate's or Bachelor's Degree	18, 64.29%
Master's or Doctoral Degree	3, 10.71%
Currently Going To School	3, 10.71%
Relationship Status (N, %)	
Single	2, 7.14%
In A Relationship, Living With Partner, or Married	23, 82.14%
Widowed	1, 3.57%
Race (N, %)	
Black Or African American	1, 3.57%
White	27, 96.43%
Income (N, %)	
Annual Household Income \$30,000-79,999	14, 50%
Annual Household Income \$80,00-119,000	10, 35.71%
Annual Household Income >\$120,000	4, 14.29%

Table 3. Overall frequency of themes discussed in focus groups

Barriers*		Facilitators**	
Physical activity	10.9%	Internal motivation	12.1%
Profile program: adherence	8.6%	Profile program: adherence	9.3%
Social settings	8.6%	Family	8.2%
Health coach: knowledge	6.9%	Physical activity	6.6%
Nutrition	7.4%	Consistency of information provided	5.8%
Consistency of information provided	5.7%	Health coach: knowledge	5.5%
Profile products: use	5.7%	Work settings	4.7%
Profile products: taste	4.6%	Nutrition	4.3%
Education	4.6%	Profile products: use	3.5%
Consistency of coaching assignment	4.6%	Consistency of coaching assignment	3.5%
Profile products: cost	4%	Program tools: scale	3.1%
Home settings	3.4%	Social settings	2.7%
Stress	2.9%	Time	2.7%
Family	2.9%	External motivation	2.7%
Health coach: support	2.9%	Health coach: personality	2.3%
Time	2.9%	Taste	2.3%
		Online tools	2.3%
Personality, Internal motivation, Friends, Online tools, Work settings, Pamphlets-booklets, Program tools: scale, Health coach: accountability, Coworkers, Program tools: measures	All 2.3% or less	Coworkers, Health coach: accountability, Friends, Education, Home settings, Pamphlets-booklets, Profile products: cost	All 1.95% or less

*Percentages are out of 175 total codes to barrier node. **Percentages are out of 257 total codes to facilitator node.

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