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Clinical Trials Final Report – Study Protocol and SAP

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4. Feasibility of a Dyadic Peer Support Intervention to Promote Healthy Weight in Three African American Faith Communities

4.1 Introduction

Cardiovascular disease, cancer, stroke and diabetes are the most common chronic conditions in the United States. Sixty percent of all adults in the United States have at least one chronic condition and forty percent have at least two (National Center for Chronic Disease Prevention and Health Promotion, 2019). Obesity is linked to multiple chronic diseases and prevalence has climbed sharply in the last decades (Budd & Peterson, 2014; Samuel-Hodge et al., 2009). This rise is especially pronounced for African Americans and has created a disproportionate burden of obesity-related chronic diseases (Office of Minority Health, 2019). By age 55, 76% of African American adults are diagnosed with high blood pressure compared to 55% of White males and 40% of White women (Thomas et al., 2018). In 2017, African American adults were 1.6 times more likely to be diagnosed with diabetes than White Americans and twice as likely to die from it (Diabetes and African Americans, 2019).

Health disparities are preventable disproportionate burdens of disease shared by members of socially or economically disadvantaged populations or communities. Federally funded research as well as national and state health policies have aimed to address these disparities (Office of Disease Prevention and Health Promotion, 2020). Despite efforts to implement various health promotion and disease prevention programs, disparities persist (Caiola, 2015). There is a need for new and effective solutions. The use of peer support and specifically peer support dyads, has been recommended as a feasible

and effective health promotion strategy within African American populations (Wolfe, 2004). The purpose of this pilot study was to determine the feasibility of using dyadic peer support to augment an existing healthy weight promotion program in three African American churches.

4.2 Background

4.2.1 Peer Support

4.2.1.1 Benefits of Dyadic Support in Health Promotion

Dyadic peer support is when two people who have the same goals or health condition work together to achieve health goals (Leahey & Wing, 2012). Dyadic support is also referred to as peer-to-peer support (Heisler, 2007), reciprocal support (Friedman, Niznik, Bolden, & Yee, 2016) or mutual peer support (Travis et al., 2010). Utilizing dyadic support has potential benefits. Dyads may allow for more sustainable changes because they can extend the care received in group classes or with health professionals, and offer a chance for partners to reinforce each other's skills and knowledge (Travis et al., 2010). Dyads may have similar experiences or backgrounds and can help with problem solving, and be available more often to lend encouragement for health promoting behaviors (Black, Gleser, & Kooyers, 1990).

Dyadic peer support has been used successfully in health promotion studies. An early study by Wing and Jeffery (1999) examining friend dyads illustrated that when participants were recruited for a weight loss program with a friend, participants lost more weight and were better able to maintain weight loss after ten months. Heisler and Piette (2005) used dyadic peer support to improve diabetes management. Participants were matched by gender, disease severity, or zip code, and were assigned to call each other once a week for six weeks. Participants reported better diabetes management. Ninety

percent of them stated that they wished their health care providers had a peer support program. Over 70% of participants stated that their partner helped them improve behaviors like making healthier food choices. Participants found dyadic support enjoyable and helpful, especially when acute situations arose and they needed someone to talk to; or when they wanted to talk about any personal issues in private, as opposed to a group setting. Leahey and Wing (2012) compared dyadic peer support from a mutual peer support partner, to dyadic peer support from a peer health coach or professional healthcare provider. Fifty percent of mutual peer support dyads were able to achieve clinically significant weight loss after a six month intervention. Importantly, this study also showed that pairing people with a peer led to almost as much weight loss as being coached by a professional healthcare provider.

4.2.2 Faith Communities and Health

It is recommended that to best address health inequities, initiatives are needed that promote health where people live, work, play and pray (Institute of Medicine, 2003; Office of Disease Prevention and Health Promotion, 2020). For African Americans, especially older adults living in the southern United States, churches are very influential community institutions (Catanzaro, Meador, Koenig, Kuchibhatla, & Clipp, 2007). Churches can reach large segments of a community consistently, provide space to host community programs, and provide access to leaders who can promote participation and help sustain programs (Hardison-Moody & Stallings, 2012; Lancaster, Carter-Edwards, Grilo, Shen, & Schoenthaler, 2014). Social support from one's religious community, over and above general support, can be especially helpful for adopting healthier lifestyles (Krause, 2016), coping with illness (Holt, Clark, Debnam, & Roth, 2014), maintaining

better mental health, and preventing substance abuse (Mason, Schmidt, & Mennis, 2012; Michael, Farquhar, Wiggins, & Green, 2008; Sanchez et al., 2019)

Though African American faith communities are popular settings for health promotion programs, researchers note significant challenges in implementing and sustaining these programs (Campbell et al., 2007; Lancaster et al., 2014). First, there may be an overreliance on lay leaders to implement and maintain health promotion programs. The lay leader model of community interventions was introduced to encourage shared ownership of programs between organizations introducing the program and the faith communities (Eng & Hatch, 1991) hosting them. Often, however, lay leaders have multiple roles in their church and can become overwhelmed with additional duties supporting the program (Campbell et al., 2007; Lancaster et al., 2014). Second, without ongoing technical support, expertise, and resources from outside organizations, it is difficult for faith communities to implement fully or sustain the programs (Gittner, Hassanein, & Murphy, 2007; Tussing-Humphreys, Thomson, & Onufrak, 2015; Yanek, Becker, Moy, Gittelsohn, & Koffman, 2001). As a result of these challenges, the architects of Body & Soul, a popular and widely used obesity prevention program supported by the National Cancer Institute, stressed the need for more immediate research to determine how best to implement church-based health programs (Allicock et al., 2013).

4.2.3 Theoretical Basis

This study is guided by the Transactive Goal Dynamics Model (TGDM) and the Socioecological Model (SEM). The TGDM builds on existing theories of goal setting and social support among dyads (e.g. interdependence theory)(Johnson, 2003; Lewis et al.,

2006). When individuals become part of a dyad, interpersonal processes become a salient driver of goal setting and attainment (Johnson, 2003; Lewis et al., 2006). The TGDM identifies two main constructs (TGDCs), 1) dyad interaction frequency, and 2) goal coordination, that describe cooperation within dyadic relationships which facilitate goal attainment (See Figure 6). Dyad

interaction frequency is driven by three factors: shared dyadic goal(s), strong motivation to achieve the goal(s), and opportunities to work together to achieve the goal(s). Goal coordination is determined by two factors: whether dyad members agree on how they are to achieve their shared

goal(s), and how well they assist each other in overcoming obstacles and utilizing available resources. Dyads are most likely to achieve their goals when interaction frequency is high and when goal coordination, which serves as a mediator, is also strong. While this study does not test the model, TGDM constructs, dyad interaction frequency and goal coordination, were used to design content for the dyad training session and to guide development and analysis of dyad cooperation in semi structured interviews.

The Socioecological Model (SEM) illustrates that health is affected by intrapersonal, interpersonal, community, organizational and policy level spheres of influence (Bronfenbrenner, 1977; McLeroy, Bibeau, Steckler, & Glanz, 1988). Policy level factors create social, environmental, and economic conditions that promote or limit opportunities for health in communities and organizations. These conditions in turn affect

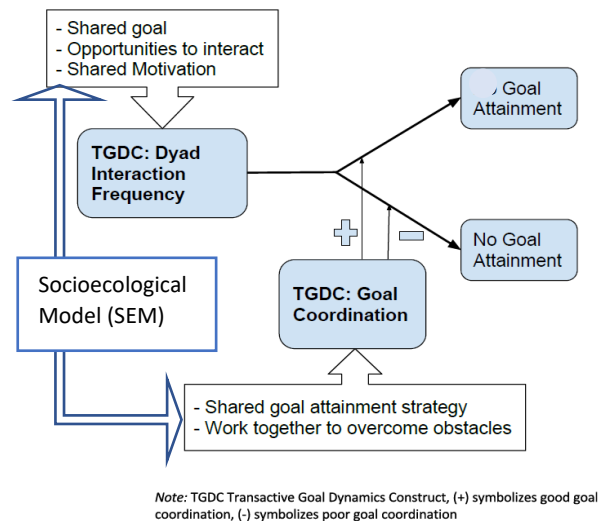


Figure 6. Modified Transactive Goal Dynamics Model

intrapersonal processes and individual health behaviors. The intrapersonal processes and health behaviors include goals that dyads select, strategies they choose to overcome challenges, and the opportunities they have to interact. Therefore, concepts of the SEM are integrated into the modified TGDM to account for broader social factors that may affect participants' ability to work together and achieve their health goals.

4.3 Aims

This prospective multi method study explores the feasibility of using dyadic peer support to augment an existing state-wide healthy weight promotion program in three African American churches in North Carolina. The study aims are to:

Aim 1: Assess feasibility, via survey, logs, attendance, and interview data, of a dyadic peer support intervention to augment an existing program to promote fruit and vegetable intake (FVI), physical activity (PA), and healthy weight.

Aim 2: Assess goal attainment and health outcomes through biometric measurements (i.e. changes in body mass index (BMI), blood pressure, and weight), survey data (i.e. FVI, PA), and semi structured interviews (participant perceptions of goal attainment and social or environmental factors that influenced their ability to achieve better health).

Aim 3: Assess and describe dyad cooperation using semi-structured interviews, guided by the Transactive Goal Dynamics Model (TGDM) (Fitzsimons, Finkel, & vanDellen, 2015); Specific constructs are 1) dyad interaction frequency - how dyads develop team goals, interact with and motivate each other to achieve those goals, and 2) goal coordination - how dyads discuss challenges to attaining their health goals and strategies used to overcome them.

4.4 Methods

4.4.1 Design Overview

This was a prospective multi-method 18-week feasibility study to explore using peer support dyads to augment an existing healthy weight promotion program, Faithful Families Thriving Communities (Faithful Families), in African American churches in North Carolina. The intervention included nine weeks of group health education classes, followed by nine weeks of dyads working together to achieve their health goals (Table 6). For the first nine weeks, participants attended weekly 90-minute group health education classes at their faith community. At the end of the nine weeks, each participant selected or was assigned a peer support partner. After attending one 90-minute dyadic training session, dyads worked together for the second nine weeks to improve fruit and vegetable consumption, physical activity, and other health goals they identified. The group reconvened twice during the second nine weeks to share progress. Before starting the program, all participants were consented in a private area of the church. The Duke University Institutional Review Board approved the study.

4.4.2 Intervention

4.4.2.1 The Existing Faithful Families Thriving Communities Program

Faithful Families Thriving Communities (FF) is a practice tested healthy weight and lifestyle promotion curriculum developed through a partnership with the North Carolina Department of Health and North Carolina State University (Hardison-Moody & Yao, 2019). The program consists of nine weekly health education classes delivered at the faith community by a North Carolina Cooperative Extension nutrition educator (referred to as “nutrition educators” going forward). Church lay leaders co-lead the program with nutrition educators by adapting elements of the curriculum to the needs of

their community and integrating spiritual elements such as a song or scripture. Classes focus on nutrition and physical activity (e.g. Choosing More Fruits and Vegetables, Making Smart Drink Choices, Choosing To Move More Throughout The Day). Each session involves a Powerpoint[®] lecture, group discussion questions, a physical fitness activity, and cooking demonstrations or tastings. ‘Faithful Families Thriving Communities’ is based on the Socioecological Model of health and therefore encourages faith community changes at the policy, interpersonal, and intrapersonal levels as well (Hardison-Moody & Yao, 2019). Faithful Families Thriving Communities has been implemented in faith communities across the state of North Carolina for the past 12 years (Hardison-Moody et al., 2011) . Program evaluations show communities enjoy the program and want to continue to improve health after it ends. Thus, a peer support component was designed to augment the existing program and allow faith communities to continue to improve their health by building capacity within the organization for members to support one another.

Table 6. 18 Week Dyadic Peer Support Program Outline

Weeks 1-9: <u>Health Education</u> <u>Classes</u>	Weeks 10-18: <u>Dyadic Peer Support</u>		
‘Choosing More Fruits and Vegetables’ ‘Plan Know What’s for Dinner’ ‘Shop for Value, Check the Facts’ ‘Shop: Get the Best for Less’ ‘Fix it Fast, Eat at Home’ ‘Fix it Safe’ ‘Making Smart Drink Choices’ ‘Choosing to Move More’ ‘Making the Connection’	Week 10: <u>Dyad Peer Support</u> <u>Training Session</u>	Week 14: <u>Group Meeting</u> Progress Challenges Strategies	Week 18: <u>Group Meeting</u> End of Program
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">SEM, CET</div> <div style="margin: 5px 0 5px 100px;">→</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">TGDM, Behavior Change Literature</div> <div style="margin: 5px 0 5px 100px;">→</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Peer Support Literature</div> <div style="margin: 5px 0 5px 100px;">→</div>	Community and Individual Assets Team Goal Setting Shared Motivation Shared Challenges Shared Strategies Supportive Communication	
	Weekly Health Education Newsletters		

Note: SEM = Social Ecological Model, CET = Community Empowerment Theory, TGDM = Transactive Goal Dynamics Model

4.4.2.2 The New Dyadic Peer Support Component

The dyadic peer support component included one dyad peer support training session, dyads working together on their goals for nine weeks, and two group sessions during the nine weeks. Participants also received weekly newsletters. The purpose of using dyadic peer support to augment an existing health promotion program was twofold. First, evaluations from past Faithful Families Thriving Communities programs showed participants want additional health promotion programming once the standard FF curriculum is complete. Second, using existing networks and resources to promote health

increases the possibility of successful program implementation and behavior change (Aschbrenner et al., 2016; Eng & Hatch, 1991; Leahey, LaRose, Fava, & Wing, 2011). Existing resources in this program were faith communities (i.e. relationships among members, available goods and services) and the longstanding relationship between the North Carolina Cooperative Extension offices and the faith communities. At the end of the first nine weeks, participants either chose or were assigned a partner if they did not have a preference. Partners were assigned by the lay leaders and PI based on any relationship they had prior to the program, or developed during the classes – evidenced by repeatedly choosing to sit next to one another and talking during classes.

Dyads first attended a 90 minute dyadic peer support training session delivered by the PI. Session topics were 1) setting team goals, with an emphasis on increasing fruit and vegetable intake and physical activity; 2) ways to cooperate with your partner to achieve your goals (e.g., motivation, interaction, supportive communication); 3) potential challenges and solutions to improving health (including asset identification); and 4) expected dyad activities for the next nine weeks (communicate with partner, track progress on logs). During the training, dyads were provided work sheets and asked to choose one nutrition and one physical activity SMART (specific, measurable, achievable, realistic, timely) goal (Hooker, Punjabi, Justesen, Boyle, & Sherman, 2018) to work on together. The recommended guidelines for daily fruit and vegetable consumption (at least seven servings per day) (American Heart Association, 2017b; Moore et al., 2015) and minutes of physical activity (150 minutes of moderate activity) (American Heart Association, 2018) were reviewed and dyads were encouraged to incorporate both into their goals. Participants also developed individual goals if they had unique health concerns. During the session, scenarios were presented that illustrated common

challenges to achieving health goals. Dyads were asked to discuss their own potential challenges. Solutions to challenges were presented and discussed in the group and among dyads. Participants identified personal, church level, and community assets that might help them achieve goals (Whiting, Kendall, & Wills, 2012) and overcome challenges. Partners were encouraged to discuss their motivations for wanting to achieve their health goals and how to keep each other motivated. Participants also learned effective supportive communication techniques.

Topics were based on the TGDM, SEM, Community Empowerment Theory (CET), behavior change literature (Hooker et al., 2018) and dyadic peer support literature (Cherrington et al., 2015; Gorin, Powers, Koestner, Wing, & Raynor, 2014; Kowitt et al., 2017). Training on shared goals, motivation, frequent interaction, and shared strategies to overcome challenges was based on constructs the TGDM identified are important for successful dyad cooperation (Fitzsimons et al., 2015). Formative research (Chapter three) reflected African American church members' desire to work with another to improve health and identified the need for partners to have specific goals and be motivated to be successful. These results corroborate the theoretical foundation of the training. Also, dyads identified their own community and personal assets. Health is influenced by multiple spheres of personal, social and community factors. Communities and community members have resources and assets that when identified can be shared among community members (in this case dyads, specifically) and used to improve health (McLeroy et al., 1988; Saleebey, 1996; Smith & Liehr, 2008).

Peer support studies distinguish different types of communication and how they can affect outcomes. Directive communication is instructive, and may be perceived as controlling, even if encouraging (Kowitt et al., 2017). Autonomy supporting, non-

directive communication acknowledges and enhances an individual's confidence in their own personal choices and motivations, avoiding exerting pressure or control as a way to motivate (Cherrington et al., 2015; Gorin et al., 2014). While both may be useful (e.g. using directive when someone has no idea of how to perform a basic task and needs specific direction; using autonomy supporting when a partner is making a renewed effort to carry out their plan), goal achievement tends to increase with autonomy supporting communication (Gorin et al., 2014; Leahey & Wing, 2012). Thus, during the training, participants discussed how to ask about and provide support for plans and actions their partners identified (Peers for Progress, n.d.).

Formative research (Chapter three) and results from other weight loss and peer support studies show that participants perform better and prefer structured supervision (MaineGeneral Health, 2004). Thus, rather than leaving dyads on their own for eight weeks without any contact, the PI reconvened the groups after four weeks to share progress and challenges. To assist in goal attainment, participants were given a log sheet to help monitor (Hooker et al., 2018) their progress; they wrote the number of servings of fruit and vegetable consumed each day, minutes of daily physical activity, and number of weekly communications with their partner.

4.4.3 Participants and Setting

The inclusion criteria for churches were faith communities with predominantly African American members in one of three counties served by Expanded Food and Nutrition Education Program (EFNEP) nutrition educators. Participant criteria were adults ages 18 years and older who identify as African American; reported being church members or regular church goers; speak, read and write English; willing to complete

study activities and assessments; and able to engage in moderate physical activity. (e.g., walking – based on their own activity level and assessment).

This feasibility study captured qualitative and quantitative data. Data from qualitative interviews generally reaches information saturation between 10-15 interviews (Guest, Bunce, & Johnson, 2006). Thus, a sample size of 20 dyads or 40 participants was planned to ensure data saturation and account for an attrition rate of 30%, as found in a meta-analysis of weight loss programs (Lemstra, Bird, Nwankwo, Rogers, & Moraros, 2016). Also, because statistical significance is not the aim of this feasibility study, a sample size of 40 was considered sufficient to allow insights into patterns of change for quantitative outcomes such as weight and physical activity (Leahey & Wing, 2012; O'Brien et al., 2015). Due to great interest, 80 members across the three sites (site one – 18 members, site two – 24 members, site three – 38 members) were enrolled.

4.4.4 Procedures

Three county nutrition educators were recruited to participate. Before starting recruitment, the PI, program director and county nutrition educators met to review the program purpose, timeline and how to integrate intervention activities. Each nutrition educator works in one county. After meeting with the PI and reviewing the program, nutrition educators began recruiting churches in their counties via word of mouth, online searches, and face-to-face visits. Faith communities were recruited from May-November of 2018. A search of African-American faith communities and faith community-affiliated organizations was conducted via online searches, neighborhood canvassing, and word of mouth. Faith communities and faith community-affiliated organizations were contacted

via email, their Facebook sites, phone, community organization board meetings, or face-to-face visits.

Initial contact of churches was made by the PI or county nutrition educators. A total of 62 churches were approached. Contact was made with 36 to introduce the program and provide contact information to schedule a follow-up meeting if interested. Of the seven churches that expressed interest, three were ready to begin immediately and selected to start the program. No additional churches were selected because it was anticipated that the first three would be able to recruit the desired sample size of 40 participants. After agreeing to participate, lay leaders, educators, the faith community pastor and the PI helped to recruit church members through church announcements describing the program and flyers.

4.5 Measures

4.5.1 Participant Characteristics

At baseline, participants completed a survey assessing age, level of education and sex.

4.5.2 Program Feasibility (Aim 1)

Feasibility was assessed in three domains: 1) church and participant recruitment and retention - based on number of churches contacted that agreed to participate, and participant attendance at each class during the 18-week program; 2) nutrition educators' perceptions of feasibility – based on post intervention semi-structured interviews, and 3) participants' perceptions of feasibility – based on how many times per week they communicated with their partner, post intervention semi-structured interviews, and a nine item feasibility survey. The nine items were adapted from a 21 item feasibility survey

from a dyadic diabetes management program (Heisler & Piette, 2005). Survey items specific to diabetes management such as blood testing or medications were omitted. Questions for this dyadic study included: ‘My peer support partner helped me do things to improve my eating habits’, ‘I would work with my peer support partner again’, and ‘I helped my partner achieve their goals’. The survey consists of 5-point Likert items from 1=strongly disagree to 5=strongly agree. Cronbach’s alpha of 0.87 showed good internal consistency of the feasibility scale in this study.

Post-intervention semi-structured interviews were completed with a random sample of seven dyads from each church and the nutrition educator assigned to each church. Participants who completed the interview received a \$25 gift card. Participant feasibility questions included in the interview were: ‘What was your overall experience like working with a partner?’, ‘What made it easier or harder to work with a partner to achieve your health goals?’. Nutrition educator questions included in the interview were, ‘What were some of the barriers and facilitators of using dyads?’, ‘What aspects of this intervention would you keep, or change and why?’.

4.5.3 Goal Attainment and Health Outcomes (Aim 2)

Weight, blood pressure, and BMI were measured at weeks 1, 9, 14, and 18 by the PI in a private area in the church. Blood pressure was taken using an Omron electronic cuff or Welch Allen manual blood pressure cuff if measures could not be obtained electronically, after participants were seated for three to five minutes. Systolic or diastolic pressures greater than 130 or 80 were considered high, 120-129 and 70-79 elevated, and less than 120 or 70 normal (American Heart Association, 2017a). Floor scales were used to measure weight. Height was self-reported for BMI calculations. BMI is a standard

measure of obesity based on an individual's weight in proportion to their height. Values greater than 29 kg/m² are considered obese, 25-29 kg/m² is overweight and 18.5-24.9 kg/m² is the normal range (American Heart Association, 2014).

Fruit and vegetable intake and physical activity were measured at weeks 1, 9, and 18 using survey items developed by the United States Department of Agriculture (USDA) Expanded Food and Nutrition Education Program (EFNEP) survey (Bradford, Serrano, Cox, & Lambur, 2010; National Institute of Food and Agriculture, 2018). Dietary intake is measured in two different ways. One is a 24 hour food recall which asks participants to write down all foods consumed in the past 24 hours, resulting in a summary of the number of vegetables and fruits eaten during that time period. The other question asks for the number of servings of fruits and of vegetables that participants think they eat each day, on average. These items are part of the entry and exit surveys normally completed by Faithful Families Thriving Communities participants and thus have been used successfully among African American churchgoers (Hardison-Moody et al., 2011). Cronbach's alpha of 0.6 at baseline, 0.7 at week nine, 0.6 at week 18, and 0.8 between all three time points showed acceptable internal consistency of the survey items used in this study. Finally, in semi structured interviews, participants were asked if any other social or environmental variables, such as access to food or places to exercise, influenced their ability to achieve their health goals.

4.5.4 Dyad Cooperation (Aim 3)

Semi-structured interviews were used to obtain an in-depth understanding of how dyads cooperated to set, pursue, and attain their goals. Prompts were guided by the two main TGDM constructs – interaction frequency, which includes, opportunities to interact,

mutual motivation, and shared goals, and goal coordination, which includes discussing challenges and coming up with strategies. Examples of prompts include ‘What were your team’s goals?’, ‘How did you and your partner motivate one another?’, and ‘Tell me about strategies you used to achieve your goals?’.

4.6 Analysis

Table 7 outlines the timeline and analysis methods for each aim.

4.6.1 Participant Characteristics

Participant characteristics obtained at baseline were analyzed using descriptive statistics (e.g., means, standard deviations). T-tests were used to identify any differences between participants who completed the program and those who did not. ANOVA and fisher’s exact statistical tests were used to identify any significant differences in baseline characteristics between participants at the different church locations.

4.6.2 Program Feasibility (Aim 1)

Feasibility survey item scores were averaged to provide a total score. The frequency of choosing ‘agree’ or ‘strongly agree’ was also calculated for each item. Dyad communication frequency was tallied from participant logs. A multilevel model (participants nested in dyads) was used to determine what, if any, characteristics (i.e., partner choice, type of partner relationship, education, age, sex, church) predicted higher feasibility scores and dyad communication frequency.

4.6.3 Goal Attainment Health Outcomes (Aim 2)

Unconditional means models were run for each outcome and the intraclass correlation was calculated to assess for dyad dependence. A three-level mixed model (participants nested within dyads over time) was used to assess changes in weight, BMI,

systolic blood pressure, fruit and vegetable intake, and physical activity. Both unadjusted and adjusted models were run. Church site, dyad relationship (i.e., friend, family or acquaintance), dyad assignment (whether dyads chose or were assigned their partner), and participant characteristics (age, sex, education) were added as model covariates. Dependence of participants during the second nine weeks was accounted for by creating a dichotomous variable to separate measurements taken before participants were paired and measurements taken after they were paired.

First, significant changes from baseline to 18 weeks were assessed. Second, significant changes during the first nine weeks before participants were paired, compared to the second nine weeks after they were paired, were assessed. Third, three interaction terms were entered into three different models to assess whether or not dyad relationship type, dyad partner assignment, or dyad communication frequency influenced changes in health outcomes while participants were paired. Additional descriptive statistics were generated to assess the proportion of participants who were able to achieve clinically significant weight loss (weight loss $\geq 5\%$ of body weight) (Leahey, Kumar, Weinberg, & Wing, 2012; West, Coulon, Monroe, & Wilson, 2016) as well as the recommended servings of fruits and vegetables and daily minutes of physical activity.

4.6.4 Dyadic Cooperation (Aim 3)

Directed content analysis (Hsieh & Shannon, 2005) was used to analyze semi structured interviews. Deductive a priori coding guided by the TGDM was used to analyze dyad cooperation. Inductive coding was used to analyze participant's perceptions of program feasibility, and the influence of social and environmental factors that influenced their health. Transcripts were read and re-read to identify and

assign codes. Codes were grouped according to themes. Ten percent of transcripts were read by a second reviewer to compare codes, resolve discrepancies in coding, and interpret results.

Table 7. *Assessment Variables and Timeline*

<u>Aim</u>	<u>Variable</u>	<u>Week Assessed</u>	<u>Analysis Method</u>
Participant Characteristics	Participant characteristics	1(Baseline)	Descriptive statistics
Participant Characteristics	Baseline differences between church sites	1	ANOVA, Fisher's exact
Participant Characteristics	Baseline differences between those who did and did not complete the program	1	T-test
Feasibility	Church and participant recruitment and retention	1-18	Descriptive statistics
Feasibility	Feasibility Survey Scores, Dyad communication frequency	18	Descriptive statistics
Goal Attainment/Health Outcomes	Changes in FVI and PA and interactions	1, 9, 18	Mixed Model
Goal Attainment/Health Outcomes	Changes in SBP, BMI, weight and interactions	1, 9, 14, 18	Mixed Model
Feasibility; Goal Attainment; Dyad Interactions	Perceptions of feasibility, dyad interactions - challenges and strategies	18	Directed Content Analysis

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