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**ACCEPTABILITY AND FEASIBILITY OF A MULTICOMPONENT GROUP  
INTERVENTION TO INITIATE HEALTH BEHAVIOR CHANGE:  
THE KICKSTART HEALTH PROGRAM**

by

**SHANNON CLARK**

**DISSERTATION**

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

**DOCTOR OF PHILOSOPHY**

2019

MAJOR: PSYCHOLOGY (Clinical)

Approved By:

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Advisor

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## CHAPTER 1

### INTRODUCTION

#### Rationale

There is a growing need to address the difficulties that people facing trying to engage in a healthier lifestyle. It is recommended that individuals get 2.5 hours of moderately intense exercise and 2 or more days of muscle strengthening activities a week (CDC, 2016b); however, most Americans struggle to engage in physical activity even one day a week. At least a third of Americans would label themselves as inactive, with that number rising to 50% when looking at adults over the age of 75 (CDC, 2014). Inactivity can contribute to several negative outcomes, including heart disease, type II diabetes, breast and colon cancer, and overall shortened life expectancy (Lee et al., 2012). Surprisingly, most adults age 18-74 have reported that they are either inactive or highly active, with only a third reporting activity levels in the light to moderate range (CDC, 2014). It is not surprising, then, that two-thirds of Americans are overweight or obese (CDC, 2014). Programs aimed at health promotion should focus on how to engage inactive individuals in a healthier lifestyle. However, it is unclear how best to transition individuals from being inactive to highly active and how this change can be taught to the individuals who need the most help getting activity initiated.

In addition to physical activity, nutrition is a concern of health care professionals in the United States. Americans are improving their diets (Wilson, Reedy, & Krebs-Smith, 2016); yet, changes are not happening in sufficient time. Americans struggle with reducing their intake of added sugar (Bray & Popkin, 2014; Kit, Fakhouri, Park, Nielsen, & Ogden, 2013; Taubes, 2017), and while increasing whole fruit intake and reducing

unnecessary calories appears to be occurring, most Americans still struggle to consume other core nutrients and foods such as proteins, vegetables, and healthy fats (CDC, 2016a; Wilson et al., 2016). The negative effects of poor nutrition are extensive and contribute to obesity, cardiovascular difficulties, cancer, and psychological distress, such as depression (Bodnar & Wisner, 2005; CDC, 2016a; Marmot et al., 2007; Mente, de Koning, Shannon, & Anand, 2009).

The purpose of the current study is to offer a preliminary test of feasibility and acceptability for a group intervention, conducted in a primary care setting, that aims to teach skills that initiate health behavior change.

### **Need and Feasibility of Health Groups in Primary Care**

There is currently an extensively researched movement to integrate behavioral health specialists into primary care settings in order to better manage risky health behaviors (Ammerman, Lindquist, Lohr, & Hersey, 2002; Cummings & Cummings, 1997; Cummings, O'Donohue, & Ferguson, 2003; Eakin, Glasgow, & Riley, 2000; Hunter, Bodmeyer, & Reiter, 2018; Sandoval, Bell, Khatri, & Robinson, 2018; Serrano, Cordes, Cubic, & Daub, 2018). Despite an abundance of research, the best practices in which to deliver these services are still being debated (Goldstein, Whitlock, DePue, & Project, 2004; Whitlock, Orleans, Pender, & Allan, 2002). Preventative health programs target behavioral deficits that are commonly brought to an individual's attention by their family care physicians (e.g., poor eating habits, lack of physical activity, maladaptive stress coping, etc.), but research is needed to assess the feasibility and acceptability of these types of programs. Health care providers are not just seeking programs in which to enroll

their patients, but resources that can be easily utilized by both themselves and their patients, and further result in lasting change.

### **Research on Health Behavior Change Interventions**

Group interventions are commonly conducted in health care settings as they can provide services to several individuals at one time. Many studies have found support for the efficacy of health behavior change groups (Abood, Black, & Feral, 2003; Brown et al., 2015; Loh et al., 2015; Mirotznik, Feldman, & Stein, 1995; Ortega et al., 2014; Stacey, James, Chapman, Courneya, & Lubans, 2015; Turk, Elci, Resick, & Kalarchian, 2016). One study in particular, The Exercise and Nutrition to Enhance Recovery and Good Health for You (ENERGY) study, tested a health behavior development group for obese and overweight women diagnosed in the early stages of breast cancer (Rock et al., 2013; Rock et al., 2015). This study, compared to the others cited, drew from theory, and aimed to change health behaviors that are similar to the current intervention. In the ENERGY study, participants were encouraged to set small behavior change goals, engage in self-monitoring, and participate in both aerobic and strength-based exercises. Rock et al. (2013; 2015) also proposed that increases in self-efficacy, one's belief that he or she can engage in an action and that action is worthwhile, would be a mechanism of change. Researchers reported significant improvements in physical activity and weight loss for those who participated.

Although this study, and other similar studies, have found positive behavior change and weight loss using psychoeducation and cognitive behavior techniques, the experience that participants have taking part in these therapeutic activities is often not considered during program development. In addition, the cohesion and alliance among



group therapy members are rarely tested despite the importance of these variables in both therapeutic and exercise groups (Gillaspy, Wright, Campbell, Stokes, & Adinoff, 2002; Marziali, Munroe-Blum, & McCleary, 1997; Spink & Carron, 1994). Furthermore, the practicality of these groups in a clinical setting is also largely under-studied.

Experiential group therapy, a treatment modality that utilizes in vivo patient experiences to alter patient's behavior and emotions outside of therapy, is a component of the current study's health intervention described below and has been found to be helpful in addressing health behavior change as well. There is evidence that a relationship between an experiential source of motivation and one's health exists. First-hand experience with an activity may also increase one's self efficacy and intentions to engage in that activity again (Beauchamp, Rhodes, Kreutzer, & Rupert, 2011). Experience is a mechanism of learning; individuals learn and use what they learn to make decisions, influence their behaviors, and alter their beliefs about what is accessible in their life. This learning is influenced by the perceptions that are developed during these experiences (Bandura, 1977). By learning through experience, individuals can become their own source of expertise. A potential benefit in using experiential therapy in a health behavior change group may be that participants increase their self-efficacy, described in more detail below. Participants may become their own authority, encouraging behavior change from a perceived internal motivation as opposed to motivation perpetuated from a physician or therapist (Ellis & Kruglanski, 1992). One such study utilized an experiential approach to health behavior change. In this study, 52 predominantly African American adult women were sampled and provided with twice-weekly experiential or cognitive group therapy sessions (Washington, 1999).

Experiential therapy in this study by Washington (1999) was conducted by provoking real-time emotions and affect in session. Although experiential, this differs from the current intervention's design in which participants are asked to engage in active health-related activities. Results of this study showed that both groups increased significantly on general self-efficacy and decisiveness. A limitation to this study was that the combination of the two treatment modalities, experiential and cognitive-behavioral, was not tested. Experiential group therapy can look different across programs, and the current study aims to test a more active behavioral experience.

Another current research limitation is the insufficient measurement of how health behavior change groups fit into integrated care settings. Descriptive data on patient and physician acceptability is often not a primary outcome for health behavior intervention studies and this hampers efforts to integrate health behavior change groups into primary care settings. A study by Fuchs et al. (2016) attempted to address feasibility and acceptability while testing outcomes for an acceptance and mindfulness-based therapy group in a primary care setting. They found preliminary evidence that utilizing rolling recruitment, allowing patients to join at any time in the program, was a format that fit well into a medical setting. Although patients' self-reported anxiety and depression was improved, the group members reported that the one-hour group time limit restricted group discussion.

Measuring the effectiveness of a behavioral group therapy in medical settings should be combined with measures of reach, adoption, implementation, and maintenance (Glasgow, Klesges, Dzewaltowski, Bull, & Estabrooks, 2004). It is important to assess who is participating in health behavior change groups, how groups are being conducted

clinically outside of a research setting, and whether groups persist with regular individual participation. Research is limited in testing combinations of therapy that uniquely combine the best of many treatment modalities. The current study aimed to address these limitations while assessing the health behavior outcomes of a multicomponent group intervention.

### **Health Behavior Change Theories**

The program tested in the current study is based on tenets of the Health Belief Model (Rosenstock, 1990). The Health Belief Model (HBM) combines behavioral and cognitive schools of thought to explain why individuals may not engage in behaviors to prevent future health problems. From the perspective of the HBM, perceived susceptibility, severity, benefits, barriers, and other factors, such as socioeconomic status and relevant demographic variables, influence whether individuals who want to change their health behaviors follow through with change efforts. In a medical setting, physicians reinforce perceived susceptibility and severity by discussing the consequences of poor health and informing patients of the medical conditions for which they are at risk. Although the benefits of living a healthy lifestyle are often known, the risks associated with less healthy behaviors are not always sufficient to motivate change. The perception of even minor barriers can block one's engagement in behavior change as well. Furthermore, a lack of self-efficacy, a concept included in modern HBM models (Bandura, 1977; Rosenstock, 1990; Rosenstock, Strecher, & Becker, 1988), may lead to inaction and a lack of engagement in interventions aimed at health behavior change. According to the HBM, teaching patients to believe that their behaviors are under their own control, that

they can change their health by changing their behaviors, and instructing patients on how to remove barriers, may result in healthy behavior change.

The current study tested an intervention that aims to educate participants about the perceived benefits of health behavior change, decrease their barriers to change, and maximize self-efficacy. The immediate reinforcement of completing activities live, and in-session, instills the belief that once avoided exercises and other health-promoting activities can be completed outside of a therapy group setting. Participants may start to buy into the benefits of living a psychologically and physically healthy lifestyle, in part, because of their experiential exposure to healthy practices during session.

The current intervention also addressed barriers to change by utilizing problem solving techniques and fostering discussion about the challenges that participants are facing. Actively participating in health behaviors in session may also reduce some of the participants' need to find time and space for these activities outside of session. Cognitive barriers are also addressed via cognitive-behavioral, motivational interviewing, and acceptance and commitment based techniques, which are common in other health intervention groups (Martins & McNeil, 2009; Rock et al., 2013; Spahn et al., 2010; Weineland, Arvidsson, Kakoulidis, & Dahl, 2012; Wetherell et al., 2011).

Mindfulness based stress reduction is a component of acceptance and commitment therapy and provides patients with relief from both physical and psychological distress (Brantley, 2005; Grossman, Niemann, Schmidt, & Walach, 2004; Salmon, Sephton, & Dreeben, 2011). Given that poor mental health can be a barrier to physical health (Prince et al., 2007), cognitive, acceptance, and mindfulness techniques are woven throughout the proposed group therapy to address psychological functioning.

The current intervention also takes a person-centered approach to decreasing cognitive and emotional barriers (Boulware et al., 2001; K. Davis, Schoenbaum, & Audet, 2005; Stewart et al., 2000). The facilitator's non-judgmental, individual focused style conceptualizes guilt, shame, and embarrassment as normal feelings that serve as barriers to changing one's behavior.

Further, anticipated increases in self-efficacy may foster the belief that the behaviors are worth the subsequent improvements on one's health and motivate participants to continue to engage in health behaviors outside of group sessions. Experiential exposure to physical activity and other health behaviors during the sessions allows for the participant to see themselves as an expert and a source of knowledge (Beauchamp et al., 2011; Ellis & Kruglanski, 1992).

Overall, an increase in self-efficacy and perceived benefits and a decrease in perceived barriers are expected to serve as mechanisms for behavior change. Further details regarding the multicomponent elements of the group are provided below.

### **The Kickstart Health Program**

The intervention tested was the Kickstart Health Program. The title reflects the program's multicomponent approach to initiating behavior change among individuals who struggle to take their first steps towards engaging in a healthier life.

**Targeted Behaviors.** The Kickstart Health Program, developed in the current study, aims to improve two sets of behaviors commonly associated with good health outcomes: healthy eating behaviors and physical activity. The benefits of regular physical activity are extensive and include weight control, reduced cardiovascular risk, reduced risk of type II diabetes, muscle and bone strengthening, reduced cancer risk, increased

mental health, fall prevention, and overall increased life expectancy (CDC, 2016b). Exercise can also influence one's cognitive, neural, and emotional functioning, particularly among older adults (Gothe et al., 2011; Voss, Erickson, et al., 2013; Voss, Heo, et al., 2013; Voss et al., 2010).

The benefits of eating healthy and following a nutritious diet are also extensive and well established. Healthy eating behaviors that improve one's diet can lead to reduced risk for stroke, type II diabetes, high blood pressure, and can also influence mood and cognitive functioning (USDA, 2016; Zainuddin & Thuret, 2012). Moreover, diet change with exercise produces more rapid results that are more likely to be maintained (Curioni & Lourenco, 2005).

**Treatment components.** The Kickstart Health Program is a Cognitive-Behavioral Experiential Therapy (CBET) administered via a person-centered group therapy format. Participants receive multiple therapeutic components and are told that the group will provide them with skills and tools they can use repeatedly over time to initiate behavior change. Although this program is skills based, it differs from traditional group therapy and health education classes. Outlined below are brief descriptions of both the unique elements of the Kickstart Health Program and the traditional components included in the program that are common in other health behavior change groups. A list of specific session-by-session activities is provided in Table 1.

Table 1. Session

Components	Session					
	1	2	3	4	5	6
Introduction/ Review	List 3 positive behavior changes, 3 barriers to behavior change, and discuss.	List 3 positive behavior changes, 3 barriers to behavior change, and discuss.	List 3 positive behavior changes, 3 barriers to behavior change, and discuss.	List 3 positive behavior changes, 3 barriers to behavior change, and discuss.	List 3 positive behavior changes, 3 barriers to behavior change, and discuss.	List 3 positive behavior changes, 3 barriers to behavior change, and discuss.
Psychoeducation	Welcome Packet and CDC Handouts (See Appx. A)	As needed based on participant barriers	As needed based on participant barriers	As needed based on participant barriers	As needed based on participant barriers	As needed based on participant barriers
Writing Activity	“Checking My Motivation” (See Appx. B)	“Don’t Fix Me, Appreciate Me” (See Appx. C)	“Bring on the Barrier Brigade” (See Appx. D)	“Establishing Values” (See Appx. E)	“Setting Values-Based Goals” (See Appx. F)	“My New Life Story” (See Appx. G)
Experiential Components	Walking and a “3-minute mindful check-in” (See Appx. H)	Strength training and mindful eating (completed with a raisin; see Appx. I)	Cardio kickboxing and a guided meditation (“The Body Scan”; see Appx. J)	Cardio dance and a guided meditation (“Leaves on a Stream”; see Appx. K)	Yoga and a guided meditation (“Loving-kindness”; see Appx. L)	Exercise and meditation are patients’ choice this week
Goal-Setting	Complete a food diary 1 day a week. Complete 5 minutes (min) of exercise twice a week. Complete a 3-min meditation 1 day a week.	Complete a food diary 2 days a week. Complete 10 min of exercise twice a week. Complete a 3-min meditation 2 days a week.	Complete a food diary 3 days a week. Complete 6 min of exercise 4 days a week or complete 5 min of exercise 3 days a week. Complete a 5-min meditation 3 days a week.	Complete a food diary 4 days a week. Complete 6 min of exercise 5 days a week or 10 min of exercise 3 days a week. Complete a 5-min meditation 4 days a week or a 10-min meditation 2 days a week.	Complete a food diary 5 days. Complete 7 min of exercise 6 days a week, 15 min of exercise 4 days a week, or 30 min of exercise 3 days a week. Complete a 5-min meditation 5 days a week or a 10-min meditation 3 days a week.	Complete a food diary 6 days. Complete 10 min of exercise 6 days a week, 15 min of exercise 4 days a week, or 30 min of exercise 3 days a week. Complete a 5-min meditation 5 days a week, a 10-min meditation 3 days a week, or a 15-min meditation 2 days a week.

**Program Delivery.** The Kickstart Health Program is delivered with a person-centered focus, an approach common in modern health care (Boulware et al., 2001; K. Davis et al., 2005; Stewart et al., 2000). Patients in a clinical setting do well with a person-centered approach, and outcomes are improved when a person-centered approach is paired with structured training (Boulware et al., 2001). While research already supports a patient-centered approach in primary care settings (K. Davis et al., 2005; Stewart et al., 2000), the current study takes this concept a step further by offering a body positive, nonjudgmental attitude towards health behavior change. Participants are asked to assess their confidence and motivation and the facilitator aims to validate and motivate the participant by avoiding a lecture style of teaching, but instead, encouraging participants to choose their own value-based goals for change. Facilitators are careful to not make participants feel forced to change by increasing guilt as this may instill the belief that the program is not for the participant's benefit, but punishment.

The facilitator in the Kickstart Health Program attempts to find each participant's individual motivation and helps tailor the program to meet their needs. Participants are asked to focus less on weight loss goals or aspects of their health that they feel are lacking, but rather to change their behaviors because they see themselves as worthy of such self-care. Writing activities ask participants to consider what they will be able to do after they change their behavior, what goals they see themselves accomplishing, and what lifestyle they would be living if they were to make health behavior changes. Participants are encouraged to focus less on aspects of their lives that have been limited by their past choices. This program takes patient-centered, positive focused care to a deeper level by not only utilizing this approach as an overarching theme to the program,



but by also embedding these concepts into of the worksheets and discussions themselves.

A unique element added to the Kickstart Health Program was the schedule. Groups were offered every week, but on alternating days (i.e., Tuesday nights one week and Thursday mornings the following week), which provided more flexibility for busy patients. Recruitment was also rolling, meaning that participants could join the program at any time and could return to session after any pause in attendance. Some evidence suggests that this approach to behavioral intervention group formatting is feasible in a primary care setting (Fuchs et al., 2016); however, research is needed to address how well such a format improves attendance and patient reach within that setting. Attrition can be a large barrier to the success of outpatient services and therapy groups in primary care (Martin, Perfect, & Mantle, 2005; Murdock, Rodgers, Lindsay, & Tham, 2002; Neal, Hussain-Gambles, Allgar, Lawlor, & Dempsey, 2005). Given the importance of group attendance on successful outcomes (MacNair-Semands, 2002), it is vital that studies assessing the feasibility of health promotion groups consider attendance and means to increase it.

**Psychoeducation.** The first session of the Kickstart Health Program included a welcome packet that provided patients with psychoeducation handouts (See Appx A). Patients were also provided with health-related resources obtained from the Center for Disease Control (CDC; e.g., nutrition and physical activity educational packets). These handouts included tips on how to read a nutrition label, ask for support from loved ones, and set up one's home to encourage healthy behaviors (e.g., placing exercise equipment near a TV). Referrals and resources were also provided to participants (e.g., list of gyms

in the community, lists of book and video resources, etc.). The facilitator provided additional education throughout sessions based on what topics patients discussed.

**Barrier Reduction.** Sessions began with a discussion of successful behavior changes that occurred since the patient's last session. Patients were praised for any positive behaviors they have completed. The group discussed barriers that interfered with accomplishing goals and then engaged in a brief problem-solving discussion to address these barriers.

**Experiential Exposure.** Experiential exposure is a unique piece to the Kickstart Health Program that few health programs utilize. The Kickstart Health Program uses active, in-vivo practice of meditation and various exercises to provide an experiential component to the group. Meditations included attending to the sensations of one's body, mindful eating, and guided imagery. Exercises completed in the group included walking, cardio kickboxing, dance, and strength training to incorporate a variety of activities that covered the CDC's physical activity guidelines. The activities offered participants a chance to practice exercise modalities that they may want to continue outside of the group.

**Cognitive and Behavioral Elements.** Knowing that food choices are first and foremost made on taste (Glanz, Basil, Maibach, Goldberg, & Snyder, 1998), the Kickstart Health Program provides behavior change strategies, such as shaping healthy eating behaviors and pairing healthy foods with enjoyable foods, to adjust what foods individuals include in their diet. In turn, healthier options may become more appealing and worth any associated real or perceived costs. Self-monitoring is also taught by encouraging participants to complete a food diary at home. While self-monitoring is key to beginning

any individual's process of changing their eating behaviors, it may also serve as a catalyst for behavior change (Nelson, Boykin, & Hayes, 1982; Nelson & Hayes, 1981). For many, writing down and becoming aware of the foods consumed throughout one's day may be enough to get some individuals to alter their eating habits.

**Acceptance and Mindfulness-based Components.** At each session, participants were also asked to complete writing activities that were drawn from acceptance and commitment-based treatments (ACT) for weight loss (Lillis, Dahl, & Weineland, 2014). These activities taught "defusion," separation from negative thoughts and rules about one's health behaviors (e.g., "I cannot work out past 8 pm. That's too late."). The ACT worksheets and the meditations practiced in session also promoted a non-judgmental, present focused attitude. This was also reinforced by the facilitator in session and throughout the delivery of the treatment. Participants were further taught to sit with difficult emotions and increase their tolerance to uncomfortable thoughts and feelings. These are core skills taught in acceptance and mindfulness-based programs.

Mindfulness is a form of stress reduction that provides relief from both physical and psychological distress (Brantley, 2005; Grossman et al., 2004; Salmon et al., 2011). There is substantial evidence that this method of coping is helpful among populations that suffer from not just psychological distress, but chronic health problems as well (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; M. C. Davis, Zautra, Wolf, Tennen, & Yeung, 2015; Grossman et al., 2004; Kabat-Zinn, Lipworth, & Burney, 1985; Thompson & McCracken, 2011). Specifically, mindfulness-based stress reduction results in improved health related well-being (Reibel, Greeson, Brainard, & Rosenzweig, 2001) and reductions in problematic eating behaviors (Alberts, Thewissen, & Raes, 2012; Dalen et

al., 2010; Daubenmier et al., 2011; Kristeller & Wolever, 2011; Mantzios & Wilson, 2015), two outcomes that were assessed in the current study. These skills complemented the experiential elements of the therapy and aimed to teach healthy stress coping behaviors that contribute to one's overall health.

## **Research Questions**

The current study had the following aims:

*1. To test participant adherence to and the feasibility of a new intervention.*

There is limited research on the practicality of conducting active groups (Kolden et al., 2002), especially in a medical setting. The current intervention offered sessions on a non-traditional schedule (e.g., semi-monthly with rolling recruitment versus weekly sessions that must be attended in a series). The feasibility of this type of schedule has promising but limited evidence.

*2. To test the acceptability of a new intervention.*

2a. Participant Acceptability

First, it was expected that patients would find the Kickstart Health Program not only satisfactory and enjoyable but useful in changing their health behaviors. Further, it was anticipated that patients would report that the experiential components and person-centered focus of the group contributed to their acceptability of such an intervention.

2b. Provider Acceptability

It was also expected that this multicomponent group intervention would produce satisfaction among physicians that practice within the facility where the group was conducted. It is important to assess whether physicians feel that this type of group provides an integrated health option that they would recommend to their patients. It is

also important to consider if this type of group, offered in a primary care setting, helps patients adhere to the health behavior changes that physicians recommend during medical appointments.

*3. To test the extent to which participants in the new intervention report behavior change and improvements in health and well-being.*

Finally, the current study assessed the extent to which the Kickstart Health Program resulted in positive outcomes for patients who participated. It was hypothesized that participants who attend more than one session would experience increases in health-related self-efficacy, beliefs and benefits of healthy living, and overall well-being compared to baseline. Further, it is anticipated that participants would increase their frequency of physical activity, improve their diet and eating behaviors, and increase the frequency of mental health promoting activities, such as mindfulness meditation.

## CHAPTER 2

### METHOD

#### **Participants**

Participants were recruited from a patient population within the Beaumont Health System - Family Medicine Clinic located in a Sterling Heights, Michigan. Adults over the age of 18 were eligible to participate, and no pre-existing medical conditions admitted or restricted an individual from joining the group. Inclusion criteria were only that patients were English-speaking and able to complete online surveys (e.g., had internet access, had a computer or device with a web browser, etc.). Patients were also required to have medical clearance from their primary physician to participate in the study. Signed clearance forms were distributed and collected by study personnel prior to patient's first session, and all participants in the current study were medically cleared to participate.

#### **Procedure**

Compliance with ethical standards was demonstrated through Institutional Review Board (IRB) approval from both the Beaumont Health System IRB/Human Research Committee and Wayne State University IRB. Patients were recruited via three different methods. First, physicians provided investigators with a list of patients who they identified as interested or likely to benefit from the program. Patients were also recruited via physicians and behavioral health provider referrals provided during medical appointments and behavioral health visits. Finally, flyers and advertisements were located throughout the Family Medicine Center, and patients could refer themselves to the group. Recruited patients were called by a researcher, given a summary of the study, informed

of the different group meeting times, and pending a verbal statement of interest, provided their email address.

During the initial call, patients identified the physician they had the most contact with in the practice, and that physician was sent an information sheet via email by a researcher. After patients agreed to receive the welcome email, which contained the online link to complete the baseline survey, patient participants were identified with a numeric ID. For patient participants, the first page of the baseline survey was an information sheet and they were required to click "next" before entering the survey, acknowledging their consent to participate.

In the baseline survey, patients were asked to complete questions related to health, wellness, nutrition, physical activity, basic demographic information, and baseline weight and activity levels (see measures below). Patient participants were also asked to complete follow-up surveys that included most measures collected at baseline as well as questions related to satisfaction with treatment, elements of the program they found most/least helpful, and aspects of the group that affected their attendance. These surveys were also administered online via an emailed link and given at 5- and 10- week intervals (+/- 5 weeks) after the patients completed their baseline survey. Patients were compensated with a \$25 Amazon gift card for completion of each of the three surveys; thus, patients were eligible to receive a total of \$75 dollars in Amazon gift cards. The only other compensation patients received was a pedometer (cost per device = \$16.98) and free physical activity manuals provided by the Center for Disease Control. No other compensation was provided throughout the study.

When patients received each follow-up survey, it was planned that a brief 5-item survey would be administered simultaneously to that patient's identified primary physician. However, due to limited variability in providers (i.e., several patients were referred from the same provider), this survey was not utilized and was replaced with an alternative acceptability and feasibility survey given at study completion to all faculty and staff practicing at the clinic. The physician follow-up survey given at study completion assessed all provider's satisfaction with the group, the ease in which they could refer patients to the group, and whether they found the group helpful in integrating care for their patients. Provider surveys were delivered via an emailed link. All acceptability and feasibility surveys described below were constructed for the current study in order to better assess specific elements to this particular program and setting. All surveys during the study were administered through Qualtrics, a web-based survey service, with the exception of a final, 2-question survey sent at study completion to patients who expressed interest in the program but never attended. This survey was sent as text in an email. All study records were kept on SharePoint, a third-party, HIPAA compliant web-based collaborative platform.

Patients were also encouraged (although not required, due to anticipated burden) to keep a daily food, exercise, and meditation log. This log was sent to patients' email via a Qualtrics link and took 5-10 minutes to complete. Patients were encouraged to complete the log as often as possible; however, given that only one patient regularly completed the diary, the diary data was not utilized in the current study.



## **Intervention Implementation**

Each group of the Kickstart Health Program met semi-monthly (two times per month) on either a Tuesday evening or a Thursday afternoon. Groups met in classrooms located within the building that housed the family medicine practice. Groups were conducted with rolling recruitment for 8 months (November 2017 – June 2018). That is, participants could join the program at any time. Groups met for 1.5 hours to provide sufficient time to complete writing assignments, discuss barriers, and complete both a meditation and a physical activity. Typically, one facilitator was present during groups; however, additional study personnel may have been present for training purposes or observation. Participants were encouraged to attend as many sessions as possible with a recommendation of at least 6 total sessions, at which point session activities began to repeat. Attendance was recorded at the beginning of every session. A monthly reminder email was sent to all patients who had not attended for at least 4 weeks. Patients could continue to attend groups until study completion. Additionally, the group facilitator kept a de-identified diary of relevant themes and comments that occurred during every session to be used in qualitative analyses.

## **Measures**

**Demographics and medical history.** Basic demographic information was collected for each patient participant. This information included age, date of birth, gender identity, level of education, marital status, and employment status.

A 60-item questionnaire was administered at baseline to collect data on each patient's personal health history. This measure included questions about general and

cardiac health, allergies, medications, treatments and surgeries, and alcohol, tobacco, and drug use. This measures also assessed height and weight.

**Patient/physician acceptability and feasibility.** Participants completed a 20-item questionnaire developed specifically for the current study that assessed participants' satisfaction with the program, what elements they found most and least helpful, and what aspects of the group affected their attendance. Additionally, a brief 5-item survey was administered to the corresponding patient's primary physician at the same time that patients received their follow-up surveys (i.e., at 5 and 10 weeks after the patient completed their baseline survey). The 5-minute physician survey assessed their satisfaction with the group, the ease with which they could refer patients to the group, and whether they found the group helpful in integrating care for their patients.

Given the small sample size of patients who attended the group ( $n = 13$ ), only 9 of the 52 physicians working in the clinic received the 5-min follow-up surveys sent concurrently with the patient follow-up surveys. Six of those physicians completed the 5-week follow-up survey, and 3 completed the additional follow-up at 10 weeks. In order to survey more physicians who may have referred patients to the program, a final physician acceptability and feasibility survey was given at the completion of the study to all physicians and providers within the family medicine clinic. This final survey assessed each physician's satisfaction with the group, including the ease of referral. It also assessed for the frequency with which providers referred patients to the Kickstart Health Program over the course of the study. Providers were also asked open-ended questions about the program, allowing them to give feedback they wanted to share themselves or had received from their patients.

In addition to the provider survey, a survey was also administered at study close to patients who completed a baseline survey, enrolled in the study, but never attended a session. Those participants were emailed and asked the following questions: 1) What prevented you from attending the program?, 2) Would you prefer the program in a different format, such as online, as a single 2-3-hour seminar, or as 3-4 individual sessions?, and 3) Do you think the format is good, but you were just unable to attend? Two patients responded to this survey. Notably, these patients had also elected to complete both follow-ups despite not attending a session. Thus, this survey was ineffective at gathering additional acceptability data from patients who were interested, but unable to attend a group. For those patients who did not attend a group but completed the 2-question follow-up survey, their barriers to attendance are reflected in the qualitative data analyses of the 5- and 10-week follow-ups.

Finally, throughout the study, a diary of de-identified session notes, difficulties with implementation, and patient feedback was kept by the facilitator, and this information was used for qualitative analyses of acceptability and feasibility.

**Perceptions of group dynamic.** The Group Attitude Scale (GAS) was also included in both follow-up surveys. The GAS is a 20-item measure of participant attraction to a therapeutic group (Evans & Jarvis, 1986). This measure is related to group cohesion and asks members whether they agree or disagree on a 9-point Likert scale to statements like, "I feel included in my group," or "I feel distant from the group." Reliability for the GAS has been good across several general population and therapeutic groups ( $\alpha = .90 - .97$ ; (Evans & Jarvis, 1986).

**Health specific self-efficacy.** The Health Specific Self Efficacy Scale is a 10-item measure of the relationship between one's belief that they can engage in a behavior, their intentions to engage in that behavior, and whether or not the behavior is completed (Schwarzer & Renner, 2009). These scales measure one's self-efficacy related to health variables, specifically nutrition and exercise. Participants were asked to rate from very uncertain to very certain that they could manage to stick with healthy eating or exercise under a variety of conditions, such as when one is feeling depressed or several tries are required to get something correct. Initial reliability for the nutritional and exercise subscales were .87 and .88, respectively, and both scales were validated with measures of healthy diet and exercise (Schwarzer & Renner, 2009).

Participants were also administered questions derived from the Health Belief Model (HBM) Scales that also assessed domains of self-efficacy associated with specifically physical activity (Hayslip Jr, Weigand, Weinberg, Richardson, & Jackson, 1996). Items for the HBM Scales are measured on a 5-point Likert scale. Internal consistency for this measure was above .80 (Hayslip Jr et al., 1996) and validity was present among varied age and demographic samples for all 5 subscales: barriers to exercise, benefits to exercise, cues to action, susceptibility to health problems, and social influence/support to exercise. Higher scores on all scales were anticipated to indicate an increased likelihood that one would engage in physical activity (Hayslip Jr et al., 1996).

**Nutrition.** Patient participants were given the Simple Food Frequency Questionnaire (S-FFQ). This questionnaire provides a frequency measure of food consumption across various food groups, including fats, dairy, meat, fruits, vegetables, breads/pasta, sugary snacks/drinks, etc. Participants rated on a 5-point Likert scale how

often they felt they consumed each type of food. This measure was revised to better account for current food trends (e.g., separating types of vegetables and breads).

Patients were also surveyed on how many days per week they used a food diary to record daily nutrition as well as what percentage of their total daily food intake they recorded, on average, in their diary.

**Exercise and health behaviors.** At baseline, patient participants were also administered the International Physical Activity Questionnaire (IPAQ). This measure provides 4 questionnaires on health-related physical activity: job-related physical activity, transportation-related activity, activity from housework and caring for family, and activity from recreation, including sport and leisure. This measure asked participants to report the number of days and hours per day that they engaged in physical activity over the course of a week (IPAQ, 2010). Self-report measures of average daily step count were also collected, and participants were given pedometers to wear in order to track their daily number of steps.

Finally, patients were surveyed on how many days per week and for how many minutes at a time they engaged in mindfulness meditation.

**Overall Health and well-being.** The Satisfaction with Life (SWL) Scale was used to assess participant overall well-being and happiness (Diener, Emmons, Larsen, & Griffin, 1985). This scale is a brief 5-item measure that requires participants to respond on a 7-point Likert scale their level of agreement to various statements related to global life satisfaction (e.g., "In most ways, my life is close to my ideal."). Initial reliability for the SWL scale was 0.87 (Diener et al., 1985).

The Short Form-8 (SF-8) health survey questionnaire was also utilized as a measure of patients' overall perceived health (Ware, Kosinski, Dewey, & Gandek, 2001). This scale uses a single item to measure each of the 8 health dimensions included in the original SF-36 (Brazier et al., 1992). Functional status was assessed by measuring participant physical functioning, social functioning, and physical problems. Participants' mental health rating was also measured with this scale. The SF-8 assessed patients' overall evaluation of their health by measuring health perceptions and perceived changes in health. Although a brief, 2-minute survey, the SF-8 has yielded reliability scores ranging from .70 to .88 when comparing each item to the corresponding items on the original SF-36 (Turner-Bowker, Bayliss, Ware, & Kosinski, 2003). This survey of perceived health has been validated among a general population as well as populations with varying diagnoses of chronic illness (Ellert, Lampert, & Ravens-Sieberer, 2005; Lefante, Harmon, Ashby, Barnard, & Webber, 2005; Turner-Bowker et al., 2003; Ware et al., 2001).

**Timeline.** Eligible patients were emailed the baseline survey prior to their first session. Baseline surveys included all measures listed above except acceptability and feasibility and The Group Attitudes Scale. Follow-up surveys were administered to physicians and patient participants at 5- and 10-weeks (+/- 5 weeks) after the patient had completed their baseline survey. Follow-up measures included all above measures except patient demographics and medical history. The additional acceptability and feasibility surveys given at study completion, described in more detail above, did not include behavioral and health outcome measures, but a set of Likert and open-ended questions related to both patient and provider satisfaction with the program. A list of all measures and the time points in which they were administered can be found in Table 2.

Table 2. Timeline of Data Collection

	Baseline (45 min)	Daily (5-10 min)	Follow-Up: 5-weeks from baseline (30 min)	Follow-Up: 10-weeks from baseline (30 min)	Study Completion (5 min)
Personal Medical History Questionnaire	X				
Health Specific Self Efficacy (HSSE) Scale	X		X	X	
Health Belief Model (HMB) Scales	X		X	X	
Short Form Health Survey-8 (SF-8)	X		X	X	
Satisfaction with Life (SWL) Scale	X		X	X	
International Physical Activity Questionnaire (IPAQ)	X		X	X	
Simplified Food Frequency Questionnaire (SFFQ)	X		X	X	
Weight	X		X	X	
Average Weekly Steps	X		X	X	
The Group Attitudes Scale (GAS)			X	X	
Acceptability and Feasibility			X	X	X*
Food diary use frequency	X		X	X	
Meditation Frequency	X		X	X	
Food, Exercise, and Meditation Log		X			

Note. \*Brief acceptability and feasibility surveys were administered at study completion to only patients who consented to the study, but never attended a group, and all medicine center faculty and staff, regardless of whether or not they had a patient enrolled in the study.

## CHAPTER 3

### RESULTS

#### Data Screening

The data were screened for outliers and significant skewness and kurtosis. Assumptions of normality were also examined, as were missing data. No univariate outliers were detected. In general, if patients recorded a range on any item (e.g., 2-4 days), the average was recorded (e.g., 3 days). If data were missing on measures of activity that yielded high rates of no responding (e.g., IPAQ, mindfulness days, food diary days, etc.), or frequency measures that did not yield total scores (i.e., SFF), the missing data were recorded as “no endorsement,” “none,” or zero. On the remaining measures, if a patient was missing less than 10% of the items on any one scale, the missing item was replaced with the sample mean of that item. If cases were missing more than 10% of the items, a total score on that measure was not recorded for that individual. This is a conservative method of managing missing data (Tabachnick & Fidell, 2012).

**Baseline data.** Missing data were detected on baseline responses to the Health Belief Model (HBM) Scale. Six cases were missing less than 10% of the items on this measure and missing data were replaced with the individual item mean. No patterns of missing data were detected. One case (ID #20) was missing more than 10% of the items on the HBM scale and their score was not included in final analyses. Notably, this case did not attend a session and outcome analyses were run only on patients who had attend at least once. Thus, deletion of this case had no effect on primary outcome analyses; however, this patient was removed from exploratory analyses of the baseline HBM scales.



Missing data were also detected on baseline responses to the Simple Food Frequency (SFF) questionnaire. Two cases were missing <10% of scores on this measure. Given that this item is a frequency measure that does not produce a total score, missing data were treated as “never” responses and replaced with a “1.” No patterns of missing data were detected. One case (ID #24) was missing more than 10% of the items on this measure. This case also did not attend a session; thus, deletion had no effect on primary outcome analyses.

Finally, one case (ID #20) was missing >10% of the items on the Satisfaction with Life Scale at baseline. Again, this case did not attend any sessions; thus, absence of their total score had no effect on primary outcome analyses conducted on those who attended.

**Follow-up Data.** One case (ID #1) was missing one item on The Group Attitudes Scale (GAS). Given that this was <10% of the total scale items, the missing item was replaced with the sample average score on that item. Furthermore, this case was missing the majority of items on measures of activity (IPAQ). This patient attended one session and completed only the 5-week follow-up; thus, this patient was only removed from analyses conducted on the 5-week IPAQ scores. This was the only case removed that impacted primary outcome analyses and is noted in the results below.

Only one case (ID #46) was missing follow-up data on the Simple Food Frequency (SFF) questionnaire. Again, given that this is a frequency measure of food consumption and no total score is calculated, this missing item was replaced with a “1” endorsing “never” in response to that item.

On qualitative measures of acceptability and feasibility, missing data on any one response did not result in deletion of that case from analyses given that no response was

acceptable. Results tables below note response rates for patients and physicians on qualitative measures of acceptability and feasibility.

## Reliability

Cronbach's alpha was calculated for all measures used in the current study that produced a total score. Measures were reliable at all time points (Table 3).

Table 3. Reliability (Cronbach's  $\alpha$ ) for multi-item Likert measures at all times points of measurement.

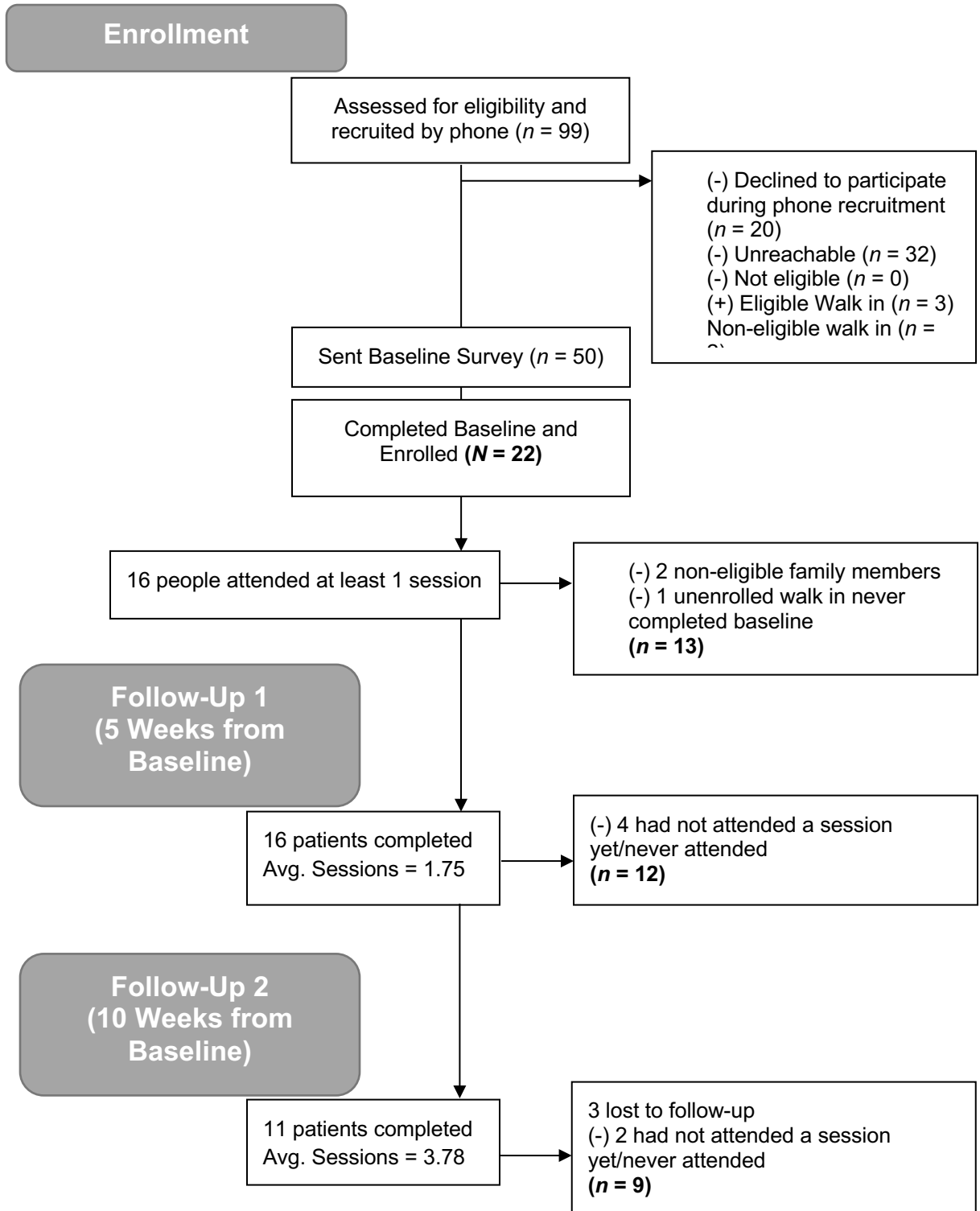
	Cronbach's $\alpha$		
	Baseline (N = 22)	5-Wk Follow-up (n = 12)	10-Wk Follow-Up (n = 9)
Health Related Self Efficacy (HSSE) - Food	.87	.87	.92
HSSE - Exercise	.89	.93	.97
Health Belief Model (HBM) Scales			
<i>Exercise barriers</i>	.77	.85	.73
<i>Exercise benefits</i>	.92	.91	.94
<i>Cues to exercise</i>	.81	.87	.84
<i>Perceived risk</i>	.89	.87	.91
<i>Social influence</i>	.68	.68	.79
Short Form - 8 (SF- 8) Health Questionnaire	.86	.89	.96
Satisfaction with Life (SWL)	.86	.92	.95
Group Attitudes Scale (GAS)	---	.92	.91

## Preliminary Analyses

Of the 22 total patients who completed a baseline assessment, 16 (72.7%) completed a 5-week follow-up survey. At this time point, 4 of those patients had not attended a session yet; thus, total patients included in the 5-week outcome analyses were 12. Eleven patients completed the 10-week follow-up, and 2 patients had not attended a session when they were surveyed. Thus, 9 patients were included in 10-week outcome analyses. At study completion, one patient attended a session who had already completed both the 5- and 10-week follow-up surveys prior to attending any sessions.

Thus, total enrolled “attenders” for the Kickstart Health Program was 13 for exploratory analyses looking at differences between those who did and did not attend at least one session of the Kickstart Health Program. See Figure 1 for a summary of recruitment and follow-up.

Figure 1. CONSORT Diagram.



The RE-AIM approach to assessing health behavior change interventions was utilized for this study (Re-aim.org., 2017). The domains of analysis included in the RE-AIM approach are Reach, Efficacy, Adoption, Implementation, and Maintenance of the program. The current study's reach is captured in the demographics portion of the results. Aims 1 and 2 of the study capture the domain of implementation. Efficacy is reflected in the results for Aim 3. Maintenance and adoption were not assessed in the current study as the program was only implemented at a single site and groups were not continued following the completion of the study.

**Demographics.** Although only adults aged 18 and older participated, patients who enrolled in the study varied in age ( $M = 41.00$ ,  $SD = 16.26$ , range: 19-70). Participants were predominantly women (women  $n = 20$ , men  $n = 2$ ), and this reflected the gender distribution of all patients referred to or who expressed interest in the program. Most patients who enrolled in the study identified as Caucasian (68.2%,  $n = 15$ ). The remaining patients self-identified as African American ( $n = 2$ ), Arab or Middle Eastern ( $n = 2$ ), Hispanic/Latinx ( $n = 1$ ), or Asian Indian ( $n = 1$ ).

Patients varied widely in their educational background; they reported earning high school diplomas or GEDs ( $n = 4$ ), some college or trade school education ( $n = 5$ ), associate degrees ( $n = 3$ ), bachelor's degrees ( $n = 6$ ), and master's degrees ( $n = 3$ ). More than half of the patients enrolled in the study were married (68.2%,  $n = 15$ ), and the remaining patients reported that they were single, never married ( $n = 5$ ), cohabitating ( $n = 1$ ), or divorced ( $n = 1$ ). Finally, patients reported an average body mass index (BMI) of 35.51 ( $SD = 9.31$ ) which falls in the range of "obese" according to the Centers for Disease Control (CDC, 2017).

Not all patients who completed the baseline survey and were enrolled in the study attended the Kickstart Health program. Of the total 22 patients who enrolled, 14 patients attended at least one session; however, one of these patients neither completed their baseline survey nor the subsequent follow-ups. The remaining 13 “attenders” were predominantly women (women  $n = 11$ , men  $n = 2$ ) and were mostly Caucasian ( $n = 11$ ). The other 2 patients identified themselves as Indian and Arab/Middle Eastern.

The education of the attenders varied similarly to the total enrolled. Two patients reported having completed a high school education, three had completed an associate’s degree, four received a bachelor’s degree, and three patients had a master’s level education. Patients who attended the program were mostly married ( $n = 8$ ), but also reported being single ( $n = 3$ ), cohabitating ( $n = 1$ ), and divorced ( $n = 1$ ).

The Kickstart Health Program reached a somewhat varied group of patients within the family medicine practice in which it was held. Those who attended the program varied in age and educational attainment; however, “attenders” were predominantly female and Caucasian.

### **Aim 1: Feasibility**

Enrollment factors, attendance, cost, and implementation were assessed to determine the feasibility of conducting a unique behavioral health group in a medical setting.

**Patient related feasibility factors.** Nearly all patients who were interested in the Kickstart Health Program were eligible to attend. Only non-English speaking or severely mentally disabled patients could be excluded from participating in the study. This exclusion was placed given the length of the online surveys. No eligible patients were

excluded for to these reasons; however, it is unknown if physicians did not refer non-English speaking and severely mentally disabled patients to the program, having been aware of this restriction. Patients were also excluded from the study participation if they were not a patient at the family medicine center in which the study took place. Family members were, however, allowed to attend groups with patients enrolled in the study, but they were not eligible to participate in surveys and receive compensation. Two members of the group were non-enrolled family members (Figure 1) who were not patients themselves but had family members who were seen at the clinic. Both family members attended 4 total sessions each. One family member attended all sessions with their enrolled patient relative. The other non-eligible family member attended sessions alone. This participant obtained a flyer from the clinic waiting room.

The average number of sessions attended was 2.92 ( $SD = 2.02$ ). Most patients attended 3 or fewer sessions (one session  $n = 4$ , two sessions  $n = 3$ , and three sessions  $n = 2$ ). Four patients attended the group more often (4 to 7 total sessions).

Among the 22 who completed the baseline survey, 4 individuals completed 5-week follow-up surveys and 2 individuals, who were not able to attend a session prior, completed 10-week surveys. These individuals, who were very interested in attending but unable to, reported that the most common reasons for not being able to attend were child care conflicts and conflicting work schedules. During the recruitment phase, the facilitator recorded that several patients did not understand why their physician referred them to the program and one patient reported that they were unhappy with the clinic itself, resulting in their disinterest in attending the group. Furthermore, several patients felt like they could address their health on their own, which was also reported by physicians who shared

patient feedback in the provider survey. Most frequently, patients reported that time, transportation, or conflicting work schedules interfered with their desire to enroll in the study.

### **Facilitator feasibility factors**

Costs were minimal to run the Kickstart Health Program. The majority of costs were due to research-specific needs, such as compensation for surveys. Another major expense of running the group was exercise equipment, including yoga mats, which could be cut from a larger roll of materials (~\$150), cleaning supplies for mats (~\$15), a set of hand weights (~\$25), and pedometers (~\$160). Cost were minimal to provide the printed materials for the group which included binders (~\$55), paper and printing (provided by facility), and video and print materials from the CDC (free). A wagon was also purchased to easily transport equipment and materials to different classrooms in the facility (~\$75) and an easel and sign were also purchased to assist patients in locating sessions (~\$70). The facilitator required ~\$70 to purchase fitness clothing branded with the health system's name to be worn during sessions. An estimated \$650 may need to be invested in upfront costs to run the program, with costs increasing if higher rates of attendance are obtained. However, if a behavioral health provider is not already present at the facility, hourly rates for such individuals at their pay grade (e.g., student, counselor, or psychologist) should be factored into cost.

The Kickstart Health Program was feasible to implement in a medical setting; however, challenges related to recruitment and attendance were prevalent. Some upfront costs were required to provide resources and materials for the group; however, these costs declined over the course of the study. Some patients attended more sessions



than others, and total sessions attended by study completion ranged from one to seven sessions. Some patients attended consecutive sessions, and some returned even if sessions were missed. This was encouraged as part of the program's flexible schedule. Finally, some patients brought family members and spouses to group, despite this not being specifically targeted in the study design.

### **Aim 2a: Patient Acceptability**

All 12 of the eligible patients who completed a baseline and a 5-week follow-up after attending one or more sessions were included in the acceptability analyses. Notably, all patients who completed a 10-week follow-up had also completed a 5-week follow-up survey and had provided acceptability and feasibility data at this time. Thus, 5-week data were analyzed as this was the larger sample. Patients were asked a series of questions regarding the elements of the group that they were, or were not, satisfied with as well as the utility and ease of the varied activities. Patients were able to provide multiple responses or "votes" in the following categories that were assessed: components of the group most helpful and least helpful, facilitator factors most and least helpful, exercise activity most and least helpful, and mindfulness meditation found to be most and least helpful. A summary of the findings described below can be found in Table 4.

Table 4. Patient reported acceptability of the Kickstart Health Program.

	<b>Item Response Rate (n = 12)</b>	<b>Most Frequent Response</b>
<i>Component</i>		
Most helpful	11	Writing/discussion (n = 4), mindfulness (n = 4), & exercise (n = 4)
Least helpful	11	Nothing (n = 6)
<i>Facilitator</i>		
Most helpful	9	Interpersonal factors (n = 5) & instruction style (n = 6)
Least helpful	8	Nothing (n = 7)
<i>Exercise</i>		
Most helpful	11	Walking (n = 8)
Least helpful	9	Cardio dance (n = 4)
Overall satisfaction	10	Extremely satisfied
<i>Meditation</i>		
Most helpful	10	Mindful eating (n = 6)
Least helpful	4	“Leaves on a Stream” (n = 2) & “Loving Kindness” (n = 2)
Difficulty	12	Somewhat easy (n = 6)
<i>Writing Activities</i>		
Difficulty	12	Not too difficult (n = 11)
Overall satisfaction	12	Extremely or very helpful (n = 8)
<i>Nutrition Education</i>		
Overall satisfaction	12	Fits very or extremely well (n = 8)
Number of sessions	11	Just right (n = 9)
Length of session	11	Just right (n = 8)
Overall fit with goal	12	Fits very or extremely well (n = 10)

Of the 12 patients who completed a 5-week follow-up survey, 11 responded to the question, “What component of the group did you find the *most* helpful?” A 3-way tie between writing/discussion, mindfulness, and exercise was found in regard to what component of the group was perceived as most helpful ( $n = 4$  each). Three patients stated that nutrition education was most helpful and one felt that goal setting was most helpful.

Eleven patients also responded to the question, “What component of the group did you find the *least* helpful?” Most patients ( $n = 6$ ) responded that there was no aspect of the program that they found unhelpful. Two patients reported that some of the information was repetitive with information that was gathered from other sources or programs. One patient stated that exercise was the least helpful component and one patient also stated that meditation was least helpful.

Patients who responded ( $n = 9$ ) to the question “Was there anything in particular that the group facilitator did that was *helpful* to you?” expressed that the facilitator: 1) was attention-grabbing (“encouraging and engaging”), 2) provided proper instruction (“proper technique and good direction”, 3) was empathic and genuine (“active listener and not judgmental,” “related to [the patient]”, “respectful”, “made [the patient] feel welcomed”), and 5) was knowledgeable.

Of the 8 patients who responded to the question “Was there anything in particular that the group facilitator did that was *unhelpful* to you?”, 7 patients reported “nothing.” One patient reported “some of the yoga moves were painful;” however, this comment was not related to a specific facilitator factor.

Eight of 11 patients responded to a question regarding what the most helpful exercise(s) offered in the program was. Eight patients expressed that walking was the

one of the most helpful exercise activities. Six patients reported yoga was one of the most helpful exercises and 4 stated that strength training was most helpful. Only 2 patients reported that cardio dance was most helpful and only one patient endorsed kickboxing as the most helpful exercise taught. Inversely, 4 patients expressed that cardio dance was the least helpful exercise component. Walking and yoga were endorsed by 2 patients each as unhelpful. Finally, one patient found strength training unhelpful.

Ten patients responded to the question, "What meditation(s) did you find *most* helpful?" and 6 reported that mindful eating was one of the most helpful meditations offered in the program. Three patients reported that the "Leaves on a Stream" meditation was one of the most helpful mindfulness activities and another 3 patients stated that the "3-minute Mindful Check-In" was helpful. Two patients reported that the "Body Scan" meditation was most helpful and one patient endorsed the "Loving Kindness" meditation as helpful. Four patients responded to the question "What meditation(s) did you find least helpful?", and 2 patients felt that the "Leaves on a Stream" meditation was not as helpful of a meditation. Another 2 patients stated that "Loving Kindness" was least helpful.

Regarding difficulty with the program elements, all but one of the 12 patients reported that the writing activities were "not too difficult." All 12 patients responded to a question regarding the ease of the mindfulness meditations and responses were varied. Half of the participants ( $n = 6$ ) felt that meditation was somewhat easy, and 5 patients felt it was "extremely easy or very easy." One patient reported difficulty with the meditation portion of the program.

Nearly all patients reported that the number of sessions offered was ideal ( $n = 9$ ). One patient felt more sessions would be ideal, and another reported sessions occurred

too frequently. Most patients ( $n = 8$ ) were also satisfied with the duration of the sessions, which took 1.5 hours. Two patients felt that sessions could have extended longer, and one patient expressed a desire for shorter sessions.

All patients expressed that the program fit with their overall health goals. Most reported that the group fit with their goals very or extremely well ( $n = 5$ ). Two patients reported that the program somewhat fit with their overall health goals. Finally, most patients ( $n = 10$ ) reported that they would recommend the group to a friend or loved one. One patient stated that they would maybe recommend it while another expressed that they would not recommend the group. See Table 4 for a summary of the patient acceptability survey results.

Patients were also surveyed on group factors, such as their sense of belonging, to assess for how being a member of a group may have influenced their overall acceptability of the Kickstart Health Program. Scores on The Group Attitudes Scale (GAS) range from 9 (negative attitude toward group) to 180 (positive attitude toward group). No cut-off scores were provided in the original validation of the GAS (Evans & Jarvis, 1986). The midpoint of this scale is a score of 85; thus, scores above were considered to be indicative of attraction to and cohesiveness with the group and scores below 85 were considered poor cohesion with the group. At 5-week follow-up, participants who had attended at least one group ( $n = 12$ ) generally had favorable attitudes towards the group; however, they varied in the degree to which they felt positively about the group ( $M = 123.9$ ,  $SD = 19.2$ ,  $range = 92-153$ ). Furthermore, attendance was correlated with attitudes about the group at 5-week follow-up. Those who attended more sessions over the course of the study reported higher positive feelings towards the group and their attitude towards it,  $r = .58$ ,  $p$

= .05. At 10-week follow-up, participants ( $n = 8$ ) continued to feel positively toward the group ( $M = 123.88$ ,  $SD = 18.91$ ,  $range = 94-148$ ). One patient had chosen not to complete the GAS at 10-Week follow-up.

At the end of both the 5- and 10-week follow-up surveys, participants provided qualitative responses to questions asking for recommendations to improve the group. Suggestions included: providing recipes, improving the ambiance of the classroom (e.g., lighting not ideal for mindfulness practice), teaching ways to fit short exercise sessions into one's day, having a rewards system for goal completion, providing more time management strategies, and offering the groups at additional days and times. Patients also reported a preference for larger groups or one-on-one-sessions, as opposed to small groups of 2 or 3 that often resulted from low attendance.

In summary, patients reported that the Kickstart Health Program was acceptable, and patients were satisfied with the components, structure, and instructing of the group. It was anticipated that patients could have had difficulty with learning and practicing mindfulness meditation; however, although some reported minor difficulty with practicing mindfulness meditation, many reported easily learning this activity. Patients also reported that they preferred brief mindfulness meditations or meditations that applied to concrete constructs, such as eating. Patients reported less satisfaction with more abstract mindfulness meditations focused on guided imagery or emotions (i.e., "Leaves on a Stream" and "Loving Kindness"). Finally, patients reported that they were most satisfied with strength training, walking, and yoga as exercise activities, but were less satisfied with cardio kickboxing and dance.

### **Aim 2b: Physician Acceptability**

As mentioned above, only 9 physicians responded to the brief surveys administered at the 5-and 10-week provider assessments. Thus, physician acceptability was assessed with the final survey administered to all providers in the family medicine clinic at study completion. Fifty-six providers were surveyed, and the sample included 28 faculty and community preceptors, 23 residents training at the clinic, 3 behavioral health providers, and 2 physician assistants. Of the 56 health care providers surveyed, 21 (37.5%) responded. Those who responded were predominantly faculty or preceptors at the clinic (61.9%,  $n = 13$ ). The remaining participants were residents (28.6%,  $n = 6$ ) or physician assistants (4.8%,  $n = 1$ ). One participant did not respond to the item asking their position at the clinic.

Providers reported variety in how often they referred patients to the Kickstart Health Program. Several providers reported that they never referred a patient to the program (33.3%,  $n = 7$ ). Some reported making 1-2 referrals over the 8-month period in which the program was offered (23.8%,  $n = 5$ ) and some endorsed making 3-4 referrals over 8 months (28.6%,  $n = 6$ ). Two providers referred patients once per month (9.5%) and one provider reported referring patients 2-3 times per month over the 8-month period. No providers endorse referring patients to the program at a higher frequency than 2-3 times per month.

Providers expressed varied opinions about the ease in which they could refer patients to the Program. Providers were asked to rate the ease of referral on a scale from 0-10, with 10 being extremely easy to refer patients to the program. On average, providers found it somewhat easy to refer patients ( $M = 6.93$ ,  $SD = 3.30$ ).

Providers also expressed varied opinions about the usefulness of the Kickstart Health Program in their integrated practice. Providers were asked to rate the usefulness of the program on a scale from 0-10, with 10 being extremely useful in their practice. On average, providers found the Kickstart Health Program somewhat useful in helping to provide integrated care for their patients ( $M = 5.86$ ,  $SD = 2.80$ ). A summary of the provider acceptability survey results can be found in Table 5.

Table 5. Provider reported the Kickstart Health Program was somewhat acceptable.

		<i>n</i>
<i>Type of Providers Responding</i>		
Faculty & Community Preceptors		13 (61.9%)
Residents		6 (28.6%)
Behavioral Health Providers		0 (0%)
Physician Assistants (PA)		1 (4.8%)
Unknown		1 (4.8%)
		<b><i>n</i></b>
		<b>By position</b>
<i>Frequency of referral</i>		
Never	7 (33.3%)	faculty (3), residents (3), PA (1)
1-2 over 8 months	5 (23.8%)	faculty (2), residents (2), unknown (1)
3-4 over 8 months	6 (28.6%)	faculty (5), residents (1)
Once per month	2 (9.5%)	faculty (2)
2-3 per month	1 (4.8%)	faculty (1)
		<b><i>M (SD)</i></b>
Ease of referral (0-10)		6.93 (3.30)
Usefulness (0-10)		5.86 (2.80)

Note. 21 of the 56 providers responded to the survey.

Overall, providers were somewhat satisfied with the integration of the Kickstart Health program into their medical practice. Some physicians reported that referring patients to the program was challenging. Providers did not report referring patients to the group more often than 2-3 times per month over the 8-month period; however, the results from the physician's acceptability and feasibility represented about 1/3 of the providers



practicing at the participating family medicine clinic. Less than 30% of those who responded reported that they were residents, who are primary providers at the clinic.

### **Aim 3: Patient Outcomes**

Although 13 enrolled patients attended the Kickstart Health Program, only 12 of those 13 had attended at least one session when they received the 5-week follow-up survey. Furthermore, 9 of those 12 completed the 10-week follow-up survey. The average number of days between the patient's first session and when they completed their 5-week follow-up survey was 33.92 days, or 4.85 weeks ( $SD = 17.6$  days or 2.5 weeks). The average number of days between the patient's first session and when they completed their 10-week follow-up survey was 83.89 days, or 11.98 weeks ( $SD = 7.49$  days or 1 week). Patients varied in the number of sessions attended at 5- ( $n = 12$ ,  $M = 1.75$ ,  $SD = 1.06$ ) and 10- ( $n = 9$ ,  $M = 3.78$ ,  $SD = 2.28$ ) week follow-up. Mean outcome comparisons were conducted between baseline and 5-week follow-up scores and baseline and 10-week follow-up scores on various measures of health and well-being. Due to the small number of patients who completed the 5- and 10-week follow-up surveys, effect sizes, reliable change, and descriptive statistics were also calculated. Notably, only 3 participants utilized the online food, meditation, and activity tracking log and only 1 patient used this log with regular frequency (i.e., daily or every couple days). Thus, this measure was not utilized in subsequent analyses. Reliable change was calculated using the Reliable Change Index; summing the number of patients moving from normative to non-normative (or vice versa) across time points based on a cutoff score (Comer & Kendall, 2013). Cohen's  $d$  was calculated as a measure of effect size. Where appropriate, the

mean differences between scores at two time points or between “attenders” and “non-attenders”, divided by the pooled standard deviation, were provided.

**Health Specific Self-Efficacy.** Paired samples t-tests were also conducted to test for significant differences in baseline, 5-, and 10-week scores on the Health Belief Model (HBM) Scales among those who had attended at least one session at the time of follow-up. No significant differences were found between baseline and 5-week nor baseline and 10-week scores on any of the HBM scales including: perceived exercise barriers, perceived exercise benefits, cues to engage in exercise, patients’ perceived risk of illness, and social influence to exercise (Tables 6 and 7). Although not statistically significant, a medium to large magnitude decrease in barriers to exercise was found from baseline to 10-week follow-up,  $t(8) = -2.18$ ,  $p = .06$ ,  $d = -.74$ .

Table 6. Changes in the Health Belief Model Scales from baseline to 5-weeks.

	<b>Baseline M (SD)</b>	<b>5-Weeks M (SD)</b>	<b>Mdiff (SD)</b>	<b>t</b>	<b>p</b>	<b>d</b>
Exercise Barriers	60.96 (13.07)	58.08 (17.21)	-2.88 (14.63)	.68	.51	.19
Exercise Benefits	70.66 (16.99)	69.42 (15.63)	-1.24 (9.52)	.45	.66	.08
Cues to Exercise	40.75 (14.47)	40.83 (14.73)	.08 (13.15)	.02	.98	.01
Perceived Susp. to Ill	34.67 (12.56)	34.92 (12.56)	.25 (7.19)	.12	.91	.02
Social Influence	24.91 (7.91)	22.67 (6.53)	-2.24 (4.31)	1.80	.10	.31

Note.  $n = 12$ ,  $df = 11$ .

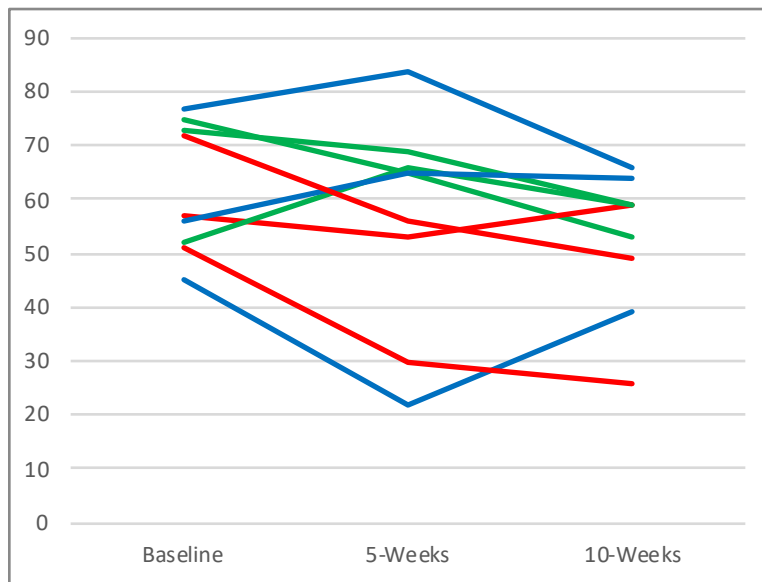
Table 7. Changes in the Health Belief Model Scales from baseline to 10-weeks.

	<b>Baseline M (SD)</b>	<b>10-Weeks M (SD)</b>	<b>Mdiff (SD)</b>	<b>t</b>	<b>p</b>	<b>d</b>
Exercise Barriers	62.01 (12.17)	52.67 (12.93)	-9.34 (12.86)	-2.18	.06	.74
Exercise Benefits	68.67 (19.15)	72.89 (16.70)	4.22 (8.84)	1.43	.19	.23
Cues to Exercise	36.67 (13.89)	39.44 (13.26)	2.78 (11.91)	.70	.50	.20
Perceived Susp. to Ill	35.00 (13.52)	33.78 (13.79)	-1.22 (2.28)	-.54	.61	.09
Social Influence	25.90 (8.70)	21.56 (6.78)	-4.35 (8.45)	-1.54	.16	.56

Note.  $n = 9$ ,  $df = 8$ .

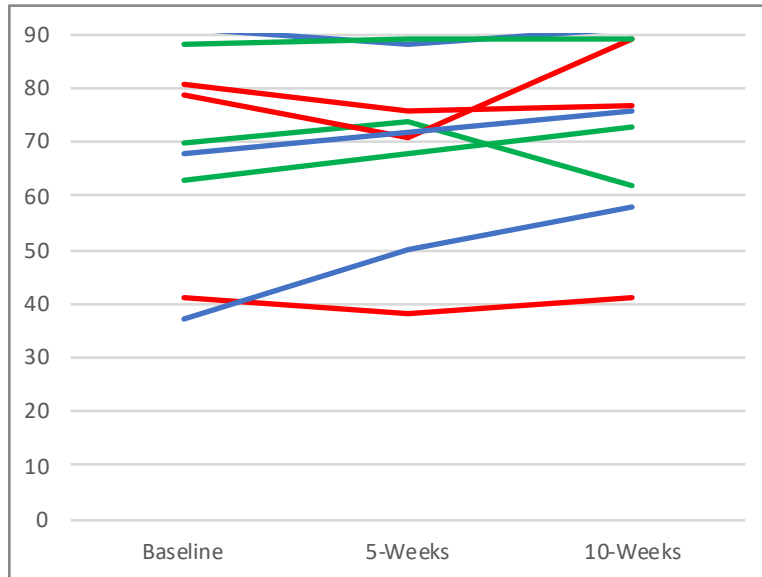
Individual changes on the HBM scales from baseline to 5- and 10-weeks for those who completed a 10-week follow-up survey and attended at least one session of the Kickstart Health Program ( $n = 9$ ) can be found in Figures 2-6.

*Figure 2.* Changes in perceived exercise barriers (HBM Scales) from baseline to 5- and 10-week follow-up.



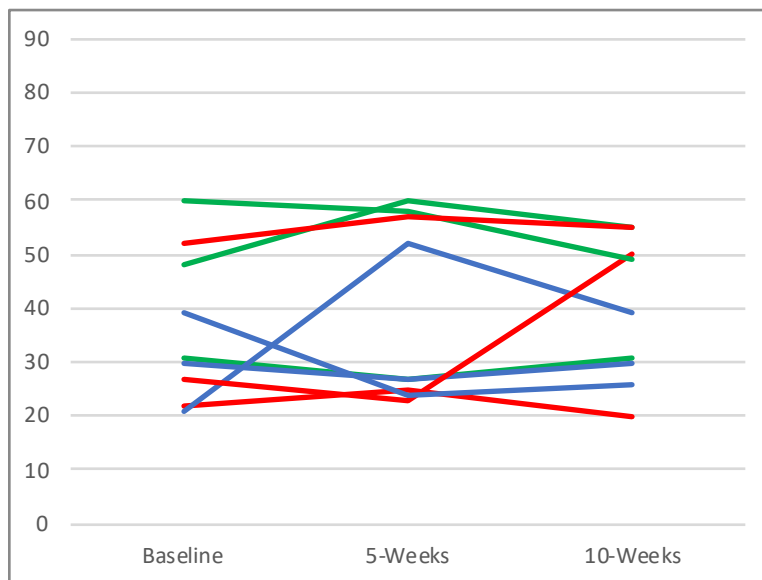
*Note.* Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

Figure 3. Changes in perceived exercise benefits (HBM Scales) from baseline to 5- and 10-week follow-up.



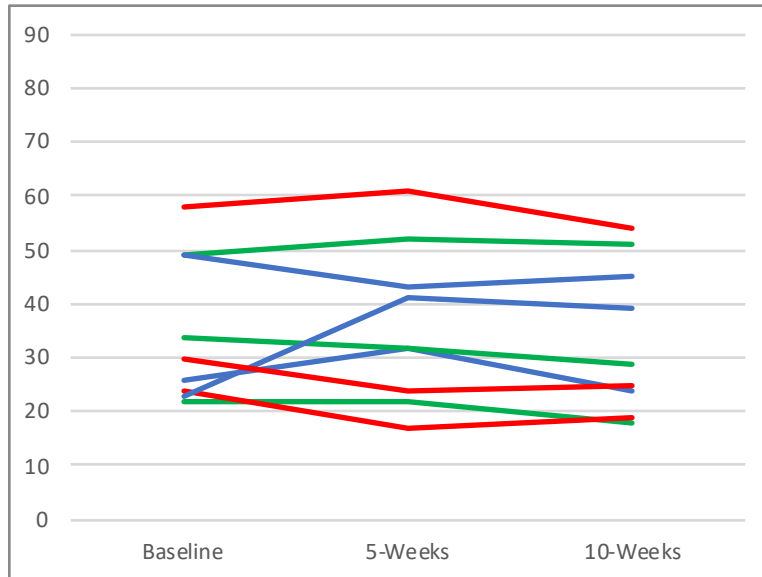
Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

Figure 4. Changes in cues to exercise (HBM Scales) from baseline to 5- and 10-week follow-up.



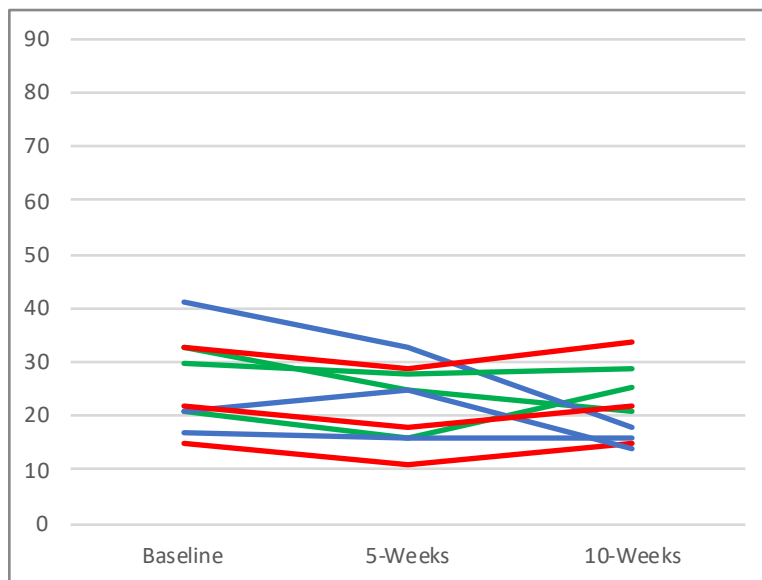
Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

Figure 5. Changes in perceived susceptibility to illness due to lack of exercise (HBM Scales) from baseline to 5- and 10-week follow-up.



Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

Figure 6. Changes in perceived social influence to exercise (HBM Scales) from baseline to 5- and 10-week follow-up.



Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

Reliable change in scores on the HBM scales were also calculated for these 9 participants (Tables 10-14). Regarding perceived barriers to exercise, most patients ( $n = 6$ ) reported a significant decrease in barriers from baseline to 10-weeks. Two patients reported an increase in perceived barriers and 1 patient reported no change (Table 8).

*Table 8.* Reliable change in perceived barriers to exercise (HBM Scales) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5-wks	5-weeks to 10-wks	Baseline to 10-wks
9	75	65	53	-4.17*	-5.00*	-9.17*
18	73	69	59	-1.67	-4.17*	-5.83*
25	57	53	59	-1.69	2.50*	0.81
23	77	84	66	2.92*	-7.50*	-4.58*
30	45	22	39	-9.58*	7.08*	-2.50*
32	51	30	26	-8.75*	-1.67	-10.42*
41	52	66	59	5.83*	-2.92*	2.92*
43	56	65	64	3.75*	-0.42	3.33*
46	72	56	49	-6.67*	-2.92*	-9.58*

*Note.*  $n = 10$ ; \* Significant reliable change index ( $Z > 1.96$ ).

Regarding perceived benefits of exercise, 4 patients reported a significant increase, two patients reported a decrease, and 3 patients reported no difference in perceived benefits of exercise (Table 9).

*Table 9.* Reliable change in perceived benefits to exercise (HBM Scales) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5-wks	5-weeks to 10-wks	Baseline to 10-wks
9	63	68	73	2.79*	2.79*	5.59*
18	70	74	62	2.23*	-6.70*	-4.47*
25	41	38	41	-1.68	1.68	0.00
23	37	50	58	7.26*	4.47*	11.73*
30	91	88	91	-1.68	1.68	0.00
32	79	71	89	-4.47*	10.06*	5.59*
41	88	89	89	0.56	0.00	0.56
43	68	72	76	2.23*	2.23*	4.47*
46	81	76	77	-2.79*	0.56	-2.23*

*Note.*  $n = 10$ ; \* Significant reliable change index ( $Z > 1.96$ ).

Three patients reported a significant increase from baseline to 10-weeks in perceived cues to exercise, including advertisements, advice, or difficulties with movement that may have motivated their desire to exercise. Two people had a substantial decrease in motivating cues to exercise and 3 patients reported no change (Table 10).



*Table 10.* Reliable change in cues to exercise (HBM Scales) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5-wks	5-weeks to 10-wks	Baseline to 10-wks
9	31	27	31	-2.21*	2.21*	0.00
18	48	60	55	6.63*	-2.76*	3.87*
25	22	25	20	1.66	-2.76*	-1.10
23	30	27	30	-1.66	1.66	0.00
30	21	52	39	17.13*	-7.18*	9.94*
32	27	23	50	-2.21*	14.92*	12.71*
41	60	58	49	-1.10	-4.97*	-6.08*
43	39	24	26	-8.29*	1.10	-7.18*
46	52	57	55	2.76*	-1.10	1.66

*Note.*  $n = 10$ ; \* Significant reliable change index ( $Z > 1.96$ ).

Most patients ( $n = 6$ ) reported a significant decrease from baseline to 10-weeks in their perceived susceptibility to illness. One patient reported an increase in their perception of susceptibility to illness and one person reported no change (Table 11).

*Table 11.* Reliable change in perceived susceptibility to illness due to lack of exercise (HBM Scales) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5-wks	5-weeks to 10-wks	Baseline to 10-wks
9	22	22	18	0.00	-2.44*	-2.44*
18	49	52	51	1.83	-0.61	1.22
25	58	61	54	1.83	-4.27*	-2.44*
23	49	43	45	-3.66*	1.22	-2.44*
30	26	32	24	3.66*	-4.88*	-1.22
32	24	17	19	-4.27*	1.22	-3.05*
41	34	32	29	-1.22	-1.83*	-3.05*
43	23	41	39	10.98*	-1.22	9.76*
46	30	24	25	-3.66*	0.61	-3.05*

*Note.*  $n = 10$ ; \* Significant reliable change index ( $Z > 1.96$ ).

Three patients reported significant decreases in social influence to exercise from baseline to 10-weeks. One patient reported a decrease and over half ( $n = 5$ ) had no change (Table 12).

Table 12. Reliable change in perceived social influence to exercise (HBM Scales) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5-wks	5-weeks to 10-wks	Baseline to 10-wks
9	21	16	25	-3.02*	5.35*	2.34*
18	33	25	21	-4.71*	-2.35*	-7.06*
25	15	11	15	-2.35*	2.29*	-0.06
23	21	25	14	2.35*	-6.47*	-4.12*
30	41	33	18	-4.71*	-8.82*	-13.53*
32	33	29	34	-2.35*	2.94*	0.59
41	30	28	29	-1.18	0.59	-0.59
43	17	16	16	-0.59	0.00	-0.59
46	22	18	22	-2.35*	2.35*	0.00

Note.  $n = 10$ ; \* Significant reliable change index ( $Z > 1.96$ ).

Paired samples t-tests were also conducted to compare changes in health-related self-efficacy as measured by the Health Specific Self-Efficacy (HSSE) Scale. From baseline to 5- and baseline to 10-weeks, significant changes in HSSE scores, measuring self-efficacy to engage in healthy eating and exercise behaviors, were not found (Tables 13 and 14).

Table 13. Health Specific Self Efficacy (HSSE) Scale changes from baseline to 5-week follow-up.

	Baseline <i>M(SD)</i>	5-Weeks <i>M(SD)</i>	<i>Mdiff (SDdiff)</i>	<i>t</i>	<i>p</i>	<i>d</i>
Food	14.25 (2.73)	15.75 (3.36)	1.50 (2.81)	1.83	.09	.49
Exercise	11.92 (3.80)	11.67 (4.44)	-.25 (2.56)	.34	.74	-.06

Note.  $n = 12$ ,  $df = 11$ .

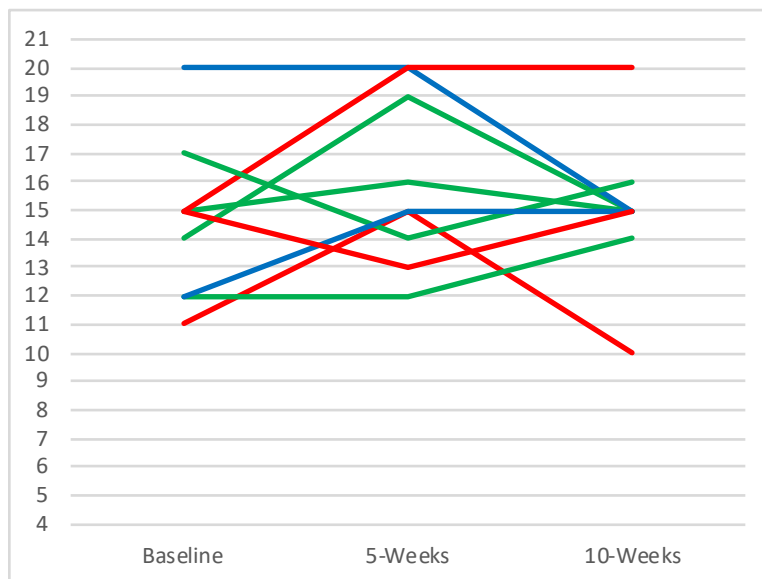
Table 14. Health Specific Self Efficacy (HSSE) Scale changes from baseline to 10-week follow-up.

	<b>Baseline M(SD)</b>	<b>10-Weeks M(SD)</b>	<b>Mdiff (SDdiff)</b>	<b>t</b>	<b>p</b>	<b>d</b>
Food	14.56 (2.79)	15.00 (2.55)	.44 (2.83)	.47	.65	.16
Exercise	11.67 (4.24)	13.33 (4.87)	1.67 (2.92)	1.72	.13	.36

Note.  $n = 9$ ,  $df = 8$ .

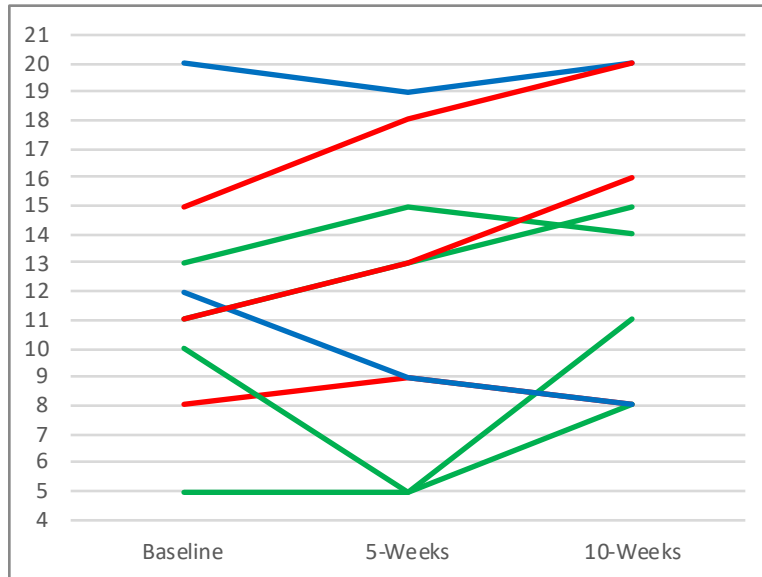
For those who completed a 10-week follow-up survey and had attended at least one session of the Kickstart Health Program ( $n = 9$ ), baseline, 5-, and 10-week scores on the HSSE can be found in Figures 7 (healthy eating) and 8 (exercise).

Figure 7. Changes in Food Related Self Efficacy (HSSE) from baseline to 5- and 10-week follow-up.



Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

Figure 8. Changes in Exercise Related Self Efficacy (HSSE) from baseline to 5- and 10-week follow-up.



Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

Regarding eating related self-efficacy, 3 patients reported significant increases from baseline to 10-weeks when assessing for reliable change in HSSE scores. One patient was found to have a significant decrease in self-efficacy related to healthy eating. Most patients; however, reported no change ( $n = 5$ ; Table 15).

*Table 15.* Reliable change self-efficacy related to food choice (HSSE) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5-wks	5-weeks to 10-wks	Baseline to 10-wks
9	15	16	15	1.06	-1.06	0.00
18	14	19	15	5.32*	-4.26*	1.06
25	11	15	10	4.26*	-5.32*	-1.06
23	12	12	14	0.00	2.13*	2.13*
30	20	20	15	0.00	-5.32*	-5.32*
32	15	20	20	5.32*	0.00	5.32*
41	17	14	16	-3.19*	2.13*	-1.06
43	12	15	15	3.19*	0.00	3.19*
46	15	13	15	-2.13*	2.13*	0.00

*Note.*  $n = 9$ ; \* Significant reliable change index ( $Z > 1.96$ ).

Four of the 9 attenders who completed 10-week follow-up reported a significant increase from baseline to 10-weeks in exercise related self-efficacy as measured by the HSSE. One patient reported a significant decrease and 4 patients reported no change in exercise related self-efficacy (Table 16).

Table 16. Reliable change self-efficacy related to exercise in general (HSSE) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5 wks	5 weeks to 10 wks	Baseline to 10 wks
9	11	13	15	2.11*	2.11*	4.21*
18	13	15	14	2.11*	-1.05	1.05
25	8	9	8	1.05	-1.05	0.00
23	5	5	8	0.00	3.16*	3.16*
30	20	19	20	-1.05	1.05	0.00
32	15	18	20	3.16*	2.11*	5.26*
41	10	5	11	-5.26*	6.32*	1.05
43	12	9	8	-3.16*	-1.05	-4.21*
46	11	13	16	2.11*	3.16*	5.26*

Note.  $n = 9$ ; \* Significant reliable change index ( $Z > 1.96$ ).

**Nutrition.** Paired samples t-tests were conducted to assess changes in food consumption as measured by the Simple Food Frequency (SFF) questionnaire. Food frequency ratings from the 12 patients who attended at least one session at the 5-week follow-up point and the 9 patients who had attended at least one session at 10-week follow-up were analyzed. In general, no significant differences were found in patient diet from baseline to 5-weeks nor baseline to 10-weeks. However, a significant reduction in the consumption of legumes from baseline ( $M = 3.26$ ,  $SD = 1.26$ ) to 10-week follow-up ( $M = 2.44$ ,  $SD = 1.13$ ) was found,  $t(8) = -2.88$ ,  $p = .02$ ,  $d = -.69$ . Changes in scores on the SFF at both 5- and 10-week follow-up are reported in Tables 17 and 18, respectively.

Table 17. Changes in diet from baseline to 5-week follow up detected by the Simple Food Frequency (SFF) Questionnaire.

	<b>Baseline M (SD)</b>	<b>5 Wk M (SD)</b>	<b>Mdiff (SDdiff)</b>	<b>t</b>	<b>p</b>	<b>d</b>
<b>Fat &amp; Dairy</b>						
Animal fat	3.07 (.88)	2.87 (1.30)	.20 (.94)	.82	.42	.18
Vegetable fat	1.93 (1.28)	1.87 (.24)	.07 (.96)	.27	.79	.07
Margarine	1.77 (.94)	1.33 (.73)	.44 (.90)	1.88	.08	.52
Cheese	3.21 (1.12)	2.93 (.62)	.29 (1.20)	.88	.39	.31
Yogurt	3.21 (1.12)	2.93(1.12)	.29 (1.44)	.74	.47	.25
<b>Meat</b>						
Beef	3.00 (.85)	2.73 (.88)	.27 (.70)	1.47	.16	.31
Chicken	3.00 (.66)	3.00 (.85)	.00 (.38)	.00	1.00	0
Pork	2.00 (.93)	2.00 (1.00)	.00 (1.00)	.00	1.00	0
Lunch meat	2.20 (.86)	1.87 (.99)	.33 (1.11)	1.16	.27	.36
Sausage	1.93 (.96)	1.80 (1.01)	.133 (.99)	.52	.61	.13
Eggs	3.00 (.76)	2.73 (.80)	.27 (.70)	1.47	.16	.35
Fish	2.00	2.07	-.07 (.70)	-.37	.72	.08
Other meat	1.20	1.20	.00 (.85)	.00	1.00	0
<b>Fruits &amp; Veg.</b>						
Juice	2.33 (.82)	2.40 (1.24)	-.07 (1.10)	-.24	.82	.07
Leafy greens	3.33 (1.18)	3.47 (1.19)	-.13 (.83)	-.62	.55	.12
Other greens	3.13 (1.06)	3.40 (1.06)	-.27 (1.10)	-.94	.36	.25
Legumes	2.76 (1.27)	2.33 (1.23)	.43 (.85)	1.93	.07	.34
Other fruit	3.80 (.86)	3.2 (1.47)	.60 (1.64)	1.42	.18	.50
Other veg.	2.67 (.72)	2.47 (.92)	.20 (.41)	1.87	.08	.24
<b>Breads &amp; Starch</b>						
White bread	2.13 (.99)	2.13 (1.36)	.00 (1.00)	.00	1.00	0
Wheat bread	2.33 (.90)	2.13 (1.46)	.20 (1.27)	.61	.55	.16
Sprouted grain	1.53 (.83)	1.40 (.74)	.13 (.74)	.67	.50	.17
Other bread	1.93 (1.03)	1.80 (1.01)	.13 (.83)	.62	.55	.13
Pasta	2.73 (.59)	2.33 (.82)	.40 (.91)	1.70	.11	.56
Potatoes	2.80 (.56)	2.40 (1.12)	.40 (1.06)	1.47	.16	.45
Rice	2.92 (.52)	2.58 (1.00)	.33 (.88)	1.30	.22	.43
Oatmeal	2.13 (.99)	2.07 (.96)	.07 (.59)	.44	.67	.06
Biscuits	1.73 (.88)	1.60 (.74)	.13 (.35)	1.47	.16	.16
<b>Sweets</b>						
Cake	1.87 (.52)	1.60 (.74)	.27 (.59)	1.74	.10	.42
Candy	2.27 (.96)	1.73 (.88)	.53 (1.19)	1.74	.10	.59
Chocolate	2.40 (.74)	2.33 (.98)	.07 (.59)	.43	.67	.08
Jam	1.79 (.86)	1.60 (.74)	.19 (.67)	1.12	.28	.24
Honey	2.14 (.86)	1.86 (.95)	.29 (.83)	1.30	.22	.31
Syrup	1.71 (.61)	1.36 (.75)	.36 (.63)	2.11	.06	.51
Ice cream	2.50 (.76)	2.00 (.78)	.50 (1.02)	1.84	.09	.65
Soda	1.93 (1.07)	1.93 (1.4)	.00 (.88)	.00	1.00	0

Note.  $n = 12$ ,  $df = 11$ .



Table 18. Changes in diet from baseline to 10-week follow up detected by the Simple Food Frequency (SFF) Questionnaire.

	<b>Baseline M (SD)</b>	<b>10 Wk M (SD)</b>	<b>Mdiff (SDdiff)</b>	<b>t</b>	<b>p</b>	<b>d</b>
<b>Fat &amp; Dairy</b>						
Animal fat	2.89 (.78)	2.67 (1.23)	-.22 (1.30)	-.512	.62	.21
Vegetable fat	1.78 (1.30)	1.22 (.44)	-.56 (1.24)	-1.35	.21	.58
Margarine	1.25 (.71)	1.25 (.71)	0 (1.07)	0	1	0
Cheese	3.22 (1.39)	3.67 (.50)	.44 (1.01)	1.32	.23	.40
Yogurt	3.33 (1.32)	2.67 (1.41)	-.67 (1.5)	-1.33	.22	.48
<b>Meat</b>						
Beef	2.89 (.78)	2.67 (.71)	-.22 (.44)	-1.51	.17	.29
Chicken	2.89 (.78)	3.11 (.93)	.22 (.44)	1.51	.17	.26
Pork	2.00 (1.00)	1.78 (.97)	-.22 (.44)	-1.51	.17	.22
Lunch meat	2.33 (.87)	1.89 (.93)	-.44 (1.5)	-.88	.40	.49
Sausage	1.89 (.78)	1.44 (.73)	-.44 (.88)	-1.51	.17	.60
Eggs	2.89 (.93)	2.56 (1.24)	-.33 (1.23)	-.82	.44	.30
Fish	2.11 (.93)	2.11 (.93)	0 (.50)	0	1	0
Other meat	1.33 (.71)	1.22 (.67)	-.11 (.33)	1.00	.35	.16
<b>Fruits &amp; Veg.</b>						
Juice	2.22 (.67)	1.89 (1.17)	-.33 (1.41)	-.71	.50	.30
Leafy greens	3.44 (1.33)	3.00 (1.12)	-.44 (.72)	-1.84	.10	.36
Other greens	3.33 (1.32)	3.89 (.78)	.56 (.88)	1.89	.10	.52
<b>Legumes</b>	<b>3.26 (1.26)</b>	<b>2.44 (1.13)</b>	<b>-.82 (.86)</b>	<b>-2.88</b>	<b>.02*</b>	<b>.69</b>
Other fruit	3.78 (.97)	3.11 (1.36)	-.67 (1.66)	-1.21	.26	.57
Other veg.	2.78 (.83)	2.89 (1.05)	.11 (1.17)	.29	.78	.12
<b>Breads &amp; Starch</b>						
White bread	2.00 (1.00)	1.67 (1.00)	-.33 (1.00)	-1.00	.35	.33
Wheat bread	2.56 (.73)	2.33 (1.12)	-.22 (.97)	-.69	.51	.24
Sprouted grain	1.56 (.88)	1.67 (1.12)	.11 (.93)	.36	.73	.12
Other bread	2.13 (1.13)	2.25 (1.49)	.13 (.99)	.36	.73	.11
Pasta	2.67 (.50)	2.22 (.83)	-.44 (1.01)	-1.32	.23	.66
Potatoes	3.00 (.50)	2.67 (.87)	-.33 (.71)	-1.41	.20	.47
Rice	3.11 (.33)	2.78 (1.09)	-.33 (1.00)	-1.00	.35	.41
Oatmeal	2.44 (1.01)	2.44 (.72)	0 (.71)	0	1	0
Biscuits	1.67 (.87)	1.56 (.53)	-.11 (.60)	-.56	.59	.15
<b>Sweets</b>						
Cake	1.78 (.44)	1.44 (.73)	-.33 (.50)	-1.41	.20	.56
Candy	2.00 (.87)	1.67 (.87)	-.33 (.50)	-2.00	.08	.38
Chocolate	2.22 (.83)	2.11 (.78)	-.11 (.78)	-.43	.68	.14
Jam	1.77 (.83)	1.78 (.83)	.01 (.85)	.04	.97	.01
Honey	2.33 (.87)	1.89 (.78)	-.44 (1.13)	-1.18	.27	.53
Syrup	1.67 (.50)	1.33 (.50)	-.33 (.50)	-2.00	.08	.68
Ice cream	2.44 (.88)	2.00 (.71)	-.44 (1.13)	-1.18	.27	.55
Soda	1.78 (1.09)	1.44 (.88)	-.33 (.87)	-1.16	.28	.34

Note.  $n = 9$ ,  $df = 8$ .

Among those who attended at least one session of the Kickstart Health Program, 4 patients who completed 5-week follow-up and 2 patients who completed 10-week follow-up provided a baseline number of days over a 2-week period that they had used a food diary. Thus, given so few patients reported that they were using a food diary at all, further analyses were not conducted.

**Exercise and Activity.** Participants completed the International Physical Activity Questionnaire (IPAQ), a measure of weekly activity that includes movement related to exercise, transportation, hobbies, and chores. Exercise intensity (MET scores) among all 12 attenders was compared with paired samples t-tests to assess baseline to 5-week changes in walking, moderate intensity exercise and movement, vigorous exercise, and total movement and activity across the week. IPAQ descriptive statistics were presented in median scores due to responders often endorsing higher activity levels not considered outliers (IPAQ, 2010). One patient who attended at least one session and completed a 5-week follow-up did not respond to the IPAQ at 5-week follow-up, likely due to burden to complete survey ( $n = 11$ ). Patients who attended at least one session of the program did not report statistically significant changes in activity from baseline to 5-week follow-up (Table 19).

Table 19. Changes in activity (IPAQ) from Baseline to 5-week follow-up.

	<b>Baseline Median</b>	<b>5-Wk Median</b>	<b>Z</b>	<b>p</b>	<b>r</b>
Walking MET	1320	2541	1.69	.10	<b>.36</b>
Moderate Exercise MET	3240	3360	.45	.70	.10
Vigorous Exercise MET	0	720	.97	.36	<b>.21</b>
Total Activity MET	9324	4630.5	.09	.97	.02

Note.  $n = 11$ , effect size calculated with non-parametric formula  $r = Z / \sqrt{\text{observations}}$ .

Patients who attended at least one session and completed a 10-week follow-up also did not report statistically significant changes in exercise and activity as measured by the IPAQ (Table 20).

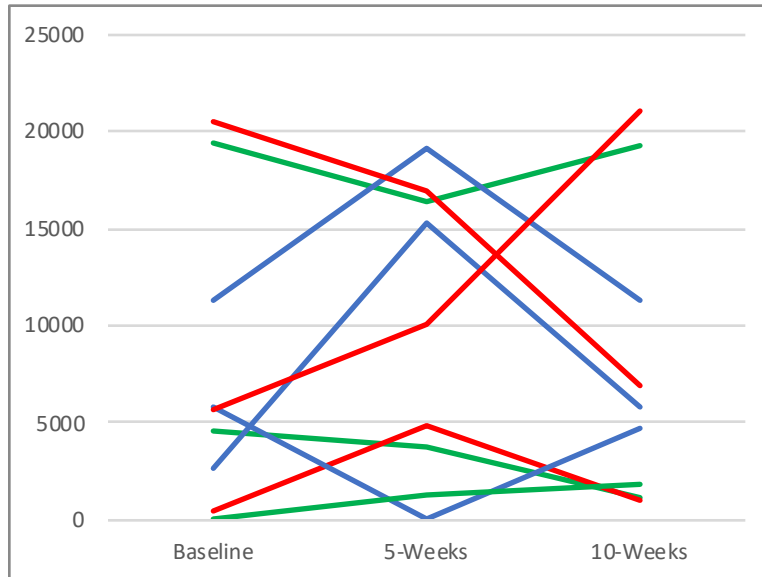
Table 20. Changes in activity (IPAQ) from Baseline to 10-week follow-up

	<b>Baseline Median</b>	<b>10-Wk Median</b>	<b>Z</b>	<b>p</b>	<b>r</b>
Walking MET	1452	1452	.36	.76	.08
Moderate Exercise MET	2280	2800	.42	.73	.10
Vigorous Exercise MET	0	720	1.35	.22	<b>.32</b>
Total Activity MET	5784	5805	.53	.65	<b>.12</b>

Note.  $n = 9$ , effect size calculated with non-parametric formula  $r = Z / \sqrt{\text{observations}}$ .

For those who completed a 10-week follow-up survey and had attended at least one session of the Kickstart Health Program ( $n = 9$ ), changes in total activity MET scores from baseline to 5- and 10-weeks can be found in Figure 9.

Figure 9. Changes in total activity MET (IPAQ) from baseline to 5- and 10-week follow-up.



Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

The IPAQ also yields categorical scores of overall activity (i.e., low, moderate, and vigorous). Patients who completed a 10-week follow-up survey and had attended at least one session of the Kickstart Health Program ( $n = 9$ ) showed little to no change in activity level category from baseline to 5- and 10-week follow-up (Table 21).

Table 21. Changes in activity level (low, moderate, and vigorous; IPAQ) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5 wks	5 weeks to 10 wks	Baseline to 10 wks
9	3	3	3	0	0	3
18	3	3	2	0	-1	3
25	1	3	1	2	-2	1
23	3	3	3	0	0	3
30	3	3	3	0	0	3
32	3	3	3	0	0	3
41	1	2	2	1	0	1
43	2	3	3	1	0	2
46	3	3	3	0	0	3

Note.  $n = 10$ ; \* Significant reliable change index ( $Z > 1.96$ ).

Finally, the IPAQ also measures average hours of sitting per week. No statistically significant differences in hours spent sitting per week were found among patients who attended the Kickstart Health Program who completed 5-week follow-up ( $n = 11$ ) nor 10-week follow-up ( $n = 9$ ; Table 22).

Table 22. Changes in hours sitting per week (IPAQ) from Baseline to 5-and 10-week follow-up.

	Baseline <i>M (SD)</i>	Follow-Up <i>M (SD)</i>	<i>Mdiff</i> <i>(SDdiff)</i>	<i>t</i>	<i>p</i>	<i>d</i>
Baseline to 5-Weeks	12.00 (7.72)	12.96 (6.99)	.95 (5.11)	.62	.55	<b>.13</b>
Baseline to 10-Weeks	12.83 (8.19)	11.40 (9.16)	-1.44 (7.27)	-.59	.57	<b>-.16</b>

Note. 5-week  $n = 11$ ,  $df = 10$ ; 10-week  $n = 9$ ,  $df = 8$ .

Only 6 of the 12 patients who attended the Kickstart Health Program at the 5-week follow-up provided their daily step count. Among those who responded, there was no significant change in average daily steps from baseline ( $M = 5,820.83$ ,  $SD = 3,256.86$ ) to 5-week follow-up ( $M = 5,601.83$ ,  $SD = 3,872.50$ ),  $t(5) = .21$ ,  $p = .84$ ,  $d = .06$ . Only 4 of the 9 patients who attended the Kickstart Health Program at the 10-week follow-up provided their daily step count. Again, there was no statistically significant change in average daily steps from baseline ( $M = 6,500.00$ ,  $SD = 1,732.05$ ) to 10-week follow-up ( $M = 7,125.00$ ,  $SD = 2,462.21$ ),  $t(3) = .74$ ,  $p = .52$ ,  $d = .29$ .

**Mindfulness.** Among those who attended at least one session, 11 patients who completed 5-week follow-up and 8 patients who completed 10-week follow-up did not provide a baseline number of days over a 2-week period that they engaged in mindfulness meditation. Between 5- and 10-week follow-up, 7 patients provided responses at both time points. Given the response rate, a paired samples t-test was utilized to assess differences in number of days engaged in mindfulness meditation between 5- to 10-week follow-up. There was no significant difference in the number of days they practiced mindfulness meditation from 5-week follow-up ( $M = 6.14$ ,  $SD = 3.89$ ) to 10-week follow-up ( $M = 4.71$ ,  $SD = 1.50$ ),  $t(6) = 1.4$ ,  $p = .21$ .

When assuming that those who did not respond at baseline, 5-, or 10-week follow-up were not engaging in mindfulness meditation (i.e., recorded as a zero response), a significant increase in days spent meditating was found between baseline and 5-week follow-up ( $n = 12$ ) as well as between baseline and 10-week follow-up ( $n = 9$ ; Table 23).

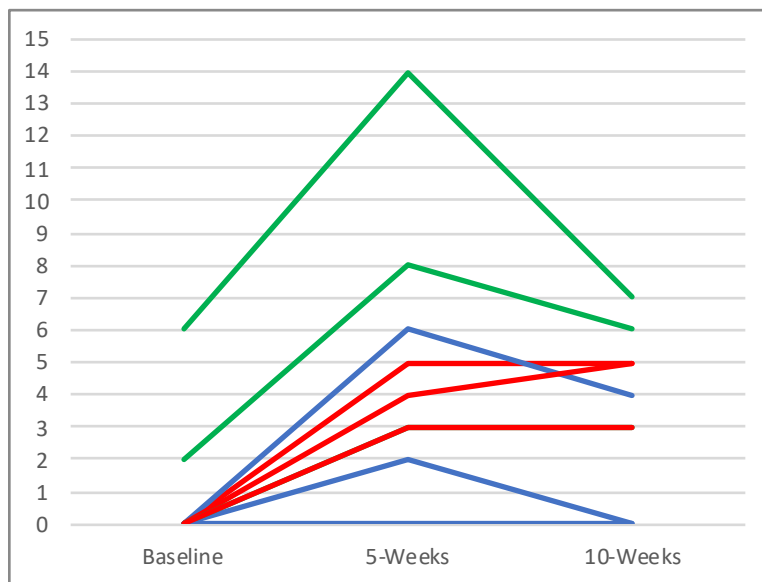
*Table 23.* Patients increased the number of days over 2-weeks engaged in mindfulness meditation from baseline to 5-and 10-week follow-up.

	<b>Baseline M (SD)</b>	<b>Follow-Up M (SD)</b>	<b>Mdiff (SDdiff)</b>	<b>t</b>	<b>p</b>	<b>d</b>
Baseline to 5-Weeks	1.08 (2.15)	4.25 (3.82)	3.17 (2.87)	3.80	.003*	<b>1.02</b>
Baseline to 10-Weeks	.89 (2.03)	3.67 (2.45)	2.78 (1.99)	4.20	.003*	<b>1.24</b>

*Note.* 5-week  $n = 12$ ,  $df = 11$ ; 10-week  $n = 9$ ,  $df = 8$ ; \* $p < 0.5$ .

Figure 10 depicts changes in the number of days over a 2-week period in which patients were engaged in mindfulness meditation.

*Figure 10.* Days over 2 weeks in which mindfulness meditation was practiced at baseline, 5-, and 10-weeks.



*Note.* Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session.

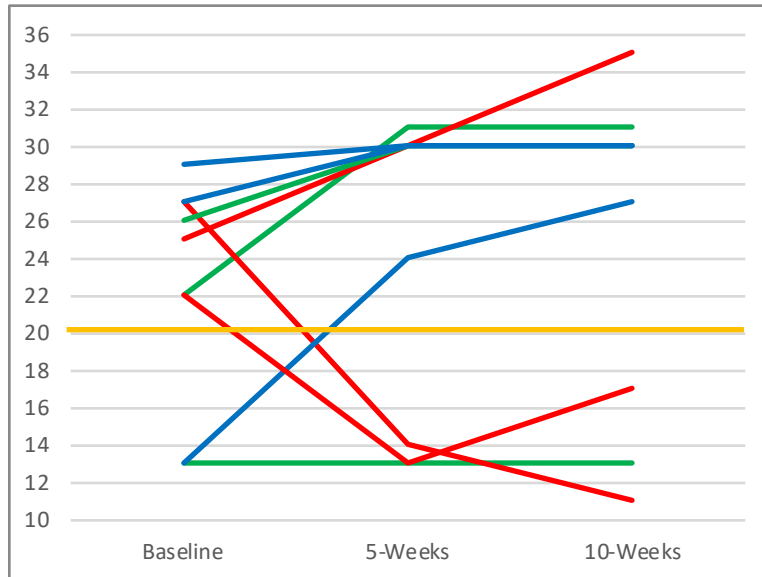
**Overall health and wellbeing.** Paired samples t-tests were conducted to compare changes in overall satisfaction with life (SWL) and perceived health (SF-8) from baseline to 5-week follow-up among those patients who attended at least one session of the Kickstart Health Program ( $n = 12$ ). There was no significant change from baseline ( $M = 22.58$ ,  $SD = 5.58$ ) to 5 weeks ( $M = 23.25$ ,  $SD = 7.45$ ) in satisfaction with life (SWL),  $t(11) = .34$ ,  $p = .74$ . There was also no significant change from baseline ( $M = 28.25$ ,  $SD = 6.40$ ) to 5-weeks ( $M = 27.83$ ,  $SD = 7.00$ ) in perceptions of health (SF-8),  $t(11) = .42$ ,  $p = .69$ .

Paired samples t-tests were also conducted to compare changes in satisfaction with life and perceived health among patients who attended at least one session at 10-week follow-up ( $n = 9$ ). There was no significant change from baseline ( $M = 22.67$ ,  $SD = 5.94$ ) to 10-weeks ( $M = 18.00$ ,  $SD = 12.6$ ) in satisfaction with life (SWL),  $t(8) = -.98$ ,  $p = .36$ . There was also no significant change from baseline ( $M = 27.89$ ,  $SD = 6.86$ ) to 10-weeks ( $M = 28.78$ ,  $SD = 8.61$ ) in perceptions of health (SF-8),  $t(8) = .45$ ,  $p = .67$ .

Individual changes in satisfaction with life (SWL) from baseline to 5- and 10-weeks for those who completed a 10-week follow-up survey and attended at least one session of the Kickstart Health Program can be found in Figure 11.



Figure 11. Changes in satisfaction with life (SWL) from baseline to 5- and 10-week follow-up.



Note. Red = patient who attended 1-2 sessions, Blue = 3-4 sessions, and Green = 5 or more session. Scores >20 are considered “satisfied” and scores <20 “dissatisfied.”

Reliable change in satisfaction with life was also calculated for these 9 patients (Table 24). Five patients reported significant increases in satisfaction with life from baseline to 10-weeks. Two patients reported a significant decrease and two patients reported no change.

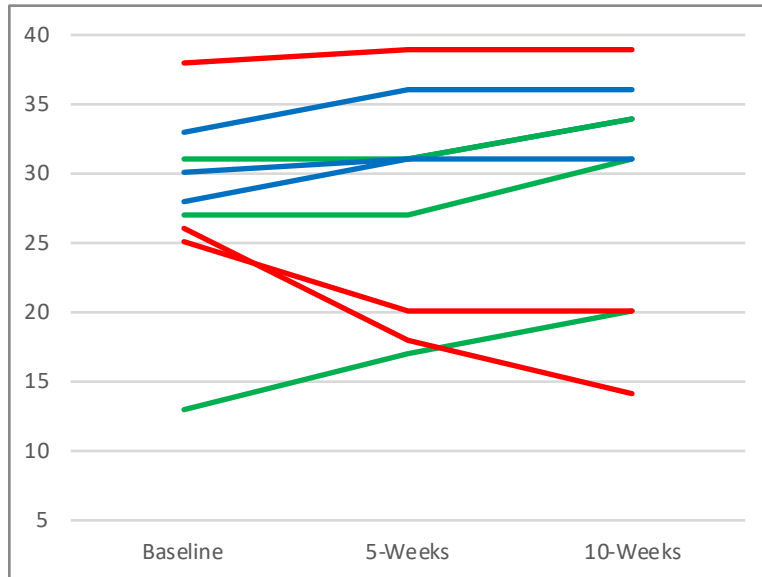
Table 24. Reliable change in satisfaction with life (SWL) at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week	Baseline to 5 wks	5 weeks to 10 wks	Baseline to 10 wks
9	22	31	31	6.98*	0.00	6.98*
18	13	13	13	0.00	0.00	0.00
23	27	14	11	-10.08*	-2.33	-12.40*
25	13	24	27	8.53*	2.33*	10.85*
30	29	30	30	0.78	0.00	0.78
32	25	30	35	3.88*	3.88*	7.75*
41	26	30	30	3.10*	0.00	3.10*
43	27	30	30	2.33*	0.00	2.33*
46	22	13	17	-6.98*	3.10*	-3.88*

Note.  $n = 10$ ; Scores  $>20$  are considered “satisfied” and scores  $<20$  “dissatisfied”;  
\*significant reliable change index ( $Z > 1.96$ ).

Individual changes in perceptions of health (SF-8) from baseline to 5- and 10-weeks for those who completed a 10-week follow-up survey and attended at least one session of the Kickstart Health Program can be found in Figure 12.

Figure 12. Changes in perceptions of health (SF-8) from baseline to 5- and 10-week follow-up.



Note. Red = patients who attended 1-2 sessions, blue = 3-4 sessions, and green = 5 or more session; scores range from 5 (poor) to 40 (great).

Reliable changes in perceptions of health were also calculated for these 9 participants (Table 25). Over half ( $n = 5$ ) reported significant increases in positive perceptions of health from baseline to 10-weeks. Two people reported a substantial decrease. Notably, these 2 patients were the same 2 patients who reported significant decreases in satisfaction with life. Two patients reported no significant change.

Table 25. Reliable change in perceived health (SF-8) at 5- and 10-week follow-up.

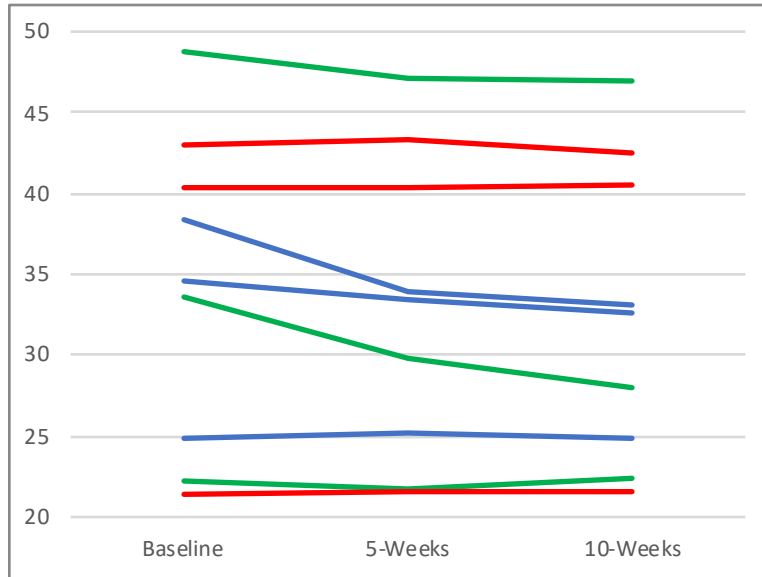
ID#	Baseline	5-Week	10-Week	Baseline to 5-wks	5-weeks to 10-wks	Baseline to 10-wks
9	27	27	31	0.00	2.76*	2.76*
18	13	17	20	2.76*	2.07*	4.83*
23	26	18	14	-5.52*	-2.76*	-8.28*
25	28	31	34	2.07*	2.07*	4.14*
30	33	36	36	2.07*	0.00	2.07*
32	38	39	39	0.69	0.00	0.69
41	31	31	34	0.00	2.07*	2.07*
43	30	31	31	0.69	0.00	0.69
46	25	20	20	-3.45*	0.00	-3.45*

Note.  $n = 10$ ; scores range from 5 (poor) to 40 (great); \* significant reliable change index ( $Z > 1.96$ ).

Paired samples t-tests were conducted to assess for significant changes in BMI and no significant decrease from baseline ( $M = 35.53$ ,  $SD = 11.27$ ) to 5-week follow-up ( $M = 34.58$ ,  $SD = 11.71$ ) was found,  $t(12) = -2.03$ ,  $p = .07$ . There was also no significant decrease in BMI from baseline ( $M = 34.15$ ,  $SD = 9.59$ ) to 10-week follow-up ( $M = 32.50$ ,  $SD = 9.18$ ) among patients who attended at least one session of the Kickstart Health Program,  $t(12) = -2.15$ ,  $p = .06$ .

Changes in BMI from baseline to 5- and 10-weeks for those who completed a 10-week follow-up survey and attended at least one session of the Kickstart Health Program can be found in Figure 13.

Figure 13. Changes in BMI from baseline to 5- and 10-week follow-up.



*Note.* Red = patients who attended 1-2 sessions, blue = 3-4 sessions, and green = 5 or more session.

Changes in overweight to obese categorization among these patients can be found in Table 26.

Table 26. Changes in BMI and overweight/obese qualification at 5- and 10-week follow-up.

ID#	Baseline	5-Week	10-Week
9	22.14	21.80	22.31
18	48.74	47.16	46.96
23	43.04	43.40	42.51
25	34.54	33.48	32.59
30	24.89	25.23	24.89
32	21.63	21.63	21.63
41	33.65	29.76	27.99
43	38.39	33.96	33.08
46	40.35	40.35	40.51
Total overweight	6	7	6
Total obese	6	5	5

Note.  $n = 10$ ; overweight = BMI >25, obese = BMI >30; \* significant reliable change index ( $Z > 1.96$ ).

Finally, patients were asked what lifestyle changes they made as a result of attending the Kickstart Health Program. Qualitative analyses were conducted to draw themes from the responses (Hesse-Biber & Leavy, 2010). Patients could provide multiple answers to this question, and overall, increasing mindfulness was endorsed as the most common lifestyle change to result from attending the group (endorsed 8 times). Furthermore, 5 patients endorsed changes in exercise and 4 patients changes in nutrition that they believed resulted from having attended the program. Global changes to physical and mental health were endorsed by 4 patients and they provided the following responses:

1. "I'm off all anxiety medication and back on track."

2. “The program made me realize that I am putting more emphasis on things that may not mean that much to me and lowering what should be on top. I think through the choices I am making now to make sure they align with my goals.”
3. “I look at exercise differently, and I am proud of myself for accomplishing the little feats instead of kicking myself for not completing the goals I set for myself. This program has changed my view of things I have done in the past and has helped me feel better about myself as well as help me learn new information about health and exercise.”
4. “I have become healthier. By being in this group, and joining [medical weight loss], I have been able to put my health first. I have lost 30 pounds and feel more in control of my outcomes. I know that not everything can be perfect, but I can make small changes.”

Two patients reported no significant lifestyle changes due to attending the group; however, one of these patients reported that change occurred indirectly due to attending the group with a loved one. One patient did not respond to this question.

**Summary of Outcome Results.** Given the small number of patients who attended at least one session of the Kickstart Health Program and completed both 5- and 10- week follow-ups ( $n = 9$ ), changes from baseline to follow-up in several measures of health-related self-efficacy, nutrition, physical activity, and overall well-being were not significant. Upon further exploration of individual patients’ reliable change over the course of the study, some notable changes were detected.

Patients reported fewer barriers and somewhat less reliance on social cues to engage in exercise from baseline to 10-week follow-up. Several patients also reported a

decrease in perceived susceptibility to illness impacting their likelihood to exercise. Furthermore, patients endorsed a moderate increase in self-efficacy related to making better food choices from baseline to 5-weeks ( $d = .49$ ); however, this effect did not remain at 10-week follow-up ( $d = .16$ ).

Patients did not report significant changes in nutrition as measured by the SFFQ nor significant changes in physical activity as measured by the IPAQ and self-reported step count. Most notably was the significant increase in days spent engaging in mindfulness meditation that was endorsed at both 5- and 10-week follow-up ( $d = 1.02$  and  $1.24$ , respectively).

When examining perceptions of overall health and well-being, it appeared that two patients, who each attended one session and reported dissatisfaction with elements of the study, reported clinically significant decreases in health and well-being. Most patients ( $n = 5$ ) reported increases in these outcome measures (i.e., SF-8 and SWL scale) from baseline to 10-week follow-up.

### **Exploratory analyses**

To better understand the low rate of attendance to the Kickstart Health Program, additional analyses were conducted on variables likely to influence one's attendance, such as perceived beliefs and barriers to engaging in healthy activity. Patients who completed the baseline survey but never attended a session ( $n = 9$ ) were compared on measures of health-related self-efficacy (i.e., HBM Scales and HSSE) to individuals who attended at least one session ( $n = 13$ ). One patient who completed a baseline survey but never completed follow-up surveys and never attended a session was eliminated from the following HBM scale analyses due to significant missing data.



All patients ( $N = 22$ ), including those who did and did not attend the program, reported significantly higher nutritional self-efficacy compared to exercise self-efficacy, suggesting that patients overall felt surer that they could overcome barriers to nutrition than exercise (nutrition  $M = 14.54$ ,  $SD = 3.19$ ; exercise  $M = 12.18$ ,  $SD = 3.73$ ;  $t = 2.98$ ,  $p = .007$ ). Comparing those who did or did not ever attend a session of the program, no statistically significant differences in self-efficacy were found looking at either measure (HSSE and HBM Scales; Table 27). Notably, lower scores on measures of self-efficacy that would be considered minimally to largely significant were found when comparing effect sizes between those who did and did not attend at least one session. Patients who attended the program reported somewhat fewer barriers to exercise ( $d = -.18$ ), fewer perceived benefits to exercise ( $d = -.90$ ), fewer cues to engage in exercise ( $d = -.80$ ), fewer perceived risks ( $d = -.66$ ), and somewhat less social influence to engage in exercise ( $d = -.23$ ). “Attenders” also reported somewhat, but not statistically significantly, lower scores on self-efficacy related to food.

Table 27. Baseline self-efficacy differences between those who did or did not attend at least one session of the KSH program.

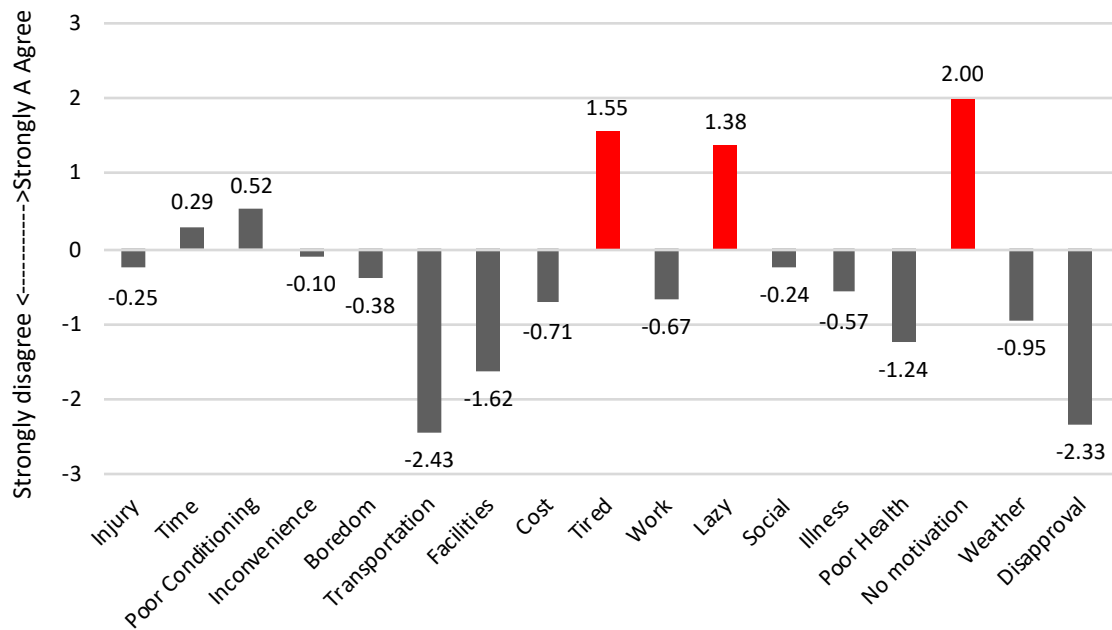
	<i>n</i>	<i>M(SD)</i>	<i>Mdiff (SEdiff)</i>	<i>t</i>	<i>p</i>	<i>d</i>
<b>HSSE</b>						
<i>Food</i>			.58 (1.41)	.41	.69	.17
Did not attend	9	14.89 (4.01)				
Attended	13	14.31 (2.63)				
<i>Exercise</i>			.07 (1.66)	.04	.97	.02
Did not attend	9	12.22 (3.96)				
Attended	13	12.15 (3.74)				
<b>HBM Scale</b>						
<i>Exercise barriers</i>			2.65 (6.55)	.43	.68	.18
Did not attend	8	63.85 (16.65)				
Attended	13	61.20 (12.54)				
<i>Exercise benefits</i>			11.34 (5.13)	1.95	.07	.90
Did not attend	8	82.26 (7.26)				
Attended	13	70.92 (16.30)				
<i>Cues to exercise</i>			8.95 (5.10)	1.75	.10	.80
Did not attend	8	49.71 (7.65)				
Attended	13	40.77 (13.85)				
<i>Perceived risk</i>			8.34 (5.39)	1.55	.14	.66
Did not attend	8	43.26 (13.91)				
Attended	13	34.92 (11.33)				
<i>Social influence</i>			1.61 (3.10)	.52	.61	.23
Did not attend	8	26.75 (6.38)				
Attended	13	25.14 (7.63)				

Note. One patient who completed a baseline survey but never attended a session was missing >10% of the items on the HBM scales and was not included in exploratory analyses that included the HBM scales.

Finally, individual scores on the HBM scales were analyzed to look for specific barriers that may have impacted attendance. Scores on 3 of the HBM scales were re-centered to range from -3 (strongly disagree) to 3 (strongly agree), which included barriers to exercise, benefits of exercise, and susceptibility to health problems. The other two

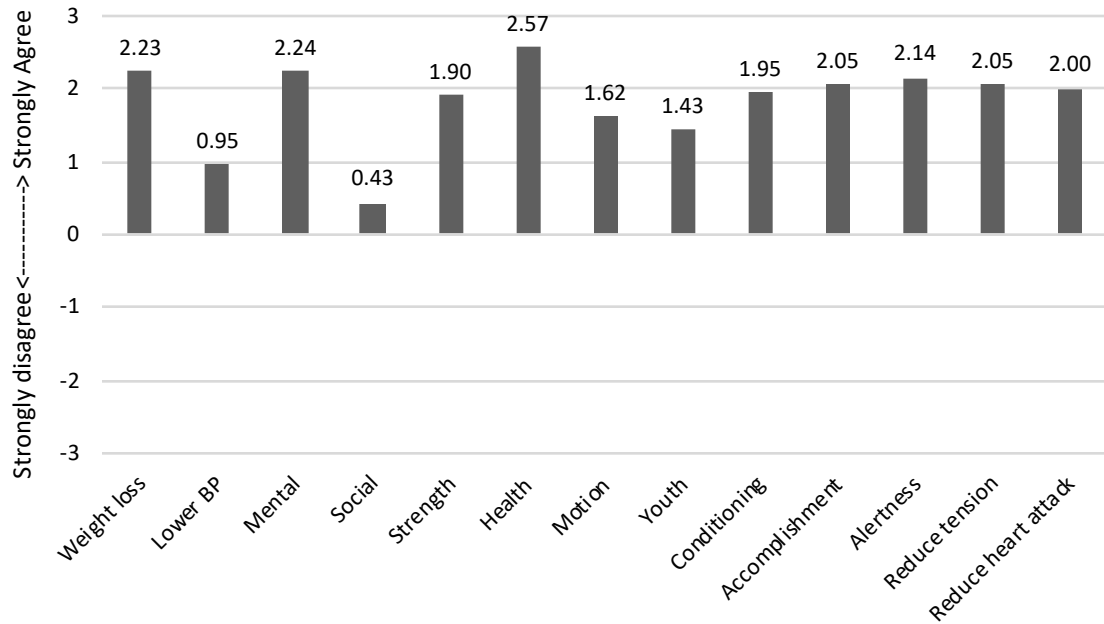
scales, cues to action and social influence, yielded scores from 1-5, with higher scores indicating more influence to engage in exercise. Scale conversions were completed due to the change in wording between the first three and last two HBM scales (i.e., strongly disagree/agree versus none/somewhat to extremely high). Patients reported being tired ( $M = 1.55$ ,  $SD = 1.28$ ), lazy ( $M = 1.38$ ,  $SD = 1.86$ ), and not motivated ( $M = 2.00$ ;  $SD = 1.18$ ) as top reasons to avoid exercise. Furthermore, patients reported that spouses and physicians most influenced their likelihood to exercise. See Figures 14-18 for baseline means of all individual HBM scale items.

Figure 14. Average baseline scores on the health belief model subscale: Exercise barriers.



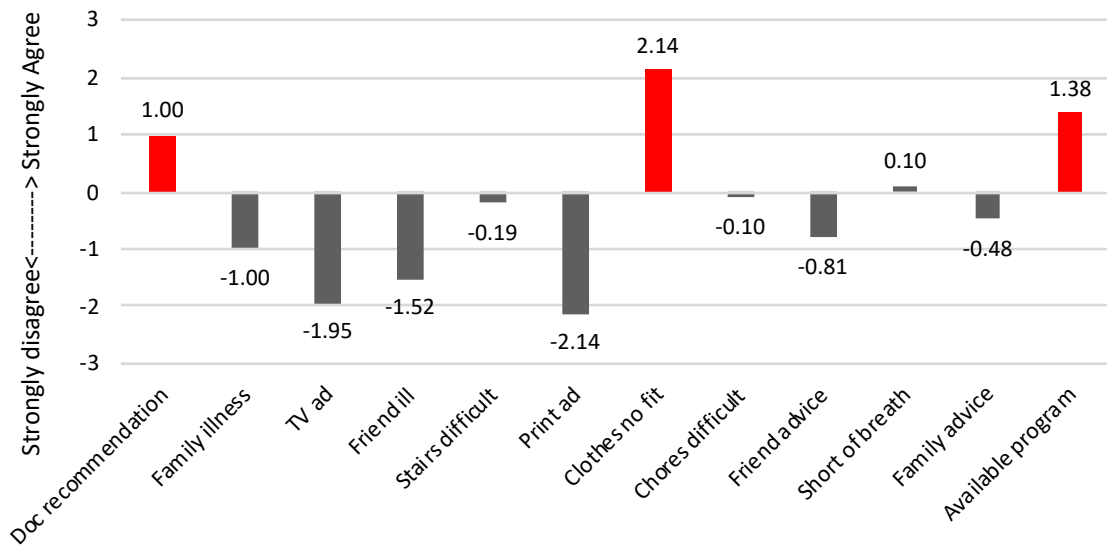
Note.  $n = 22$ .

Figure 15. Average baseline scores on the health belief model subscale: Exercise benefits.



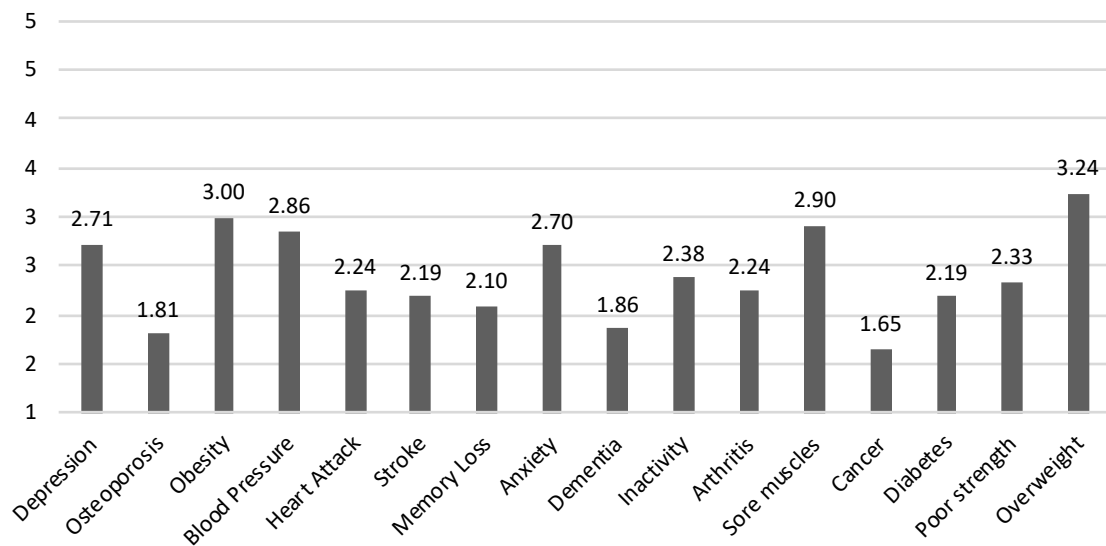
Note.  $n = 22$ .

Figure 16. Average baseline scores on the health belief model subscale: Cues to action.



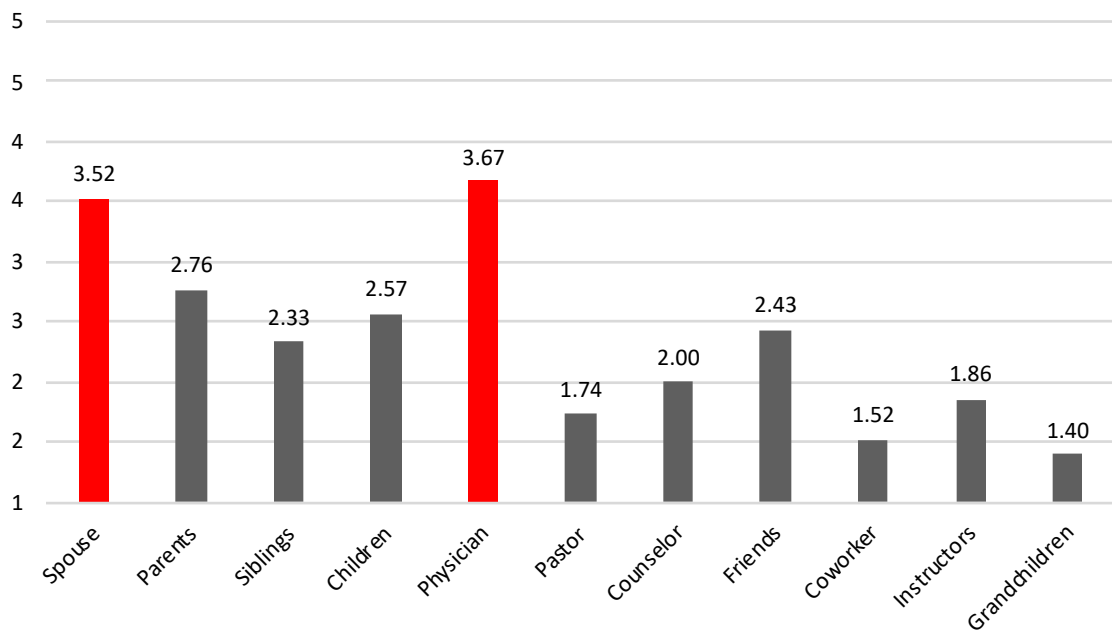
Note.  $n = 22$ .

Figure 17. Average baseline scores on the health belief model subscale: Perceived susceptibility to illness.



Note.  $n = 22$ .

Figure 18. Average baseline scores on the Health Belief Model Subscale: Social Influence.



Note.  $n = 22$ .

Average scores on the individual HBM scale items were compared with an independent samples t-test or a Mann Whitney U nonparametric test when variances were unequal on a scale. Patients who never attended the Kickstart Health Program ( $n = 8$ ) were more likely to report that being tired ( $M = 2.38$ ,  $SD = 0.74$ ) and lazy ( $M = 2.50$ ,  $SD = 0.76$ ) were reasons to not exercise compared to those who attended ( $n = 13$ );  $t(18) = 2.62$ ,  $p = .02$ ; lazy:  $U = 17.50$ ,  $p = .01$ . Patients who attended at least one session reported lower rates of being tired ( $M = 1.00$ ,  $SD = 1.35$ ) and lazy ( $M = 0.69$ ,  $SD = 2.02$ ) as barriers to exercise. No significant differences were found between “never attenders” ratings of low motivation as a barrier to exercise ( $M = 2.25$ ,  $SD = 0.71$ ) and attenders’ ratings ( $M = 1.85$ ,  $SD = 1.41$ );  $t(18) = 0.75$ ,  $p = 0.46$ . Finally, when analyzing individual responses on the HBM social influence scale, a notable elevation was detected on endorsement of spouses or physicians as the persons most likely to influence the patient’s likelihood of engaging in exercise.

## **CHAPTER 4**

### **DISCUSSION**

The notion that psychology is an integral part of health is gaining traction in the health care field, as demonstrated by the movement to integrate behavioral health into medical settings (Ammerman et al., 2002; Cummings & Cummings, 1997; Cummings et al., 2003; Eakin et al., 2000; Hunter, Bodmeyer, & Reiter, 2018; Sandoval, Bell, Khatri, & Robinson, 2018; Serrano, Cordes, Cubic, & Daub, 2018). To contain costs and provide a socially supportive experience, group interventions may be one way to deliver much-needed psychological and behavioral services in an efficient way. Despite the fact that group interventions for health behavior change are generally efficacious (Abood et al., 2003; Brown et al., 2015; Loh et al., 2015; Mirotznik et al., 1995; Ortega et al., 2014; Rock et al., 2013; Rock et al., 2015; Stacey et al., 2015; Turk et al., 2016), it has been difficult to implement and integrate group interventions in a primary care setting.

The current study tested the acceptability and feasibility of a novel health behavior change intervention, the Kickstart Health Program, in a primary care clinic. The Kickstart Health Program was based on tenets of the Health Belief Model (Rosenstock, 1990) and aimed to improve diet, increase exercise, and help patients manage stress through the proposed mechanism of increased health-related self-efficacy. It incorporated cognitive, behavioral, and experiential approaches and applied a flexible delivery method (i.e., rolling admission, varied date and time options, and sessions occurring every other week). The results of the study demonstrated that patients perceived the Kickstart Health Program as acceptable and satisfactory. Furthermore, the Kickstart Health Program was feasibly integrated into a primary care setting with minimal additional costs to facilities

with established behavioral health providers. Promising results were found in increasing overall perceptions of health, well-being, and engagement in mindfulness meditation.

### **Feasibility of The Kickstart Health Program**

The Kickstart Health Program reached patients across the family medicine practice who varied in age and education; however, those who attended were predominantly Caucasian women, which was consistent with other studies of group health interventions (Abood et al., 2003; Brown et al., 2015; Fuchs et al., 2016; Turk et al., 2016; Weineland et al., 2012).

Difficulties with the referral process in the current study likely had a large impact on attendance. Physicians provided several suggestions at study completion for improving this issue, including embedding referrals into the electronic medical record that would be included in the patient's after care summary. Although a third of the patients who attended the Kickstart Health program attended four or more sessions, fewer total patients than expected showed interest in attending the program at all. Lack of attendance was the largest threat to the feasibility of the Kickstart Health Program. Patients surveyed at follow-up who were unable to attend a session reported that work, child care, and transportation were barriers to attending.

It is unlikely that only logistical barriers, such as time and transportation, explain attendance barriers to the Kickstart Health Program. In a study assessing factors that impact attendance to doctor's appointments among patients with poor glycemic control, researchers found that those who attended regular appointments did not differ in socioeconomic variables (e.g., distance from clinic, etc.), but those who attended their appointments were significantly more interested in soliciting advice from physicians and



providing opinions about their health to their physicians (Jacobson, Adler, Derby, Anderson, & Wolfsdorf, 1991). Additionally, educational attainment and whether or not an individual lived alone impacted attendance to health check-up visits among a large community sample invited to attend a preventive health program which included exam and consultation (Bjerregaard, Maindal, Bruun, & Sandbæk, 2017). These studies suggest individual differences in perceived control over one's health may also contribute to attendance.

Among patients interested in attending the Kickstart Health Program, those who did or did not attend at least one session of the Kickstart Health Program endorsed elevated cognitive barriers to engaging in exercise, such as perceiving oneself as tired, lazy, and unmotivated. Surprisingly, patients did not rate highly on measures of self-efficacy those barriers that they endorsed on measures of feasibility (i.e., transportation and time). One could argue that cognitive barriers may be more challenging to overcome and more difficult to identify in a medical setting than environmental barriers. While overall differences in health-related self-efficacy were not detected between those who did or did not attend the group, those who never attended a session of the Kickstart Health Program did endorse significantly higher ratings of perceiving oneself as "lazy" and "tired" as barriers to exercise. Little is known about how self-efficacy may predict group attendance. A small study of 12 patients with chronic pain transitioning from clinical care to a community-based support group found that lower self-efficacy may have been related to less confidence in group attendance (Finlay & Elander, 2016); however, no controlled studies directly measure baseline self-efficacy as a predictor of later group attendance, specifically in the context of engaging in a therapeutic health behavior change group. Self-

efficacy, a mechanism of change hypothesized to impact patient engagement in health behaviors in the current study, may have impacted attendance to the program itself. If lower self-efficacy predicts those who will attend an exercise and nutrition-based program at all, consideration must be given to the process by which patients are introduced to the program, before they even attend their first session.

Furthermore, those who attended at least one session of the Kickstart Health Program compared to those who completed a baseline survey but never attended reported fewer barriers to exercise, needing less help or cues to exercise, but saw fewer benefits to exercise and perceived fewer risks if they were to not engage in physical activity. One hypothesis is that those who attended already felt in control of their health behaviors. It is also likely that patient motivation to attend and engage in health behavior change varied by readiness to change or other individual differences (Prochaska & Velicer, 1997; Sebire et al., 2018). What is a motivation for one person, may be a deterrent for another. This was supported in the current study given that patients varied in descriptive reports on what they liked about the group and what changes in their life resulted from attending. Some patients reported no changes and some patients expressed substantial change, such as notable weight loss and no longer needing medication for managing anxiety.

A final factor that may have impacted attendance and engagement in the Kickstart Health Program was perceived social support, anticipated to increase the likelihood that one would engage in physical activity. Patients in the current study reported that social influence to exercise was most strongly associated with their spouse and physician. This is an important observation to take note of because participants appear to achieve

significantly more weight loss success in couple-based behavioral weight loss programs compared to programs in which subjects attend alone (Black, Gleser, & Kooyers, 1990; Brownell, Heckerman, Westlake, Hayes, & Monti, 1978). Additionally, physicians in a family medicine practice who utilized motivational interviewing techniques with patients, particularly women, increased patient efforts to lose weight and exercise (Pollak et al., 2007). A meta-analysis also found that primary care providers' advice on weight loss significantly impacts patient behavior (Rose, Poynter, Anderson, Noar, & Conigliaro, 2013). These findings shed light on those who may be most influential in healthy behavior change and suggest that interventions focused on increasing attendance to health behavior change groups may be most successful if they incorporate partners and physicians.

It is not always clear whether logistical (e.g., time or transportation), economic, social, or psychological/emotional factors impact patient attendance to appointments and groups aimed to improve their health and prevent disease. It is clear, however, that increasing attendance is a multi-faceted challenge to implementing health behavior group therapy interventions in medical settings.

Regarding consistency of implementation, several changes were made during the course of the study to accommodate group needs. The facilitator would break from group structure if there were therapeutic needs specific to that group. For example, the facilitator may not have followed through with the scheduled exercise if there was only one patient present in the group who reported excess exercise was a barrier to their weight loss. Some changes to the recruitment process were also implemented. An emphasis on email over phone reminders was implemented due to the difficulty in reaching patients via

telephone and IRB restrictions regarding leaving a voice message. Furthermore, individuals who were not patients at the family medicine clinic, but had family members who were, were allowed to attend sessions, and this provided a more naturalist study environment that encouraged attendance.

### **Patient Acceptability of The Kickstart Health Program**

Patients reported that the Kickstart Health Program was acceptable and expressed that they were satisfied with the group components, structure, and instruction provided. Specifically, patients reported that they felt that the skills offered in the group fit well with their overall health goals. It was hypothesized that patients may have difficulty with the writing portions of the program; however, this was not evident in the results. Patients also expressed that aspects of the facilitator, such as genuineness, quality of instruction, and relatability, were favorable. The logistical elements of the group, such as session frequency and length, were satisfactory to patients and this suggests that the group's structure and facilitation are acceptable to patients in a primary care clinic.

It is important to note that therapist factors are not unique to the Kickstart Health Program but were important to patients who attended. Similar therapist factors influence outcomes in individual therapeutic intervention as the ones identified by the patients in the Kickstart Health Program (Norcross & Lambert, 2011). A conclusion drawn is that acceptability of the program in a primary care setting will be influenced by the individuals who deliver it, and facilitator factors should be considered when assessing acceptability and feasibility of health behavior change groups offered in medical settings.

In general, patients felt connected to the group, and group attitude scores were related to attendance. Group cohesion may predict health outcomes, such as weight-loss,

in behavioral health programs (Nackers et al., 2015), as well as general therapeutic outcomes in traditional group therapy (Marziali et al., 1997). One patient who did not return for additional sessions of the Kickstart Health Program reported that they felt less connected to the group due to feeling uncomfortable attending a session with only one other individual of a different sex. Fuchs and colleagues (2016) also highlighted the importance of group support on attendance; however, they did not assess support using the Group Attitudes Scale (GAS), but with thematic coding of qualitative data. Although scores on the GAS were overall positive among those who attended, the Kickstart Health Program may have achieved higher ratings of group cohesiveness had groups been conducted with more than 1-2 individuals present in one session.

Alternatively, some argue that group cohesion is less important, and that more specific psychological factors, such as therapist factors, are rarely measured in group studies (Hornsey, Dwyer, & Oei, 2007). In the current study, several patients reported that they enjoyed the one-on-one attention that they received when other members of the group were not present, suggesting that high group cohesiveness in prior studies could be a measure of therapeutic alliance or, as Hornsey and colleagues (2007) suggest, a measure of identification, homogeneity, and/or interdependence. It is also possible that group attitudes in the current study are by proxy a measure of negative affect. Negative affect is related to global psychological outcomes, such as depression and anxiety, (Crawford & Henry, 2004), and has also been found to mediate the relationship between self-compassion and the likelihood of engaging in health behavior change (Sirois, Kitner, & Hirsch, 2015). It is possible that negative affect impacted outcomes for the patient who endorsed a poor attitude about the group in the acceptability and feasibility survey.

Patients reported that they were most satisfied with strength training, walking, and yoga, but less so with cardio kickboxing and dance. It is possible that satisfaction with the exercise portion of the program is a reflection of individual preference for exercise intensity (Ekkekakis, Hall, & Petruzzello, 2005). When considering the intensity of exercise, having a preference for or tolerance of exercise and its associated discomfort was related to engaging in resistance training (i.e., short repetitions of exercise with rest periods for muscle contraction), but not aerobic exercise (i.e., continuous, constant exercise; Flack, Johnson, & Roemmich, 2017). Cardio dance and kickboxing were objectively higher-intensity activities than walking, strength training, and yoga in the Kickstart Health Program. Although creating variety in exercise can increase the likelihood of engaging in physical activity, particularly among those whose psychological needs are not satisfied, exercise variety may also impact feelings of competence, autonomy, and relatedness (Sylvester, 2018).

It is possible, too, that patients in the current study did not feel competent in or relate to kickboxing or dance. Patients were observed as more hesitant during the cardio kickboxing and dance portions of the Kickstart Health Program. These activities required added effort on the facilitator's part to teach, suggesting that they were more complex and cognitively taxing. Although the CDC (2016b) recommends that individuals get 2.5 hours of moderately intense exercise and 2 or more days of muscle strengthening activities a week, the exact modality of that exercise is unknown and likely to be individual. That being said, to avoid the added burden to learn these more intense activities, individuals who were seeking an introductory exercise group may benefit from groups

offering less intense, easy-to-learn activities to develop knowledge and test out a preference and tolerance for certain exercise.

Patients reported some difficulty in learning the mindfulness meditation components of the group. Specifically, those who attended the Kickstart Health Program reported some difficulties with learning mindfulness meditation due to difficulty in learning the skill and practicing meditation, but most patients expressed that they were able to master this concept. Patients in the current study did not report that distressing or traumatic experiences impeded their ability to learn mindfulness meditation. Nevertheless, the initial difficulty in learning meditation did not seem to impact their likelihood of practicing meditation. Prior research analyzing the challenges of mindfulness meditation reported that four experiences may impede an individual's ability to successfully practice mindfulness meditation: difficulty in learning skills and practicing, encountering distressing thoughts and feelings, exacerbating other mental health issues (i.e., depression and anxiety), and triggering a psychotic episode (Lomas, Cartwright, Edginton, & Ridge, 2015).

### **Provider Acceptability of The Kickstart Health Program**

It appeared that physicians were not entirely satisfied with the referral process and found the Kickstart Health Program only somewhat integrated into their medical practice. Although attitudes about the integration of behavioral health into medical practice have been mixed in the past (Chesluk, Tollen, Lewis, DuPont, & Klau, 2017), physicians appear to be adapting with enthusiasm to the integrated models that are being introduced to medical settings. Among a sample of pediatric clinics, physicians largely agreed that

integrated behavioral health services were satisfactory and improved quality of care (Hine et al., 2017).

It is more likely that technical or logistical difficulties impacted physician ratings of the usefulness of the Kickstart Health Program more so than the program's theoretical usefulness in aiding their patients. Furthermore, providers who gave qualitative feedback in their survey only mentioned suggestions for making referrals easier and means to help themselves better remember the program during a quick medical visit.

Unfortunately, physicians' attitudes towards integrated behavioral health care in general were not measured in the current study. Physicians were surveyed regarding their satisfaction and opinions related to specifically the Kickstart Health Program; thus, it is unknown if general attitudes about integrated care and behavioral health influenced the physician's opinions about the group.

It is also possible that the Kickstart Health Program was not truly integrated into the family medicine practice. There was no consult, collaboration, or coordinating of care between the group facilitator and the practicing physicians (Cohen et al., 2015). Physicians could only refer patients to the program, which signals that the program was not truly integrated into the practice. In fact, some physicians reported in the acceptability and feasibility survey that they forgot about that program because it was not part of their daily work flow. Residents attended a 1-hour seminar prior to study implementation that introduced them to the program and its utility in their practice. However, not all residents were present for this seminar, and the majority present were first-year residents new to the practice.



Provider acceptability may have also been improved if there were updates in the electronic medical record about patient attendance, collaboration between the facilitator of the group and the treatment teams, or if the facilitator had been present in the practice as a behavior health provider, not just conducting groups co-located in the practice. In fact, The Center for Integrated Health Solutions suggests that having behavioral health providers physically embedded in medical practice is necessary for a higher level of integration of behavioral health into a primary care practice (SAMHSA, 2019).

Finally, it is possible that the final physician acceptability and feasibility survey did not capture the opinions and experiences of the residents who provide the bulk of the services at the family medicine clinic. Recall that only about one-third of the providers at the clinic responded to the survey and only about one-third of those who responded were residents.

### **Preliminary Outcomes: Health, Self-efficacy, Well-being, and Health Behavior**

Although the primary aims of the current study were to assess acceptability and feasibility, changes in health-related outcomes were found among patients who attended the Kickstart Health Program. The Kickstart Health Program focused on three general health domains: stress reduction, nutrition, and exercise. Elements of the group were designed to foster learning and subsequent behavior change in these three domains. It was hypothesized that this could be done by incorporating acceptance and commitment therapy, cognitive-behavioral therapy, motivational interviewing, and experiential exposure into an easily accessible, person-centered group offered in a medical setting, given that these treatment modalities and styles have shown efficacy in fostering health behavior change in prior controlled studies (Beauchamp et al., 2011; Dreer & Linley,

2017; Martins & McNeil, 2009; Musetti et al., 2018; Rock et al., 2013; Spahn et al., 2010; Weineland et al., 2012; Wetherell et al., 2011). It was thought that these modalities may work in reducing stress, improving nutrition, and increasing exercise through the mechanism of increasing one's self-efficacy to make behavior change (Ellis & Kruglanski, 1992; Rosenstock, 1990; Rosenstock et al., 1988). Overall, the goal of the Kickstart Health Program was to teach patients in a family medicine practice how to better manage stress, nutrition, and exercise in order to obtain improved well-being and health.

Mindfulness meditation, a component of acceptance and commitment therapy, was taught to help patients better manage stress as well as improve eating behaviors (i.e., using mindful eating to avoid overeating; Katterman, Kleinman, Hood, Nackers, & Corsica, 2014). Several patients practiced mindfulness meditation more often, despite endorsing some difficulty in learning this technique. At the 5-week assessment, patients reported increasing the days they practiced mindfulness meditation by about 3 days, and this increase persisted at 10-week follow-up. These data are limited by missing information about baseline mindfulness practice for most of the patients, which was interpreted as patients not practicing mindfulness meditation at all.

Many patients in the current study also experienced improvements in perceptions of health and overall well-being that were not statistically significant, but clinically relevant. It is possible that the two patients who had low scores on global health and well-being, who reported dissatisfaction with the group itself, may have impacted overall significance in a small sample. Specifically, these patients reported dissatisfaction with fellow participants (mentioned in patient acceptability above) or found the information provided in the group redundant with other advice they had received from other health care

providers. Results from measuring overall well-being and health also support the possibility that negative affect, more so than group cohesiveness, may have impacted attendance and outcomes for these particular patients.

Regarding health-related self-efficacy, patients endorsed fewer barriers and somewhat less reliance on social cues to engage in exercise at 10-week follow-up. Unexpectedly, a decrease in perceived susceptibility to illness among patients was found. It was assumed that seeing oneself at risk for illness would increase one's likelihood to exercise. In another study utilizing the Health Belief Model (HBM) Scales, no significant relationship between the perceived susceptibility of illness scale and health behavior was found among a large sample of Maltese women being assessed for engagement in breast cancer screening (Marmarà, Marmarà, & Hubbard, 2017). One hypothesis for this is that this particular sub-scale does not predict self-efficacy to engage in health behaviors as well as the other scales. HBM Scales in the current study were administered at multiple time points; thus, another possibility is that improved perception of health may be indicative of decreased fear of illness over time. Although a fear of negative consequences was assumed to motivate healthy behavior change, it is also true among those suffering with chronic pain that fear can increase one's experience with pain and lead to more disabling behaviors (Leeuw et al., 2007). It is possible that fear of illness would impede exercise behaviors in a similar manner.

Fewer patients reported significant changes in nutrition or exercise. Significant differences from baseline to follow-up among items on the Simple Food Frequency Questionnaire were likely due to type I error, given several food groups were analyzed. A meta-analysis of studies utilizing psychological intervention, specifically social-cognitive

therapy-based interventions, found that diet behavior could be improved among a cancer population with a psychological intervention (Stacey et al., 2015). Thus, it is possible that dietary changes could not be detected in the current study due to a small sample size or poor measurement more so than the inability to increase that behavior via group intervention. Notably, three patients in the current study reported that they were currently on weight loss programs or utilizing meal delivery services.

It is likely that sample size also impacted the ability to see significant changes in physical activity among patients who attended the Kickstart Health Program. Notably, other behavior-based interventions have had success at increasing exercise behavior, again, among cancer populations (Schmitz et al., 2005). What could not be determined in the current study was the impact of the experiential components (i.e., in vivo exercise) on increasing physical activity outside of the group, and further research with larger samples will be necessary to better understand the effectiveness of the experiential elements of the Kickstart Health Program.

Patients did not report an increase in food diary usage; however, this was expected given the low rates of responding to questions regarding food diary use. It is also possible that the online food diary used in the current study may not have been user friendly compared to popular electronic food diaries (e.g., MyFitnessPal). Interestingly, a study by Rabbi and colleagues (2015) found higher rates of physical activity, but no differences in food consumption, between those using a personalized, health behavior logging app compared to a control group. This suggests that the quality of the food diary may not have impacted patient desire to use the food diary and further development of the program to increase food diary use is needed.

## **Future Directions**

Research on the development of health behavior interventions often focuses on specific group elements (e.g., activities, worksheets, treatment modality, etc.), and the current study provides evidence that program implementation and patient and provider opinions are important for future studies to assess. Although the current study was unable to assess efficacy and proposed mechanisms of change of the Kickstart Health Program, future studies that obtain larger samples of patients and utilize a control group for comparison would benefit from assessing how acceptability and feasibility impact targeted outcomes.

Future treatment development studies may also benefit from considering how specific elements, such as meditation and exercise, could be made more relevant to the individual. Although few patients reported dissatisfaction with elements of the program, patients did show preference for particular meditations and exercise activities over others. The current study's participants expressed a desire for concrete, functional meditation styles and exercise activities that were perhaps less intense physically or more familiar to them.

Providers who referred patients to The Kickstart Health Program expressed only moderate satisfaction with the referral process and integration of the Kickstart Health Program into their medical practice, suggesting that addressing physician factors may also be important in treatment development studies conducted in medical settings. Embedding the referral process into the physician's work flow and providing additional advertisements and reminders for the group itself were suggested by physicians; however, there is also evidence that the electronic medical record negatively impacts the

doctor-patient relationship and may be a threat to patient-centered care (Alkureishi et al., 2016). Alternative methods for increasing integration of the Kickstart Health Program into a primary care setting, such as embedding the facilitator of the group into the practice, may lead to greater acceptability and feasibility ratings from medical providers.

Finally, the relationship between cognitive barriers (i.e., perceptions of being tired, lazy, and unmotivated as barriers to engaging in exercise) and attendance to the group suggests that targeting these beliefs during the referral process may also be useful in improving attendance to health behavior change therapy groups delivered in primary care settings. Assessing self-efficacy and barriers to action during the referral process may be helpful and further research may reveal that these variables impact attendance above and beyond the typically identified barriers (e.g., transportation, time, etc.).

In the current study patients reported that their spouse/partner and their physician were the individuals most likely to influence their engagement in exercise. One way in which to target cognitive barriers that may impact attendance is to recruit one's partner or spouse into the health program, given that health behavior change interventions may be more effective at altering cognitive barriers when delivered as a couple-based program (Burke, Giangiulio, Gillam, Beilin, & Houghton, 2004).

The motivational interviewing elements of the Kickstart Health Program may also be better suited in the recruitment phase of the program. Motivational interviewing is effective in facilitating health behavior change (Brodie & Inoue, 2005; Resnicow et al., 2001; Rollnick, Miller, Butler, & Aloia, 2008), and could be used as a tool to increase attendance to the program itself. Providers influence health behavior change (Kreuter, Chheda, & Bull, 2000; Lobelo & de Quevedo, 2016), but don't always have time to teach

patients to engage in health behaviors with the individualized techniques that incorporate multiple health behavior change theories necessary to accomplish this task (Conner & Norman, 2005; Elder, Ayala, & Harris, 1999). However, providers can take a brief moment to increase the likelihood that their patients will attend a program that will address health behavior concerns in more detail. Future research may consider a variety of health behaviors, not just exercise, that are impacted by negative beliefs about oneself and further use this knowledge to improve treatment engagement.

### **Limitations**

Several limitations must be addressed in future research. First, the acceptability and feasibility surveys were developed specifically for the current study due to the novel approach of the intervention. Some alterations in phrasing questions and responses may improve measurement in future studies that assess the acceptability and feasibility of the Kickstart Health Program. For instance, Likert scales were not always balanced between negative and positive responses (e.g., Not satisfied, somewhat satisfied, very satisfied, or extremely satisfied) and patient satisfaction may have been better assessed with additional responses available to endorse dissatisfaction (e.g., very dissatisfied, somewhat dissatisfied, satisfied, somewhat satisfied, very satisfied).

On some items of the acceptability and feasibility surveys, different terms were also used to assess patient satisfaction with elements of the program (e.g., satisfied vs. helpful) and this may have inadvertently tapped into different types of satisfaction experienced by the patient. Furthermore, given that the writing and meditation activities were hypothesized to be difficult for some patients, only those elements of the group were assessed for difficulty. It may be helpful in future studies to assess difficulty of each

exercise incorporated into the program, as knowing this could have provided some explanation for exercise preferences endorsed by patients.

Furthermore, the follow-up surveys were initiated five weeks after patients completed their baseline survey as opposed to 5 weeks after their first-attended session. This caused outcomes to be compared among patients who had varied opportunities to attend a group or practice the skills taught. Although this allowed quicker assessment of acceptability and feasibility among those unable to attend the group, it may have impacted the validity of the outcome measures in that some patients who completed a follow-up had the opportunity to attend or had attended more sessions than others completing follow-up at the same time. Follow-ups may not be an accurate reflection of expected patient outcomes after specifically 5 and 10 weeks of attendance but are likely measures of outcomes possible after a varied number of sessions over the course of several months.

Health-related self-efficacy measures predominantly assessed self-efficacy to engage in exercise. Self-efficacy to engage in other behaviors (e.g., healthy eating) were less emphasized in the selected measures. Although several measures of health related self-efficacy exist (Gandoy-Crego, Clemente, Gómez-Cantorna, González-Rodríguez, & Reig-Botella, 2016), most appear to focus on specific behaviors (exercise or nutrition; Hayslip Jr et al., 1996; Schwarzer & Renner, 2009), coping with health problems, (Gandoy-Crego, Clemente, Gómez-Cantorna, González-Rodríguez, & Reig-Botella, 2016), or specific chronic diseases (Gruber-Baldini, Velozo, Romero, & Shulman, 2017). There appear to be no measures of self-efficacy to engage in “being healthy in general.” Studies developing such measures may offer a broader assessment of health-related



self-efficacy incorporating nutrition, exercise, and coping in addition to stress-reduction, sleep, and other relevant health behaviors, into a single construct.

As mentioned, there was no control group in the current study to assess for effectiveness of the Kickstart Health Program compared to other health behavior change programs implemented in primary care settings or no intervention at all in a randomized trial. Given so few studies have tested programs specifically in primary care, assessing acceptability and feasibility of the Kickstart Health Program was a priority in the current study.

Barriers to recruitment mentioned in the above discussion on feasibility may have also been influenced by IRB limitations, such as advertising restrictions and poor timing of study implementation due to lengthy amendment processes. It is unknown to what degree attendance was impacted by restrictions specific to conducting research that were unrelated to the program itself.

Finally, a lack of racial and ethnic diversity was a limitation, especially given disparities in chronic illness are seen among individuals varying in race and socioeconomic status (Cossrow & Falkner, 2004; O'Keefe, Meltzer, & Bethea, 2015; Williams, Priest, & Anderson, 2016). It is unknown if the Kickstart Health Program was inaccessible or not appealing to individuals diverse in gender or race, suggesting a need to alter the reach of the program (Re-aim.org., 2017). It is also possible that the patient population of the family medicine center in which the study was conducted does not represent a diverse sample, suggesting a limitation to the study design.

## **Conclusion**

The Kickstart Health Program, a novel therapeutic group intervention that incorporates acceptance, behavioral, and experiential modalities for health behavior change, was acceptable to patients in a primary care clinic. The Kickstart Health Program has promise in its ability to increase health behaviors. Patients found the rolling recruitment, flexible schedule of the program, and both the active and therapeutic components of the group satisfactory. Low costs to facilitate the Kickstart Health Program contributed to its overall feasibility in a primary care setting. However, the Kickstart Health Program did face some notable difficulties with referral, attendance, and physician acceptability. Additionally, the Kickstart Health Program faced sampling difficulties that reflect a lack of reach to diverse populations seen in many health intervention studies. Finally, further research with larger samples that include a control group are needed to test the mechanisms of change and efficacy of the program.

It is possible that implementing the Kickstart Health Program via a technological platform may alleviate these barriers, and this appears to be where many researchers are turning their attention (Levine, Savarimuthu, Squires, Nicholson, & Jay, 2015). However, what is preferred by patients or is more effective in lasting behavior change between in-person and online therapy platforms remains unknown. It would also be important to test the effectiveness of the experiential components of the Kickstart Health Program if they were to be delivered via video.

Regardless of the platform in which the Kickstart Health Program is delivered, the current study sheds light on the importance of assessing the variables of accessibility and feasibility that impact integrating health behavior change groups into primary care

settings. It is important to assess patient and provider preference when implementing a health behavior change group in a medical setting. Also pertinent is the emphasis that must be placed not just on logistical but cognitive barriers as well that impact whether or not patients ever attend such groups. Solving the puzzle of implementation will aid in making sure that patients in primary care are able to obtain the support they need to initiate changes towards pursuing a healthier lifestyle.

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**APPENDIX A**

**WELCOME PACKET**

Beaumont<sup>®</sup> HEALTH SYSTEM

Welcome Packet

# KICKSTART HEALTH!



Shannon Clark, MS, MA, TLLP

Beaumont Family Medicine Clinic



## What can you expect to learn?

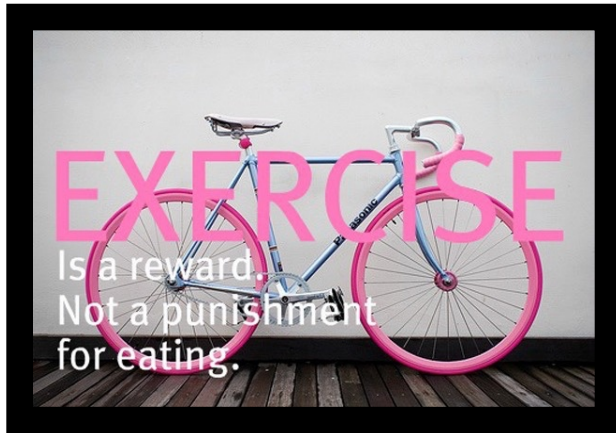
- Cognitive Techniques
  - Strategies that help you change the way you think
  - Ways to overcome mental barriers that block getting healthy
- Behavioral Techniques
  - Strategies that help you change your behavior by changing your environment
  - Ways to overcome physical barriers to getting healthy
- Mindfulness Meditation
  - Breathing and guided imagery
  - Helps to ease stress
  - Helps teach you to tolerate difficult emotions
  - Helps you to be more present and aware in your life
- Exercise
  - Cardio Kickboxing
  - Outdoor/indoor walking
  - Cardio Dance
  - Strength training
  - Proper forms and best methods to do these exercises
  - Ways to find groups, organizations, or gyms that you may want to join
  - How to build up the ability to perform different exercises
- Communication skills
  - How to ask for help and support from family and friends

## Why total Mind and Body health?



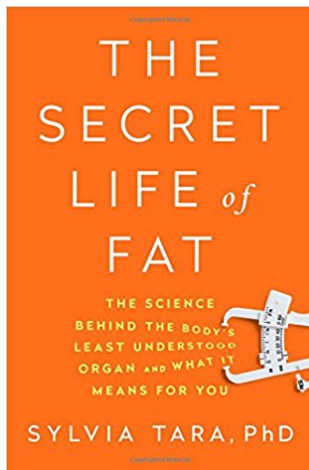
- We all want it – so what gets in the way?
  - Need to try harder? – *We have!*
  - Need to care more? – *We do!*
  - Need to “just do it”? – *If it were that simple, we would be doing it!*
- Maybe it’s more complicated. A lot of barriers can get in our way.
- Love yourself enough to do this for who you are **today!**
- Sometimes thoughts block us, this is where mindfulness can help!
  - When do negative thoughts occur?
    - When you are feeling overweight? Yup.
    - When you haven’t exercised in days? Yup.
    - When you are stressed? Yup.
    - When you have lost weight? Yup.
    - When you regularly exercise 3 days a week? Yup.
    - When you are relaxed? Yup.
  - Seems like it doesn’t matter how we are doing – thoughts happen.
  - So how do we stop negative thoughts? ...Maybe we don’t!
  - Trying to stop your thoughts may amplify them so practice sitting with them.

- There is no such thing as doing it “wrong” – just practice.
- How many important things in your life did you do perfectly the first time?
- If you like this you might like Yoga as an exercise too
- Knowledge Can help us
  - **Exercise** - All or nothing trap
    - Shape up your exercise – Increase by small increments at a time.
    - What can you confidently do? – Start there.
    - Don't move on until you are a pro at that step.
    - It's ok to move slowly but successfully.



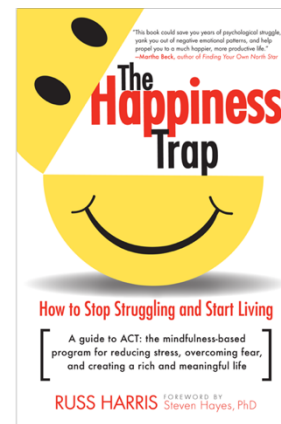
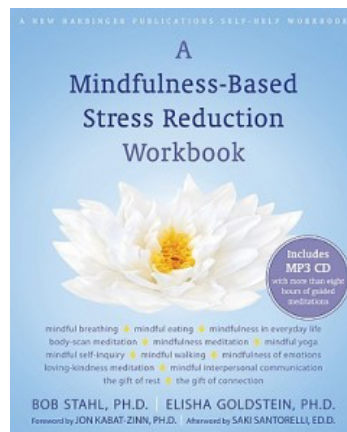
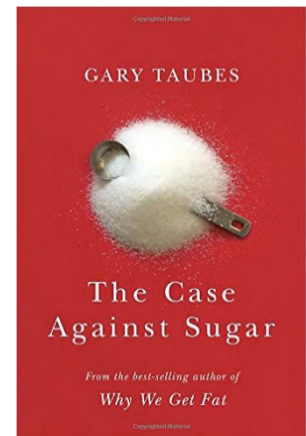
- Book Resources:

- *The Diet Trap: Feed Your Psychological Needs & End the Weight Loss Struggle Using Acceptance & Commitment Therapy*
  - Jason Lillis, Ph.D., Joanne Dahl, Ph.D., & Sandra M. Weineland, Ph.D.
- *A Mindfulness-Based Stress Reduction Workbook*
  - Bob Stahl, Ph.D. & Elisha Goldstein, Ph.D.
- *The Happiness Trap: How to Stop Struggling and Start Living: A Guide to ACT*
  - Russ Harris & Steven Hayes, Ph.D.
- *The Case Against Sugar and Good Calories, Bad Calories: Fats, Carbs, and the Controversial Science of Diet and Health*
  - Gary Taubes
- *The Secret Life of Fat: The Science Behind the Body's Least Understood Organ and What It Means for You*
  - Sylvia Tara, Ph.D.



Feed Your Psychological Needs & End the Weight Loss Struggle Using Acceptance & Commitment Therapy

JASON LILLIS, PhD | JOANNE DAHL, PhD  
SANDRA M. WEINELAND, PhD



## Life Hacks for Eating



### How to "recondition" food

- Follow a healthy new food with a preferred food
- Eat a preferred food and add one new, healthier ingredient
- Try 3 times before deciding whether or not you like a new food
- Make it interesting!

### How to "recondition" triggers

- Only eat at the kitchen table
- Eat with a table cloth and utensils ~ make it an event!
- Add a dinner candle or flower
- Time yourself and slow it down
- Eat mindfully

## More Hacks!



- Eat on smaller plates (plate looks fuller)
- Don't be tricked by color - color can be added to make foods look better
- Don't be tricked by presentation - prepare your food to make it more appetizing for you

- **Avoid Triggers**

- Leave the kitchen
- Turn off the TV
- Leave the house
- Only bring enough money to get what you need
- Ask for a to-go box at the beginning of your meal out. Put half of the plate away before you start eating.



- **Keep your mouth busy**

- Chew sugarless gum
- Phone a friend
- Try small meals every 2-3 hours
- Chew a straw
- Have an emergency health snack ("If I'm going to eat it has to be raw carrots now or something better later.")



# Nutrition: What to Look For



## What should I check?

**Protein**

**Calories**

**Fat**

(Plant based oils, like coconut oil, can provide good fat)

**Carbs**

(you want these before a workout and in a good form (e.g., brown rice, whole grains, etc.)

**Sugar**

(aim for less than 10 grams unless before a workout;  
natural sugar, like in fruit, is better than added sugar, like in processed foods)

## What else?...



### Ways to track:

Write the food you eat down, use a Fitbit diary, use the My Fitness Pal App, or take pictures of your meals just so you are aware of what you have already consumed that day.



### Read the label:

There can be hidden "surprises" in healthy food. Know what you are putting in your body and if you can't read it, it probably shouldn't be ingested!



Helpful Movies: *Cooked*, *Food Inc*, *Fed up*, *Check Netflix!*





# Creating a Healthy Home



## Clean out the fridge!

Remove unhealthy foods from your pantry and refrigerator, such as chips, cookies, snack cakes, or anything you're likely to overeat. Replace those foods with alternative snacks such as fruit, veggies and hummus, raw nuts, and other snacks low in saturated fat, processed carbohydrates, and added sugar.



## Exercise everywhere!

Purchase exercise equipment to keep in various rooms of the home. This can be a large item, such as a stationary bike in your living room, or this can be small items, such as a grip strength trainer at the kitchen table. Limit televisions to only 1 room in the home. You may also try to keep a pair of hand weights anywhere near a comfy chair!



## Partner or Coach – Develop your Support System!

A huge piece of being successful at changing your health behaviors is having a friend, spouse, family member, or other support person changing behaviors with you or encouraging you through the process. Think of at least one support person who could do this for you and have a conversation this week about the types of support you would like them to provide. Below is a list of ways they can be supportive.

### Support Behaviors:

1. Attend Kickstart with you.
2. Go to the gym with you.
3. Cook healthy meals with you.
4. Notice and give praise for your improved habits.
5. Pays attention to their own supportive behaviors towards you.
6. Asks for your support in changing their own behaviors.
7. Talks about barriers with you that get in the way – helps you explore solutions.
8. Open to hearing suggestions about how to be supportive.
9. Does behavior change techniques along with you.
10. Reads through handouts with you.
11. Helps you monitor eating and exercise *when asked to help*.
12. Helps keep unhealthy foods out of home.
13. When eating out in public, offers to go to healthier restaurants with you.
14. Helps you re-arrange home to be more health promoting (see handout on Creating a Healthy Home)
15. Models healthy behaviors themselves (eats right, goes to gym, manages stress).
16. Forms a mutual contract where you both decide to change behavior together – set specific goals to reach.
17. Provides you with gifts or surprises for reaching goals.
18. Does not criticize progress.
19. Develops a list of their own behaviors to change with you.

Is your support person not being supportive? Do you feel that they are encouraging you less and offering too many “solutions to your problem?” Communication is key - try this:

**“I really appreciate your help and support while I am trying to better myself and be healthier. I feel \_\_\_\_\_ when you do \_\_\_\_\_. Could you try doing \_\_\_\_\_ (support behavior) instead? If you do \_\_\_\_\_ (support behavior) instead, I will feel \_\_\_\_\_.”**

The following are some “feeling words” you may use:

- Appreciative
- Guilty
- Hopeful
- Loved
- Frustrated
- Distracted
- Supported
- Encouraged
- Defeated

# I like this workout!...now what?



## Cardio Kickboxing

TITLE Boxing Club Troy

5075 Rochester Rd

(248) 562-2031

6 Degree Burn Fitness Studio

1825 Brinston Dr. Troy, MI 48083

(248) 270-5676

The Boxing Rink

1705 Austin Dr, Troy, MI 48083

(248) 817-5243

## Dance

*Zumba*

SOLA Life and Fitness- Beaumont

Wellness Facility

1555 E. South Blvd

Rochester Hills, MI 48307

(248) 267-5600

Molina Fitness Center

880 W Long Lake Rd

Troy, MI 48098

248-925-1790

LifeTime Fitness

2901 Commerce Crossing Blvd.

Commerce, MI 48390

(248) 960-0955

*Adult Dance*

Juliart Dance Studio

83 E. Long Lake Rd., Troy, MI 48085

(248) 828-7841

Troy Dance Studio

4963 Rochester Rd, Troy, MI 48085

(248) 689-3393

## Strength Training

### Powerhouse Gym-Troy

2585 Livernois Rd, Troy, MI 48083  
(248) 602-2837

### Anytime Fitness

2129 W S Blvd, Troy, MI 48098  
(248) 275-8316

### Planet Fitness

288 John R Rd, Troy, MI 48083  
(248) 588-0141

## Yoga

### Explore Yoga

6036 Rochester Rd, Troy, MI 48085  
(248) 835-1015

### Bikram Yoga Troy

2559 Livernois Rd, Troy, MI 48083  
(248) 250-9407

### The Yoga Studio Troy

1901 E Big Beaver Rd, Troy, MI  
48083  
(248) 720-1601

**APPENDIX B**

**WRITING ASSIGNMENT SESSION 1**

**Checking my Motivation**

How confident am I that I can change my health behaviors? Circle one.

0.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
Not at all <span style="float: right;">Extremely</span>

How important is it for me to change my health behaviors right now? Circle one.

0.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
Not at all <span style="float: right;">Extremely</span>

**My biggest Fear about changing my behavior:**

---

**DARN! Exercise**

What do you **Desire**? \_\_\_\_\_

---

What do you have the **Ability** to do? \_\_\_\_\_

---

What **Reasons** do you have to change? \_\_\_\_\_

---

How much do you **Need** to change? \_\_\_\_\_

**APPENDIX C**

**WRITING ASSIGNMENT SESSION 2**

**Don't fix me – appreciate me!**

List 3-5 attempts that you've made at being healthy (e.g., joined a gym for 1 year, stopped eating carbs, took a less stressful job, etc.):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

List 3-5 reasons for joining this group or wanting to change your health behaviors:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Now, *cross off all "Fix me" statements and replace them with "Compassion Statements"* (e.g., Replace "I need to lose weight." with "I deserve to feel more able.").

List 3 things you could do with a healthier body and mind and why it would be important or enjoyable to do those things (e.g., "Play with my kids because I want to have fun with them"):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

## APPENDIX D

## WRITING ASSIGNMENT SESSION 3

**Bring on the Barrier Brigade!**

Barriers to exercise:	Brigade
1.	
2.	
3.	
Barriers to healthy eating habits:	
1.	
2.	
3.	
Barriers to relaxation and mental health:	
1.	
2.	
3.	

- *Character* - "I'm weak" or "I don't have the willpower."
- *History* - "The last time I tried meditation it didn't work." or "My family loves food."
- *Biology* - "It's in my genes." or "I'm not built for that type of exercise."
- *"The way it is"* - "I hate exercise and I love food." or "I'm Italian!"
- *Logistics* - "I work too much." or "I don't have the time."
- *Blaming Others* - "No one will go do this with me." or "My mother made me a worrier."



## APPENDIX E

### WRITING ASSIGNMENT SESSION 4

#### Establishing Values

Often, when we consider changing our health behaviors, we become consumed with what we must do and ignore why we wanted to make changes at all. Losing touch with what we value and what is important to us can make it difficult to maintain changes that we make in the short term. For the next couple minutes, I want you to sit and imagine that you are attending your 80<sup>th</sup> birthday party. All your friends, family, co-workers, and members of your community are attending and toasting to the full life you have lived. Ideally, what do you imagine the individuals in your life are saying about you? What would you like for your co-workers to say about the time you spend working with them? What would you like your spouse or significant other to say about your relationship? What would you like to hear from your family members who are talking about their time spent with you?

After careful consideration of what *ideal* stories would be shared about your life, write down a statement that reflects what you want your life to be about in each of the ten domains below. These statements speak to the direction you want to move in during your lifetime, not necessarily where you are at right now. The statements should also be attainable while speaking to your greatest hopes and dreams. These are broad values statements, not specific behaviors. They reflect how you want to live but have no end point.

*Example: Relationship with your partner: I value intimacy and connection with my spouse.*

Relationship with your partner: \_\_\_\_\_

Parenting: \_\_\_\_\_

Family relationships: \_\_\_\_\_

Social relationships: \_\_\_\_\_

Work: \_\_\_\_\_

Leisure: \_\_\_\_\_

Citizenship: \_\_\_\_\_

Personal Growth: \_\_\_\_\_

Health: \_\_\_\_\_

Spirituality: \_\_\_\_\_

## APPENDIX F

### WRITING ASSIGNMENT SESSION 5

#### Setting Values-Based Goals

List a value that you hold for each life domain (e.g., Relationships: I value being a supportive and caring friend). You may use statement form the “Establishing Values” exercise (session 4) if you have completed it. Rate each value statement on a scale of 1 to 10. A 1 means that this value is not very important or that you are not living up to this value. A 10 represents a very important value or a value that you feel you are living up to. The same ratings can be used multiple times. For example, you may rate all values as 10. Finally, list one behavior or activity you could do to live closer to your value.

Relationships	Rate 1-10
I value...	How important? ____
What I can do:	How am I doing? ____
Work or Education	
I value...	How important? ____
What I can do:	How am I doing? ____
Personal interests	
I value...	How important? ____
What I can do:	How am I doing? ____
Health	
I value...	How important? ____
What I can do:	How am I doing? ____

### APPENDIX G

#### WRITING ASSIGNMENT SESSION 6

### My New Life Story

Write down a story about what your life will look like after this group. What is different? What are you doing during your day? How does it make you feel to live this way? What will be difficult and how will you deal with it?

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List three things (e.g., signs, pictures, objects, etc.) that you will use to remind yourself to engage in healthy behaviors.

*Example: "A picture of my kids reminds me I want to be healthy enough to play with them."*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**APPENDIX H****MEDITATION 1****Check In Meditation**

Find a quiet, peaceful space in the setting you are currently in. This may be a room in your home, an empty office at work, in your car, or anywhere you can have 3-minutes of still, calm space to yourself. Praise yourself for allowing time for this practice during your busy day.

Begin this “check-in” by looking inward at your mind and body. Allow yourself to feel any emotion, consider any thought, or experience any physical sensation. Allow these emotions, thoughts, and feelings to simply occur – sit with them.

This may be the first, or only, break you are giving yourself today. Allow yourself to remain present in the here and now. As you are present with your thoughts and feelings, away from your busy schedule, you may become more aware of the feelings you have been holding throughout your day.

You do not have to analyze, understand, or judge these feelings. Simply allow yourself to be present while these feelings occur around you. For the next couple minutes, continue to allow thoughts, feelings, and physical sensations to occur. Give notice to them and gently sit with their existence.

As you begin to bring yourself back from your “check in,” praise yourself once more for allowing time for this practice and taking a step towards improving your health.

**APPENDIX I****MEDITATION 2****Mindful Eating**

Put 3 or 4 raisins into your hand. If you do not have raisins, any small food will do. Imagine that you are eating this food for the first time. You are unsure of what this food tastes like or will feel like.

With the food in your hand, begin to explore the pieces with your senses. First use your vision. Look at the food as if you have never seen anything like it before. See the food, explore its surface, turn it in your hand and observe its color and shape. Notice the folds where the surface reflects light or creates shadows.

Now use your sense of touch. Feel the food. Explore its texture. Where is the surface rough? Where is it smooth? Are the items in your hand soft or hard? If thoughts pop into your mind like “This is odd.” or “I don’t understand why I would do this.” that’s ok. Just notice these thoughts and gently, non-judgmentally bring yourself back to the activity.

Now using your sense of smell, slowly bring the food to your nose. Take a slow, deep breath in as you notice the scent of the food. Bringing the object to your ear now, squeeze it, roll it in your fingers, and notice any sounds that you hear while moving the food between your fingers.

Bring one piece of the food gently to your mouth, grazing your lips. Notice how your arms moved to bring the food naturally to your mouth. Pay attention to any physical sensations you are experiencing, like your mouth watering or pangs of hunger in your belly.

Now place that piece gently into your mouth without biting it. Let the food sit first on your tongue. Explore the sensations of the food sitting on your taste buds. What do you feel?

What do you taste without biting? Now bite down with intention on the food. Notice where the food moves to in your mouth. Does it roll to one side? Does it burst or pop?

Pay attention to changes in the flavor once the food has been bitten.

As you slowly chew the food, notice your saliva, how the food changes consistency and breaks down. When you are ready, swallow the food. Keep your focus and awareness of the food as you swallow, paying attention to sensations and experiences as the food travels down your throat, through your esophagus, and into your stomach. Finally, congratulate yourself on allowing time to fully experience this meditation today.

## APPENDIX J

### MEDITATION 3

## The Body Scan

While sitting in a comfortable position or lying on the comfortable mat or cushion, allow your eyes to close or rest gently on a fixed spot in the room. Take a few moments to congratulate yourself for taking the time for this practice today. Take a few deep, natural

Take a few moments to feel your body as a whole piece from head to toe. Bring awareness to the “envelope” of your skin and the sensations you are feeling in the places that you are in contact with the floor or chair.

Bring your attention to the toes of your left foot. As you direct your attention to them, see if you can channel your breathing to them as well. Try to breath in to your toes and out from your toes. It may take a while for you to get the hang of this. It may help to imagine your breath traveling down the body, through your nose, into your lungs, and then continuing through the abdomen and down the left leg all the way to the toes and then back again and out through your nose. Allow yourself to feel any and all sensations from your toes. If you don't feel anything at the moment, that's ok. Just allow yourself to feel “not feeling anything.”

When you are ready to leave the toes, and move on, take a deeper, more intentional breath in all of the way down to the toes and, on the outbreath, allow them to “dissolve” in your mind. Stay with your breathing for a few breaths at least, and then move on in turn to the sole of the foot. Breath in to and out from the sole of your foot. When you are ready, move to the heel of your foot, then the top of the foot, and then the ankle, continuing to breath in to and out from each region as you observe the sensations that you are experiencing. Then let go of those feelings and move on.

When you are complete with the left foot, move your breath and focus into the right leg. Breath into your shin, your knee, your thigh and up to your hip. When the left leg is complete, take the next few minutes to repeat the process with your right foot and right leg.

As with the awareness of breathing exercises, bring your mind back to the breath and to the region you are focusing on each time you notice that your attention has wandered off.

When you have completed your legs, focus your attention on your abdomen, breathing deeply into the lower portion of your gut and maintaining awareness of any and all sensations, thoughts, and emotions that you experience. Now, focus your breath on your lower back. Slowly, when you are ready, breath in and out from your chest, your shoulders, your neck and finally your face. For an added experience, focus breathing in and out from the detailed features of your face; your mouth, nose, and eyes. Finally, breath in and out from the top of your head, maintain present focus on the feelings and sensations this leads you to.

When you are complete, congratulate yourself once more for taking time for this practice and slowly, gently re-orient yourself to the room moving your limbs and body slowly back into movement.

**APPENDIX K****MEDITATION 4****Leaves on a Stream**

While sitting in a comfortable position, with your eyes closed or resting gently on a fixed spot in the room, take a few moments to congratulate yourself for taking the time for this practice today.

Visualize yourself sitting beside a gently flowing stream with leaves floating along the surface of the water.

For the next few minutes, take each thought that enters your mind and place it on a leaf.

Then, let it float on by. Do this with each thought – whether it be a happy, painful, or neutral thought. Simply place all thoughts on a leaf and let them float by.

If your thoughts momentarily stop, continue to watch the stream. Sooner or later, your thoughts will start up again.

Allow the stream to flow at its own pace. Don't try to speed it up and rush your thoughts along. You're not trying to rush the leaves along or "get rid" of your thoughts. You are allowing them to come and go at their own pace.

If your mind says, "This is dumb," "I'm bored," or "I'm not doing this right" place *those thoughts* on leaves, too, and let them pass.

If the same thought comes up again and again, no problem. Continue to gently place that thought again and again on the leaf and float by another time.

If a difficult or painful feeling arises, simply acknowledge these feelings. Say to yourself, "I'm feeling bored, impatient or frustrated." Place these thoughts on leaves and allow them float on by.

From time to time, your mind may wander away from this exercise. This is *normal*. Even if you have to come back to the stream a hundred times, gently and non-judgmentally redirect yourself back to the stream.

## APPENDIX L

### MEDITATION 5

# Loving-Kindness Meditation

you are learning the lovingkindness meditation, practice in a comfortable and quiet spot. After you get the hang of lovingkindness, you can try it anywhere during your day, such as at work, school, or while doing chores. Begin by focusing on your breath. Breathe naturally, and notice how your breath enters your body and exits your body. You may begin by thinking, "I am breathing in. I am breathing out."

Once you feel comfortable with your breathing, intentionally and with full awareness, think silently to yourself, "May I be free from anger. May I be free from pain. May I be filled with compassion. May I feel kindness toward myself." For a couple minutes, repeat these intentional self-oriented lovingkindness statements. You may also choose to express other statements to yourself. Maintaining love and compassion towards oneself, you may emit any thoughts or feelings that fit for you today.

As you continue to breathe naturally, focus on a loved one, friend, or family member. Think lovingkindness toward him or her. Say to yourself, "May he/she be happy. May he/she be free from pain. May he/she experience love and joy." For a few minutes, focus your thoughts and kindness towards this loved one. Again, you may prefer to make your own statements. Maintain a loving and compassionate mind while doing so.

Finally, as you continue to breathe naturally, focus on an individual who has hurt you. This may be someone you have encountered who has angered you or made you sad. This may be an individual you have never met but have ill feelings towards. Think lovingkindness toward him or her. Say to yourself, "May he/she be happy. May he/she be free from pain. May he/she experience love and joy." For a few minutes, focus your thoughts and kindness towards this individual who has brought pain to you. Again, you may prefer to make your own statements; however, remain as present as possible emitting only loving and compassionate thoughts.

Every time you notice your mind has wandered off the lovingkindness intentions, notice what took your attention away and gently, nonjudgmentally bring your attention back to the lovingkindness statements.

You may find that thoughts or feelings keep popping into your head. For instance, "I'm mad at my myself right now!" or "I have a lot of things to do today." Notice the thought or feeling and return to your practice. If your mind wanders away a thousand times, then each time, bring your mind back to the lovingkindness intentions. When you are finished, thank yourself for taking time for this practice.



**ABSTRACT****ACCEPTABILITY AND FEASIBILITY OF A MULTICOMPONENT GROUP INTERVENTION TO INITIATE HEALTH BEHAVIOR CHANGE: THE KICKSTART HEALTH PROGRAM**

by

**SHANNON CLARK****August 2019****Advisor:** Dr. Annmarie Cano**Major:** Psychologic (Clinical)**Degree:** Doctor of Philosophy

There is a growing need to address the difficulties that people face trying to engage in a healthier lifestyle and the integration of behavioral health into primary care settings may offer an opportunity to address this need. Health behavior change groups may be an effective style of intervention in medical settings; however, the experiences patients have attending these groups as well as how health behavior change groups best fit into integrated care settings is largely unknown. The purpose of the current study was to offer a preliminary test of feasibility and acceptability for a group intervention, conducted in a primary care setting, that aimed to teach skills that initiate health behavior change. The developed group, The Kickstart Health (KSH) Program, is a multicomponent approach to initiating behavior change based on the tenets of the Health Beliefs Model (Rosenstock, 1990). The program proposed to increase exercise, improve nutrition, and decrease stress with a person-centered, experiential approach that utilized a flexible enrollment schedule. Of the patients who enrolled in the study (N = 22), thirteen attended at least one session of the program. Patients attended, on average, 3.78 sessions over the course

of 8 months and those who attend the group differed in some ways from those who did not attend. Patients who never attended KSH ( $n = 8$ ) were more likely to report that being tired ( $M = 2.38$ ,  $SD = 0.74$ ) and lazy ( $M = 2.50$ ,  $SD = 0.76$ ) were reasons to not exercise compared to those who attended. Overall, patients perceived KSH as acceptable and satisfactory, and KSH was feasibly integrated into a primary care setting with minimal additional costs to facilities with established behavioral health care providers. Promising results were found in increasing overall perceptions of health, well-being, and engagement in mindfulness meditation. However, physicians reported that they were less satisfied with the referral process and integration of the program. In addition to difficulties with the referral process and patient-reported logistical barriers (i.e., transportation and time), cognitive barriers and negative beliefs about oneself may have also impacted attendance. Future research may consider utilizing therapeutic techniques during the recruitment phase to increase attendance to health behavior change groups delivered in primary care settings.

## **AUTOBIOGRAPHICAL STATEMENT**

Shannon Clark obtained her Bachelors of Science in Psychology at Truman State University in Kirksville, MO and a Master of Science in Clinical-Behavioral Psychology at Eastern Michigan University in Ypsilanti, MI. She enjoys conducting research in health psychology, which involves studying the relationship between behavioral, social, and biological variables and how they impact chronic disease. In particular, Shannon is interested in researching tech-based interventions aimed to increase health behaviors as well as the psychological mechanisms that influence health behavior engagement. Currently, she is completing her clinical health psychology doctoral internship at Henry Ford Health System in Detroit, MI. Following completion of her Ph.D. in Clinical Psychology, she will begin a post-doctoral research fellowship with Dr. Jennifer Huberty, Associate Professor, Arizona State University (in partnership with Dr. Ruben A. Mesa, Director of Mays Cancer Center at University of Texas Health San Antonio MD Anderson), where she will investigate app-based mindfulness interventions and other complementary approaches for symptom management in cancer patients.