

Using a Community-Based Participatory Research Approach to Improve Health
Disparities among Youth and Adults in the Dan River Region

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ABSTRACT

BACKGROUND: As defined by the U.S. Department of Health and Human Services, a health disparity is “a particular type of health difference that is closely linked with social or economic disadvantages.” These disadvantages include, but are not limited to, unequal access to quality healthcare and health information. Health disparities adversely affect groups of people based on racial or ethnic group, religion, socioeconomic status, gender, age, mental health, cognitive, sensory, or physical disability, sexual orientation, geographic location, or other characteristics historically linked to discrimination or exclusion. To address the root cause of health disparities, there has been a call for more comprehensive frameworks for detecting, understanding, and designing interventions that will reduce or eliminate health disparities. One such framework is a community-based participatory research (CBPR) approach. CBPR is a research orientation that focuses on relationships between academic and community partners, with principles of co-learning, mutual benefits, and long-term commitment. CBPR also focuses on aspects of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities. The overall goal of this dissertation is to build capacity and address health disparities among youth and adults in the Dan River Region. This region and its residents are federally designated as a medically under-served area and population; the region is located in a health disparate area of south-central Virginia and north-central North Carolina. This research draws on two CBPR projects, including an 8-week community garden program led by the Dan River Partnership for a Healthy Community (DRPHC) and a 3-month childhood obesity treatment program, *iChoose*, led by the Partnering for Obesity Planning and Sustainability (POPS) Community Advisory Board (CAB).

Study 1 builds upon previous community garden research conducted in the Dan River Region, under the umbrella of the DRPHC. Guided by a CBPR approach, a feasibility study framework, and the Social Cognitive Theory, the research objective was to assess four indicators of feasibility (i.e., acceptability, demand, limited effectiveness, and implementation) of an 8-week community gardening (CG) and nutrition program. With Virginia Cooperative Extension agents

as key research partners, six community sites in the Dan River Region were matched by type and assigned to receive either a gardening and nutrition program or a matched-contact physical activity program. Both programs consisted of youth ages 8-14, who were predominantly African American. Using validated measures, the primary effectiveness outcomes were willingness to try fruits and vegetables and the number of days active for at least 60 minutes per day. Among the three CG sites, approximately 93 youth were eligible, of which 32 (34%) enrolled in the program and 19 (59%) completed follow-up assessments. During the 8 weeks of the program, enrolled participants attended an average of 4.1 (51%) CG classes. Among the three PA sites, approximately 141 youth were eligible, of which 61 (43%) enrolled and 49 (80%) completed follow-up assessments. Enrolled participants attended 4.9 (61%) of the PA sessions. While the effectiveness results reveal that neither the gardening nor activity program improved targeted outcomes, qualitative data revealed that 96% of the youth enrolled in CG classes and 92% of those enrolled in PA expressed positive impressions of the program. Furthermore, program site leaders expressed enthusiasm for continuing the program. Implementation findings indicated that extension agents partnered with researchers were able to deliver the program successfully. This feasibility study revealed opportunities and barriers for engaging at-risk youth in a nutrition or activity initiative aimed at promoting health behaviors. However, future efforts are needed to refine the measurement and evaluation processes and procedures related to effectiveness testing.

STUDY 2 is embedded in the Partnering for Obesity Planning and Sustainability (POPS) Community Advisory Board (CAB), a subcommittee of the Dan River Partnership for Healthy Community (DRPHC). The POPS-CAB adapted, implemented, and evaluated an evidence-based childhood obesity treatment program, *iChoose*. *iChoose* is a 3-month family-based childhood obesity treatment program that resulted in modest decreases in child BMI-z-scores and high levels of program fidelity among local delivery agents. The purpose of this mixed-methods study was 1) to describe parent satisfaction with *iChoose* and examine the degree to which satisfaction was related to changes in BMI and 2) to examine delivery agent satisfaction with the training and delivery of *iChoose*. Parent satisfaction was assessed through 30 quantitative items and 20 qualitative questions. Ninety-four families were enrolled in *iChoose* and 61 (60%) completed the summative evaluation. Average parent satisfaction ratings were high (i.e., family classes=9.4, PA classes=8.9, workbook=9.1, newsletter=9.1, missed class call=8.1, support

calls=8.0, and future participation=7.4 on a 10-point scale). Program satisfaction ratings were not significantly correlated to improvements in parent BMI or child BMI z-scores. Qualitative responses were positive; however, a universal theme was that the support calls were too lengthy. Delivery agent satisfaction was assessed through 34 quantitative and 11 qualitative questions. There were 5 clinical delivery agents and 1 community delivery agent who completed the *iChoose* training. Quantitative findings revealed moderate satisfaction ratings (i.e., training sessions=6.8, support calls=6.7, and family class delivery=6.6 on a 10-point scale). Qualitative findings revealed that calls were too long but that delivery agents enjoyed building rapport with families in the classes and over the phone. The results from this mixed-methods evaluation provides information on the strengths of *iChoose*, as well as opportunities to refine the intervention and training protocol for future *iChoose* families and delivery agents.

STUDY 3 is guided by CBPR principles, with the goal of developing an *iChoose* parental advisory team (PAT). The goal of this study was to engage past *iChoose* families as key collaborators and equal partners in the development of an *iChoose* maintenance phase. The purpose of this process evaluation was to report on the short-term progress of the PAT. Twenty-six of the parents/caregivers who participated in at least 50% of the 3-month *iChoose* intervention components were contacted to participate in the PAT. Of the 26 contacted parents, 10 (38.5%) consented to participate. Between June 2015 and March 2016, the PAT engaged in 9 monthly meetings, each lasting about 2 hours. During the first 4 meetings, the PAT engaged in key activities related to understanding *iChoose* program outcomes and defining their roles and purpose as an advisory team. During these meetings, the PAT developed and completed an evaluation plan to establish baseline data for community capacity and group dynamic dimensions. Seven of 10 (70%) parents completed the capacity evaluation. Overall, ratings were high (i.e., collective efficacy=4.3, communication=3.9, community's power=3.9, leadership=4.4, participation and influence=3.9, problem assessment=4.3, personal and community influence=3.8, and PAT satisfaction=4.1 on a 5-point scale). Qualitative data revealed that the consistency of meetings and working relationships were positive aspects of the PAT and that continuing the monthly meetings could lead to future improvements in the PAT's capacity. During the next 5 meetings, the PAT initiated content development and pilot testing of intervention sessions for an *iChoose* maintenance phase. As prioritized by PAT members,

content focused on skill-building activities, such as preparation of healthy snacks, exposure to new group-based physical activity opportunities (e.g., POUND class and urban line dancing class), and addressing body image concerns among youth. The accomplished objectives reveal that the PAT members have remained engaged in the process. As the PAT continues to develop, intermediate goals are to continue to develop and pilot test weight maintenance content, and to conduct a follow-up mixed-methods capacity evaluation plan to explore changes in community capacity and group dynamics over time. The long-term goals of the PAT are to engage in program delivery and to act as a support ‘safety net’ in the future effectiveness testing of *iChoose*. Engaging parents in all aspects of this research process and understanding changes in their capacity fills an important gap in the childhood obesity treatment literature.

CONCLUSION: Because one of the primary aims for CBPR is to increase community capacity, this approach is the ideal process for engaging communities that suffer from health disparities. Thus, through engaging community members as collaborators, our studies reported on the relevance and application of CBPR while simultaneously addressing health and capacity outcomes in the health disparate Dan River Region.

Using a Community-Based Participatory Research Approach to Improve Health Disparities among Youth and Adults in the Dan River Region

Ramine Carrice Alexander

GENERAL AUDIENCE ABSTRACT

As defined by the U.S. Department of Health and Human Services, a health disparity is “a particular type of health difference that is closely linked with social or economic disadvantages.” These disadvantages include, but are not limited to, unequal access to quality healthcare and health information. Health disparities adversely affect groups of people based on racial or ethnic group, religion, socioeconomic status, gender, age, mental health, cognitive, sensory, or physical disability, sexual orientation, geographic location, or other characteristics historically linked to discrimination or exclusion. To address the root cause of health disparities, there has been a call for more comprehensive frameworks for detecting, understanding, and designing interventions that will reduce or eliminate health disparities. One such framework is a community-based participatory research (CBPR) approach. CBPR is a research orientation that focuses on relationships between academic and community partners, with principles of co-learning, mutual benefits, and long-term commitment. CBPR also focuses on aspects of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities.

The overall goal of this dissertation is to build capacity and address health disparities among youth and adults in the Dan River Region. This region and its residents are federally designated as a medically under-served area and population; the region is located in a health disparate area of south-central Virginia and north-central North Carolina. This research draws on two CBPR projects, including an 8-week community garden program led by the Dan River Partnership for a Healthy Community (DRPHC) and a 3-month childhood obesity treatment

program, *iChoose*, led by the Partnering for Obesity Planning and Sustainability (POPS) Community Advisory Board (CAB).

Dedication

This dissertation is dedicated to my deceased relatives.

Even though you are not here in the physical, I feel your spirit and your love. Thank you for cheering me on from up above.

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To my Lord and Savior Jesus Christ, Thank you! God you are so awesome! Thank you for your grace and provision. You equipped me with everything I needed to complete this season in my life, and I am so grateful. I am also thankful for your faithfulness and favor. This dissertation is for your glory. I pray this touches the life of any person who reads a portion of this document. I also pray that God keeps you in His perfect will, even when you do not want to be. Christ has such an amazing way of orchestrating things, not only in my life but also in the lives of others around me, and for that I am thankful. It was none of me, but all of You! So, thank you for working through me to see this complete.

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journey. I am so blessed to have such an amazing family and people I can call true friends. Words are not sufficient to express my incredible gratitude.

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In conclusion, I cannot live in the present without reflecting on my past. Therefore, I would like to thank my ancestors. Your fight, struggle, and sacrifices are a part of the reason I am able to experience life in a more fruitful way. Even though you did not see the fruits of your labor, your struggle continues to bless countless lives across the world.

Attributes

Manuscript 1:

Jennie Hill is an associate professor in the Department of Health Promotion, Social and Behavioral Health at the University of Nebraska Medical Center. She is also an Adjunct faculty member at Virginia Tech in the Department of Human, Nutrition, Foods, and Exercise. She assisted in guiding data analysis and conceptualizing, reviewing, and editing the manuscript for content.

Karissa Grier is a graduate student in the Department of Human Nutrition, Foods, and Exercise at Virginia Tech. She assisted in program delivery, coding qualitative data, quantitative data analysis, and reviewing the manuscript for content.

Lorien MacAuley is a graduate student in the Department of Agricultural, Leadership, and Community Education at Virginia Tech. She assisted in program delivery and reviewing the manuscript for content.

Alisa McKenzie is the Family Nutrition Program Assistant at Virginia Cooperative Extension. She assisted in program delivery and reviewing the manuscript for content.

Tadashi Totten is an Extension Agent at Virginia Cooperative Extension. He assisted in program delivery and reviewing the manuscript for content.

Kathleen Porter is a post-doctoral scholar at Virginia Tech. She assisted in quantitative data analysis.

Jamie Zoellner is a professor in Department of Human Nutrition, Foods, and Exercise at Virginia Tech. She assisted in guiding data analysis and conceptualizing, reviewing, and editing the manuscript for content.

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Chapter 1: Introduction

Obesity is a major public health concern in the United States, and the rise in obesity has major implications for morbidity, mortality, and future healthcare cost (Kalanis & Moulton, 2006). The Centers for Disease Control and Prevention (CDC) defines obesity as a Body Mass Index (BMI) at or above the 95th percentile in children and adolescents ages 2- to 19-years old (Centers for Disease Control, 2012), and in adults, obesity is defined as a BMI greater than or equal to 30kg/m² (Centers for Disease Control, 2012). Research has shown that obesity is a major risk factor for chronic disease, can decrease longevity and quality of life, and is a burden on economic productivity over time (Braveman, Williams & Egerter 2009). However, obesity and its consequences have a higher impact on particular social groups, such as race/ethnic minorities, low-income individuals, women, residents of certain geographic locations, people of low socioeconomic status, and other groups who have persistently experienced discrimination (Braveman, Williams & Egerter 2009).

When there are differences in health outcomes due to race and ethnicity, sex, and income, researchers define these differences as health disparities (Whitehead, 1991). Health disparities can also be defined as a particular type of differences in health (or in the determinants of health that could be shaped by policies) in which disadvantaged social groups systematically experience worse health or increased health risks compared with advantaged social groups (Braveman, 2009). However, according to Braveman and colleagues, addressing obesity through a health disparities lens can help explain how modifiable conditions in people's lives, such as homes, neighborhoods, schools, and workplaces, can affect the likelihood of one attaining and maintaining a healthy weight (Braveman, 2014). Braveman and colleagues also suggest that in order to get to the root cause of health disparities, researchers must study social factors

associated with health disparities instead of controlling for them. Therefore, by focusing on these factors, researchers can understand the impact of the social and physical environment, as well as individual and community approaches to addressing health disparities.

To fully understand how these factors are associated with health disparities, there has been a call for more comprehensive and participatory approaches to public health research and practice (W.K. Kellogg Foundation, 1992; CDC, 1994; Levine *et al.*, 1994; Fisher, 1995; Green *et al.*, 1995; Novotny & Heaton, 1995; Israel *et al.*, 1998; Macaulay *et al.*, 1999; NIEHS, 1999). A method of research that orients participatory approaches to public health is community-based participatory research (CBPR). CBPR is a collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each partner brings. CBPR focuses on aspects of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities (Minkler & Wallerstein, 2003). CBPR proposes a set of principles based on co-learning between academic and community partners, a focus on capacity building in addition to conducting the research, and a long-term commitment to effectively reducing health disparities in the community (Israel, Schulz, Parker, Becker, Allen & Guzman, 2003). Therefore, this dissertation consists of a series of manuscripts that uses a CBPR approach to improve physical activity and nutrition outcomes in youth and adults, in addition to promoting capacity among adults in the Dan River Region (DRR).

The Dan River Region

The DRR is a medically underserved, health disparate region, located in south-central Virginia and north-central North Carolina. The DRR includes the city of Danville, Pittsylvania County, Henry County, and Caswell County, the last of which is located in North Carolina. The

total population is just under 140,000 people across each of the three counties (US Department of Health and Human Services, 1997) (Virginia Department of Health, 2008) (Motley, Holmes, Hill, Plumb & Zoellner, 2013). The DRR suffers from health and economic disparities and is considered predominately rural with unemployment rates that almost double those of the national and state averages (Motley, Holmes, Hill, Plumb & Zoellner, 2013). The DRR is also one of the most health disparate regions in the commonwealth, with low rates of educational attainment, and high levels of poverty (Motley et al., 2013). Women make up 50% of the population, and African Americans represent 27% of the population. It is estimated that approximately 17% of the population lives on an income below the Federal Poverty Level and less than 14% have obtained a bachelor's degree (Motley, et al., 2013). The DRR also suffers from the highest rates of obesity, diabetes, and cardiovascular disease in the state of Virginia. Rates of obesity ($BMI \geq 30$) across each county averages 35%, which is significantly higher than the state (27%) and slightly higher than the national (34.9%) average (Centers for Disease Control, 2011). These high rates of obesity in the population also exist among children, with 20% of 1st graders and 36% of 5th graders being obese. When stratified by income, obesity rates trend even higher, ranging from 37-43% for those living on < \$25,000 per year (Centers for Disease Control, 2011). In addition to this, about one-quarter of the population does not have medical insurance, which complicates health concerns, such as obesity, diabetes, hypertension, and high cholesterol, which are all prevalent in the region (Motley et al., 2013). In regards to the food environment, there is a low availability of healthy food options in stores and restaurants located in low-income areas with a higher percentage of minorities. There is also a lack of healthy food options offered on children's menus at restaurants, in predominantly African American communities (Hill, Chau, Luebbering, Kolivras, & Zoellner, 2012).

Dan River Partnership for a Healthy Community

In 2010, an obesity roundtable in the DRR prioritized three primary intervention ideas through a regional comprehensive needs assessment aimed at identifying and prioritizing potential interventions, in addition to creating a sense of ownership for the identified obesity-related problems and solutions (Dan River Partnership for a Healthy Community, 2014). From this process, three primary intervention ideas were identified: 1) health-related social marketing campaigns, 2) community gardens to increase the accessibility of fresh/local foods, and 3) social support for physical activity. The low availability of weight reduction programs was later identified as a top community priority. To address these issues, community stakeholders in the Dan River Region and researchers from the Department of Human Nutrition, Foods and Exercise at Virginia Tech came together to create a collaborative partnership focused on obesity in the region using a community-based participatory research (CBPR) approach (Dan River Partnership for a Healthy Community, 2014). This partnership came to be known as the Dan River Partnership for a Healthy Community. Through this partnership, several community projects that focus on the built environment, increasing accessibility to fresh fruits and vegetables through community garden initiatives, physical activity programs for adults and youth, and surveillance outcomes of obesity-related behaviors across the region have been implemented within the DRR (Dan River Partnership for a Healthy Community, 2014).

Partnering for Obesity Planning and Sustainability Community Advisory Board

The POPS-CAB is a newly formed subcommittee of the DRPHC. Using a systems-based approach, within the existing CBPR partnership (DRPHC), the goal of the Partnering for Obesity Planning and Sustainability Community Advisory Board (POPS-CAB) is to engage in the

development of a contextually relevant family-based childhood obesity intervention with the potential for long-term sustainability. The POPS-CAB engages multiple systems in the design and testing of a prototype family-based childhood obesity intervention. The current membership of the POPS-CAB include Danville Pittsylvania Health District, Children's Healthcare Center, Danville Parks Recreation & Tourism, and the Boys & Girls Club, along with an interdisciplinary team of academic investigators from Virginia Tech. Systems-based approaches include a focus on initiative effectiveness and addresses broader contextual issues, such as program adoption, implementation, and maintenance across settings and delivery staff (Dan River Partnership for a Healthy Community, 2014).

Overall Implications of this Dissertation

Using the CBPR approach to address obesity in the Dan River Region, the mission of the DRPHC is to foster community partnerships to combat obesity in the Dan River Region through healthy lifestyle initiatives, in addition to promoting an environment that supports opportunities for all Dan River Region residents to make healthy food choices and to be physically active in order to achieve or maintain a healthy weight (Dan River Partnership for a Healthy Community, 2014). Applying each dimension of the CBPR Logic Model, the DRPHC and POPS-CAB seek to engage the community in each aspect of the research process. By engaging the community, this dissertation aims to report on the relevance and application of CBPR in improving health and capacity outcomes in the health disparate Dan River Region. The long-term goal of this research is to inform the translation and future sustainability of CBPR programming in the Dan River Region and subsequently reduce health disparities.

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Chapter 2: Literature Review

Health Disparities

Eliminating health disparities remains a prevailing public health challenge, both in the United States and globally. In the US, a health disparity is defined as the differences in healthcare or health status among different racial and racial ethnic groups, whereas in the United Kingdom and European nations, the term mostly refers to differences associated with social class and socioeconomic status (Whitehead, 1991). Health disparities are also considered to be dissimilarities in health indicators for different population groups, often defined by race, ethnicity, sex, educational level, socioeconomic status, and geographic location (Mensah, Mokdad, Ford, Greenlund, and Croft, 2005). Despite these differences, most definitions share a common element of identifying a disparity as a difference in health status between social groups that are not only unnecessary and avoidable but are also unfair and unjust (Whitehead, 1991). The need to eliminate health disparities is so apparent in the United States that during the past two decades, Healthy People's overarching goal has been focused on health disparities. In 2000, Healthy People's goal was to reduce health disparities among Americans. In 2010, it was to eliminate and not just reduce health disparities. However, in 2020, this goal has expanded even further: to achieve health equity, eliminate disparities, and improve the health of all groups (Healthy People, 2015). As defined by Healthy People in 2020, health equity is the attainment of the highest level of health for all people. Focusing on the ongoing societal efforts to address avoidable inequalities, as well as historical and contemporary injustices, and to eliminate health and healthcare disparities are steps to improving health-related outcomes (U.S. Department of Health and Human Services, Office of Minority Health. National Partnership for Action to End Health Disparities, 2010).

Health Disparities: Race and Obesity

More than two-thirds of U.S. adults are overweight or obese (Ogden et al., 2014), with African American women and Hispanic men making up the majority of this overweight and obese population compared with other racial and gender groups. Recent data suggest that during 2011-2012 approximately 35% of adults and 17% of children and adolescents were considered obese. Obesity differences also exist according to ethnicity and sex. Recent data show that 82.0% of Black women are overweight or obese compared with 77.2% of Hispanic women and 63.2% of White women (Ogden et al., 2014). As for men, rates of overweight and obesity are also higher for Hispanics than Caucasians and African Americans, with 78.6% of Hispanic men being overweight or obese compared with 69.2% of Black men and 71.4% White men (Ogden et al., 2014). However, extreme obesity continues to be higher among women (8.3%) than men (4.4%), especially among Black women who have more than double the rates of extreme obesity compared with White and Hispanic women (16.4% versus 7.4% and 7.6%, respectively) (Ogden et al., 2014).

Similar to the racial and gender disparities in adult obesity rates, childhood obesity rates are higher among African American and Hispanic children compared with Caucasian children (Ogden et al., 2014). Analogously to adults, this prevalence is also higher among children living in Southern regions of the U.S. (Singh et al., 2008). Only 29.2% of Caucasian girls are overweight or obese compared with 36.1% of African-American and 37.0% of Hispanic girls (Ogden et al., 2014). Similar to adult men, approximately 40% of Hispanic boys are overweight or obese compared with 34.4% of African-American boys and 27.8% Caucasian boys (Ogden et al., 2014). In regards to age, childhood obesity rates are the highest among 12-19-year-old Hispanic boys (39.6% are overweight or obese) and 12-19-year-old African-American girls

(42.5% are overweight or obese) when compared with other adolescents around this age (Ogden et al., 2014). These high rates of overweight and obesity are also prevalent in low-income preschoolers, with 30% being overweight or obese (Centers for Disease Control and Prevention, 2011). Due to the high prevalence of overweight and obesity among minorities, targeting prevention and intervention efforts towards minority youth has the potential to reduce health disparities across multiple disease conditions (Wilson, 2009).

Health Disparities: Socioeconomic Status

As with weight, there are a variety of factors that influence health and health status among populations that lead to health disparities. Among these is socioeconomic status (SES). SES is one of the greatest contributors to the disparities in health observed in the United States (Anderson and Miller, 2005). SES has been defined as “a broad concept that refers to the placement of persons, families, households and census tracts or other aggregates with respect to the capacity to create or consume goods that are valued in our society” (Miech and Hauser, 2001). However, despite its definition, SES is strongly related to health status/healthcare and an individual’s or group’s access to basic resources required to achieve and maintain good health (Adler and Newman, 2002). In the US, income and educational attainment are the two most commonly used markers to evaluate socioeconomic status or social position in the United States. They are also correlated with health and health-related behaviors (Braveman, 2005). A variety of studies have shown that individuals who have a lower SES consistently suffer from poorer health quality across a variety of morbidity and mortality outcomes than individuals with a higher SES (Williams, 1995). As income increases, health status tends to improve; yet despite income levels, Blacks and Hispanics tend to have worse health than Whites (Braveman, Williams & Egerter, 2009).

In addition to the effects on adults, it is important to understand how health disparities affect children and adolescences. Regarding SES, research has shown that low SES has been associated with poorer health in children (Chen, Matthews, & Boyce, 2002 and Starfield, Riley, Witt & Robertson, 2002). According to Chen and Pamuk, children with lower SES have poorer health behaviors, higher injury rates at young ages, and greater rates of smoking and sedentary behavior. Not only is this a burden on the individual and our health system but health disparities in childhood health also have a substantial financial burden on our economy (Chen, Matthews, & Boyce, 2002 and Pamuk, Makuc, Heck, Reuben, and Lochner, 1998). Children living in poverty are projected to cost the United States \$130 billion in future economic output on the basis of projected inability to work and loss of time from work in adulthood (Sharman, 1997). Along with SES, children who belong to minority groups also have substandard health care (Chen, Martin & Matthews, 2006).

The relationship between SES and obesity risk in youth are associated with differences in dietary intake and physical activity patterns at different levels of SES (Singh, Siahpush & Kogen, 2010). Families with a higher SES are more likely to be knowledgeable and able to afford to provide a healthier diet for their children. Higher SES families are also more likely to engage their children in physical activities, such as organized sports or other activities where they are able to exercise. These families are also more likely to reside in communities that have more access to fresh fruits and vegetables. However, families with a lower SES come from poor neighborhoods and have lower health literacy, more access to fast food and convenience stores with high-caloric products, and lower availability of fresh fruit and produce (Algert, Agrawal & Lewis, 2006).

Trends in Health Behaviors and Outcomes

Physical Activity

The increased prevalence of obesity and obesity-related risk factors has been attributed to lifestyle factors, such as decreased physical activity, increased sedentary behavior, and poor dietary habits. The increasing prevalence of childhood obesity and its detrimental health implications has led some researchers to speculate that physical activity may be beneficial to improving the childhood obesity epidemic (Kalanis & Moulton, 2006). Therefore, physical activity participation has been determined as an effective method in preventing a variety of obesity-related chronic diseases, such as diabetes, metabolic syndrome, and cardiovascular disease (Wright, Norris, Suroto & Giger, 2012). Research has also shown that regular physical activity improves muscular strength, builds healthy bones, increases endurance, reduces the risk factors for developing chronic disease, improves self-esteem, and reduces stress and anxiety (Goldsfield, Epstein, Kilanowski, Paluch & Kogut-Bossler, 2001). According to the Centers for Disease Control (Wright, Norris, Suroto & Giger, 2012), children need to participate in 60 minutes or more of physical activity each day (Wright, Norris, Suroto & Giger, 2012). Despite the CDC recommendations and the mental and physical health benefits associated with physical activity, most youth do not engage in adequate amounts of physical activity (Whitt-Glover, Ham & Yancey, 2011).

Physical activity has also been shown to improve health in adults. Adults who are physically active tend to live longer and have a lower risk for heart disease, stroke, type 2 diabetes, depression, and some types of cancer. Despite the health benefits of physical activity, only 21% of all adults are meeting the 2008 Physical Activity Guidelines (Centers for Disease Control, 2014). Similar to the racial and gender divide as it relates to obesity in adults, the same divide

exist in adults in regard to physical activity. According to the CDC, compared with non-Hispanic black (18%) and Hispanic adults (16%), more non-Hispanic white adults (23%) meet the 2008 Physical Activity Guidelines for aerobic and muscle-strengthening activity. Men are (54%) also more likely than women (46%) to meet the 2008 Physical Activity Guideline for aerobic activity (Centers for Disease Control, 2014).

Fruit and Vegetable Intake

The Dietary Guidelines (DGA) for Americans offers advice on making healthy food choices that promote health and reduce disease risk for Americans ages 2 years and over. Since vegetables and fruits are rich in folate, magnesium, potassium, dietary fiber, and vitamins A, C, and K, adequate fruit and vegetable consumption is recommended to maintain a healthy lifestyle. The adequate consumption of fruits and vegetables is also associated with reduced risk of chronic diseases, and a moderate intake of at least 2.5 cups of fruits and vegetables per day can be protective against certain types of cancer. Fruits and vegetables are also low in calories when prepared without added fats and sugar. Additionally, eating them can help adults and youth maintain a healthy weight (United States Department of Agriculture, 2010). According to MyPlate guidelines, the recommended fruit and vegetable intake varies based on age and sex. The daily recommendation for fruits and vegetables are different for children and adults. It is recommended that children 2-3 years old consume 1 cup of fruit per day and children 4-8 years old should consume 1 to 1 ½ cups of fruit per day. Girls 9-18 and boys 9-13 years of age should consume at least 1 ½ cups of fruit per day. However, boys 14-18 should consume at least 2 cups of fruit each day. Women 19-30 years of age should consume at least 2 cups of fruit each day and women ages 31-51+ should consume at least 1 ½ cups of fruit each day. It is recommended that men ages 19-51+ should consume at least 2 cups of fruit each day. In regards to vegetables,

children ages 2-3 years old should consume 1 cup and children ages 4-8 years of old should consume 1 ½ cups of vegetables per day. For girls and boys ages 9-13, 2 cups of vegetables should be consumed per day. However, girls ages 14-18 should consume 2 ½ cups per day and boys 14-18 should consume at least 3 cups per day. Women ages 19-50 should consume at least 2 ½ cups of vegetables per day and reduce that amount by a half once they reach 51. Lastly, men ages 19-50 should consume at least 3 cups of vegetables per day, and once they reach 51, they should reduce their serving to 2 ½ cups of vegetables per day (United States Department of Agriculture, 2010).

Despite the documented benefits of consuming the recommend serving of fruits and vegetables each day, many Americans are not meeting the dietary recommendations of the USDA (US Department of Agriculture and US Department of Health and Human Services). In the US, there has been a decline in fruit and vegetable consumption over time. No state or territory in the US has over 50% of the population consuming the recommended amount of fruits and vegetables. According to data from the 2009 Behavioral Risk Factor Surveillance System (BRFSS), 33.7% of non-Hispanic Blacks, 37.2% of Hispanic, and 31.1% of non-Hispanic White adults ages 18 and older consumed fruit two or more times per day. However, women, adults ages 65 and older, college graduates, and adults with an annual household income \geq \$50,000 have the highest consumption of fruit per day. In regards to vegetable intake, 27.7% of Whites, 21.9% of Blacks and 19.7% of Hispanics consume vegetables three or more times per day. Yet, similar to fruit intake, women, college graduates, and individuals with an annual household income \geq \$50,000 are the largest consumers of vegetables. This could be due to access, availability and affordability (Centers for Disease Control and Prevention, 2010). Therefore,

effective behavioral interventions targeted at increasing fruit and vegetable consumption are needed (Allicock, Johnson, Leone, Carr, Walsh, & Campbell, 2013).

Introduction to Community-Based Participatory Research (CBPR)

A method of research that orients participatory approaches to public health is community-based participatory research (CBPR). CBPR emphasizes collaboration and power-sharing between community members and research partners in order to effectively address the health concerns of the community (Israel, 2013). This is a collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each partner brings. CBPR focuses on aspects of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities (Minkler & Wallerstein, 2003, p. 4).

CBPR is also guided by nine principles that aid in community partnerships and research initiatives. The nine guiding principles of CBPR are as follows: 1) CBPR acknowledges community as a unity of identity; 2) CBPR builds on strengths and resources within the community; 3) CBPR facilitates a collaborative, equitable partnership in all phases of research, involving an empowering and power-sharing process that attends to social inequalities; 4) CBPR fosters co-learning and capacity-building among all partners; 5) CBPR integrates and achieves a balance between knowledge and intervention for the mutual benefit of all partners; 6) CBPR focuses on the local relevance of public health and on ecological perspectives that attend to the multiple determinants of health; 7) CBPR involves systems development using a cyclical and iterative process; 8) CBPR disseminates results to all partners and involves them in the wider dissemination of results; and 9) CBPR involves a long-term process and commitment to

sustainability (Israel and et al., 2005). These principles should develop throughout the research process and should guide both the researchers and community.

Unlike other research approaches that have a specific set of research methods or techniques (Wallerstein, 2006), CBPR is an orientation to research that focuses on the relationship between research and community partners, in addition to understanding the appropriate set of research methods and techniques for the community (Minkler & Wallerstein, 2003). CBPR is an approach to research that values the role of community members and academicians as equitable partners, where each member contributes to the research process (Israel, Schulz & Parker, 1998). CBPR is distinguished from other research processes because it places a value on cooperative efforts that engages community members in all phases of the research process, including the identification of community health concerns, intervention design, study implementation, data analysis, and the interpretation and dissemination of study results (Patel, Bogart, Uyeda, Uyeda, Martinez, Knizewski, Ryan & Schuster, 2009). Therefore, CBPR allows community members to have an equal voice in the decision-making process and in the relevance of research for their community (Israel, 2005).

CBPR is characterized as an empowering process by giving community members more control over their lives and community. By partnering with community members, particularly individuals who are considered to be without power and status, CBPR provides a channel for them to express their needs and concerns within their community along with building community capacity to address each of those needs (Wallerstein and Duran, 2006). By placing research in the community, it broadens scientific knowledge among community members as a whole and increases the potential for underrepresented community members to participate in research efforts affecting their community, in addition to increasing the likelihood that a particular project

within the community will be sustained (Jacquez, Vaughn, & Wagner, 2012). CBPR utilizes the collective knowledge, expertise, and resources gained through community-academic partnerships to develop and execute interventions that are culturally effective and prioritized by the community (Israel et al., 1998, Wallerstein et al., 2010, and Viswanathan et al., 2004). The use of this approach to research has been increasingly used in order to develop community health and welfare by implementing research partnerships that connect researchers and community members (Newhall, 2013). CBPR is known to bridge the gap between science and practice by engaging the community in addressing their own health concerns, including increased health equity (Wallerstein & Duran, 2010). CBPR is intended to unite researchers and communities in order to establish trust, share power, foster co-learning, enhance strengths and resources, build capacity, and examine and address community-identified needs and health problems in a specific region (Israel, Schultz, Parker & Becker, 1998).

CBPR Conceptual Logic Model

CBPR addresses a range of intervention challenges. These include partnering with community members to best contextualize an intervention for specific settings and fostering the needed trust within partnerships to enable the most effective translation of research within diverse settings. Developed by Wallerstein and colleagues, the CBPR Conceptual Logic Model (pg. 30) presents a holistic view of CBPR as a continuum of the research process. The model consists of four dimensions and suggests relationships between each category. The four dimensions of the model are *context*, *group dynamics*, *intervention/research*, and *outcomes*. *Context* provides the backdrop to CBPR work, with inequitable structural conditions being a primary risk factor for health disparities. The second overarching dimension is *group dynamics*, or how the practice of CBPR takes place with core values of creating equitable partnerships.

This dimension has three sub-dimensions: the individual, structural, and relational dynamics of the partnership. Following group dynamics is the *intervention* category, which focuses on the research designs that are influenced by contextual factors and group dynamics. The final category of the model focuses on *outcomes*. The CBPR approach usually consists of two outcomes: systems and capacity and health outcomes. The systems and capacity outcome focuses on structural and relationship changes that promote greater equity in power dynamics, enhanced empowerment for individuals, organizations, and communities, and opportunities for sustained changes in conditions that enable better health. The sustainability of interventions is key for communities and is more likely with the integration of local culture and attention to organizational readiness to adopt interventions. Health outcomes and the reduction of health disparities toward social justice are the ultimate goals of research interventions designed through a CBPR partnership. In this model, the CBPR process and practice are presented linearly. However, in reality, the CBPR process is dynamic, in that it is driven by internal and external changes over time (Wallerstein, Oetzel, Duran, Tafoya, Belone & Rae, 2008).

[Insert Figure 2-1]

Context

The context dimension has 5 specific constructs that are a part of the logic model and that shape CBPR partnerships. The first construct of this dimension includes the socioeconomic, cultural, geographical, and environmental settings of the research. These factors provide the backdrop to all CBPR work. The cultural dimension influences both risk and protective factors and inequitable structural conditions, which are primary risk factors for health disparities. Second, national and local policy trends shape the frequency and prestige of CBPR. Governance and leadership can also shape CBRP projects, impacting the multiple leadership models used in

community settings. The third sub-dimension is the historical and collaborative context, specifically, trust vs. mistrust. This sub-dimension influences how CBPR partnerships face and address issues of trust or mistrust over time. However, there are multiple and contextual challenges to building trust in CBPR partnerships. The first challenge is related to the similarities or lack of similarities over core values and missions between communities traditionally focused on services and action and universities focused on research and scholarship. The second challenge to building trust is historical, particularly in communities of color, who, compared with white Americans, generally have less confidence in health research. Government-community relations can also affect the building of trust and mistrust in CBPR partnerships. The final challenge associated with trust and mistrust is the relationship between the university and particular communities (Wallerstein, Oetzel, Duran, Tafoya, Belone & Rae, 2008).

The fourth contextual characteristic is the community's capacity for research or capacity to create change. The community's capacity for research involves the community's history of successful organization, assembling local cultural strengths and practices, organizational readiness to create change, and articulating a shared identity and vision. Usually, a community that has experience with organizing efforts, whether they were political, social, cultural, economic, or health-related, may also have greater capabilities for handling the time and commitment needed for the CBPR process. The fifth sub-dimension of context is the university's capacity and readiness. This sub-dimension focuses on the university's practices to promote CBPR. The final sub-dimension under context is the perceived severity and seriousness of the health issues. This contextual factor focuses on the community's and researchers' need to

tap into health issues that are significant enough to mobilize involvement and address health issues concerning the community (Wallerstein et al., 2008).

Group Dynamics

The second overarching dimension is group dynamics, or how the practice of CBPR takes place with the core values of creating an equitable partnership. Group dynamics, also known as group cohesion, involve the affiliation with a group that is based on shared affinity and goals and is defined as a participant's perception of individual attraction to the group's task and group's social interaction (Burke, Carron, Patterson, Estabrooks, Hill, Loughead & Spink, 2005) (Carron, 1998). Group dynamics also encompass the "belongingness" of the group, which suggests that cohesion constitutes forces that cause members to remain within the group (Festinger, Schachter, & Back, 1964) (Piper, Marrache, Lacroix, Richardsen & Jones, 1983). Therefore, understanding the cohesion of a group can provide member satisfaction and can increase group stability (Hechter, 1987).

In regards to the CBPR Logic Model, group dynamics have three sub-dimensions: the individual, structural, and relational dynamics of the partnership. The individual level represents a CBPR team member. Individuals on a CBPR team have different levels of motivation and beliefs about their own self-efficacy to do CBPR over time, which can change throughout the partnership. Structural dynamics refer to the composition of the team and the extent of diversity among team members. The diversity of values among CBPR partnerships can influence the way teams communicate and interact with each other. Finally, relational dynamics represent the relationships between each individual team member as well as between the different groups represented on the advisory board (Wallerstein et al., 2008). Developing individual roles within the group, in addition to overall group goals and norms, can contribute to the development and

sustainability of the group's structure and productivity (Lee, O'Conner, Smith-Ray, Mama, Medina, Reese-Smith & McMillian, 2012).

Intervention

This dimension consists of contextual and group dynamic factors along with the research, leading to the program outcomes. This category not only focuses on interventions, but it includes research designs that are internally influenced by contextual factors and group dynamics. Both CBPR interventions and research designs should be shaped by the community partnership to reflect local culture, community-supported practices, and program environments (Wallerstein et al., 2008). The extent to which CBPR partnerships are ready to adopt or develop a new intervention can enhance the sustainability of the intervention (Viswanathan, Ammerman, Eng, Gartlehner, Lohr, Griffith & Webb, 2004).

Outcomes

The final dimension of the logic model focuses on outcomes, which are defined by two sub-groups: system and capacity outcomes and health outcomes. Systems and capacity outcomes focus on structural and relationship changes that promote greater equity in power dynamics. It also enhances empowerment for individuals, organizations, and communities, and opportunities for sustained changes in conditions that promote health. The sustainability of any intervention is key for communities and is more likely with the integration of local culture and attention to organizational readiness to adopt interventions. Health outcomes and the reduction of health disparities toward social justice are the ultimate goals of research interventions designed through a CBPR partnership (Wallerstein et al., 2008).

The overall purpose of this logic model is to help strengthen the research agenda of CBPR collations on the pathways that may link the CBPR processes and practices, such as

CBPR systems, capacity changes, and health outcomes. This model serves as the framework for individual partnerships to evaluate selected characteristics and their own individual practices. Over the last two decades, CBPR has increased momentum as a process for academic researchers to work with community members to gain a deeper understanding of issues that concern underserved populations (Wallerstein & Duran, 2006). The ultimate goal of this collaborative partnership is to create changes in the community that stem from issues identified by the community (Wallerstein & Duran, 2006). The CBPR method promotes a greater involvement of the community along the research continuum. This aids in developing a greater understanding of the significance and knowledge of the research for community participants, organizational agents, and academic researchers (Hergenrather, Geishecker, McGuire-Kultz, Gitlin, and Rhodes, 2010).

Reviews of CBPR Literature

There has been a number of systemic reviews that capture the usefulness and effectiveness of CBPR in a variety of arenas, such as clinical, community, and primary care. In general, each of the reviews concluded that the application of CBPR is widely regarded as a promising practice to improve the overall health and wellbeing of communities and to eliminate health disparities (Salimi, 2012; Tapp, 2013; De Las Nueces, 2012; Viswanathan, 2004). Characterized as an empowering process, CBPR gives the members of a community more control over their lives and community. It also provides a channel for them to express their needs and concerns, in addition to building capacity to address those needs (Wallerstein and Duran, 2008). As researchers continue to study health using a CBPR approach, a multitude of complex factors that influence individual behavior and the role of “outsiders” coming into communities are diminishing. This is especially true in health disparate regions. According to a number of reviews, studies that use

a CBPR approach are more likely to focus on practical problems of importance to the community and discover contextual factors that can contribute to these problems. However, as future CBPR interventions continue to evolve, researchers and practitioners should continue to focus on scientific rigor, enhancing community capacity, and improving overall health outcomes (Viswanathan, 2004).

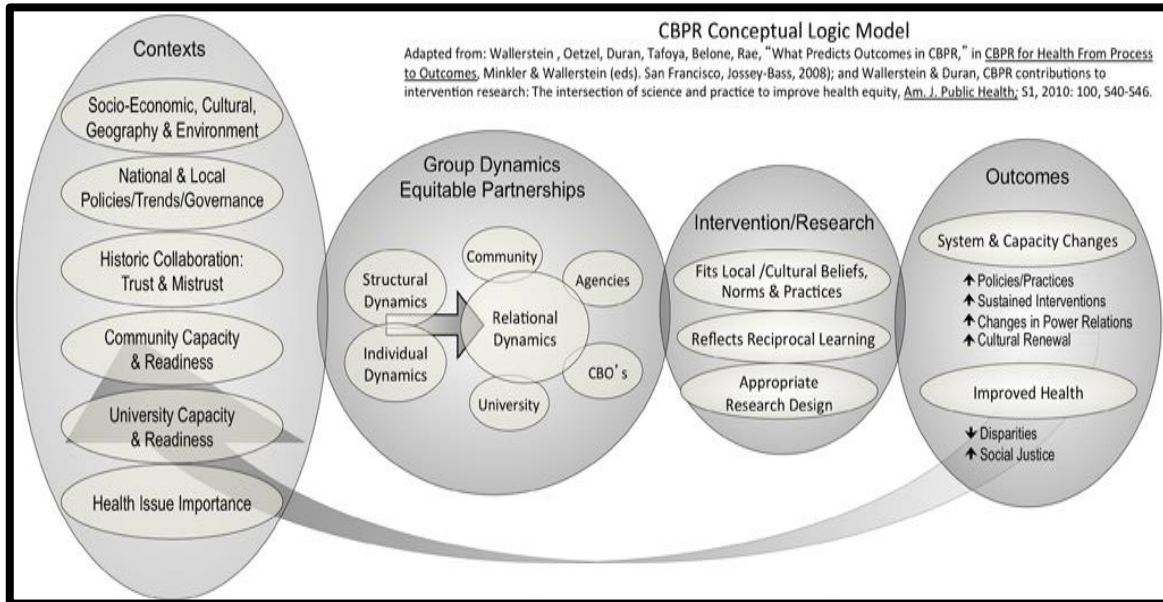
Conclusion

Even though the CBPR approach has been increasingly and extensively implemented, there is still room for progress in achieving the best possible balance between research methodologies and community collaboration (Viswanathan, 2004). Two primary ways to achieve this progress include improving community capacity and improving health outcomes. Very few studies report on system and capacity changes, which is an explicit goal of CBPR. Instead, they described the collaborative process without reporting on steps taken to actually evaluate that process (Sandoval, Lucero, Oetzel, Avila, Belone, Mau, & Wallerstein, 2012). Because one of the primary aims of CBPR is to increase community capacity and empower the powerless, the development of capacity is essential to power-sharing among community and academic partners (Sandoval, Lucero, Oetzel, Avila, Belone, Mau, and Wallerstein, 2012). Therefore, as public health practitioners and researchers focus on factors that improve health outcomes, community capacity should be considered because it is a socially protective factor that contributes to healthy community outcomes (Lempa, Goodman, Rice, & Becker, 2006).

If researchers and practitioners continue work on building capacity, future benefits may include improved lifestyle habits, increased community responses to health concerns, and policy changes that can facilitate a healthier environment. Similar to capacity, generating positive changes in health outcomes is another ultimate goal of CBPR interventions. However, evidence

is still limited on the impact of the CBPR process on improving health outcomes. By engaging the community, the overall goal of this dissertation aims to build upon the relevance and application of CBPR in improving health and capacity outcomes in the health disparate Dan River Region. The long-term goal of this research is to inform the translation and future sustainability of CBPR programming in the Dan River Region and to subsequently reduce health disparities.

Figure 2-1 CBPR Conceptual Logic Model



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Chapter 3: Manuscript 1

Evaluating the Feasibility of an 8-Week Gardening and Nutrition Intervention with a Matched Contact-Control Physical Activity Intervention Targeting Youth in a Medically Underserved Region

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Abstract

Chapter 3 builds upon previous community garden research conducted in the Dan River Region, under the umbrella of the DRPHC. Guided by a CBPR approach, a feasibility study framework, and the Social Cognitive Theory, the research objective was to assess four indicators of feasibility (i.e., acceptability, demand, limited effectiveness, and implementation) of an 8-week community gardening and nutrition program. With the Cooperative Extension as key research partners, six community sites in the Dan River Region were matched by type and assigned to receive either a gardening and nutrition program or a matched-contact physical activity program. Both programs consisted of youth ages 8-14, who were predominantly African American. Using validated measures, the primary effectiveness outcomes were willingness to try fruits and vegetables and the number of days active for at least 60 minutes per day. Among the three CG sites, approximately 93 youth were eligible, of which 32 (34%) enrolled in the program and 19 (59%) completed follow-up assessments. During the 8 weeks, enrolled participants attended an average of 4.1 (51%) CG classes. Among the three PA sites, approximately 141 youth were eligible, of which 61 (43%) enrolled and 49 (80%) completed follow-up assessments. Enrolled participants attended 4.9 (61%) of the PA sessions. While the effectiveness results reveal that neither the gardening nor activity program improved targeted outcomes, qualitative data revealed that 96% of the youth enrolled in the CG program and 92% of the youth enrolled in PA expressed positive impressions of the program. Furthermore, program site leaders expressed enthusiasm for continuing the program. Implementation findings indicated that extension agents partnered with researchers were able to deliver the program successfully. This feasibility study revealed opportunities and barriers for engaging at-risk youth in a nutrition or activity initiative aimed at promoting health behaviors. However, future efforts

are needed to refine the measurement and evaluation processes and procedures related to effectiveness testing.

Keywords: Community-Based Participatory Research (CBPR), Youth, Gardening, Nutrition, and Physical Activity (PA)

Introduction

Optimal fruit and vegetable (FV) consumption in youth has a protective role in the prevention of obesity, cardiovascular disease, and other chronic conditions (Van Duyn & Pivonka, 2000). However, the percentage of youth who consume fruits and vegetables decreases with age (Nielsen, Rossen, Harris, & Ogden, 2014). Several studies have shown that experiential, garden-based nutrition education programs have the potential to increase preferences for and improve the dietary intake of fruits and vegetables among youth (Robinson-O'Brien, Story, & Heim, 2009) (Story, Lytle, Birnbaum, & Perry, 2002). Along with fruit and vegetable intake, physical activity (PA) also has important health benefits (Van der Horst, Paw, Twisk, & Van Mechelen, 2007). However, approximately 24.8% of youth engage in moderate-to-vigorous PA for 60 minutes at a time (Fakhouri, Hughes, Burt, Song, Fulton, & Ogden, 2014). Although a variety of evidence-based nutrition and/or PA programs are available (Research-tested Intervention Programs, 2014), an understudied factor is the testing and translation of these programs in real-world settings, including health disparate populations.

Community-based participatory research (CBPR) is an approach used to identify and address social and public health issues in communities (Israel, Eng, Schulz, & Parker, 2005; Minkler & Wallerstein, 2010). This approach to research can build community welfare (Newhall, 2013) and engage the community in addressing their own health concerns (Wallerstein & Duran, 2010).

Guided by the CBPR approach, the Dan River Partnership for a Healthy Community was formed in 2009 when interested stakeholders and academic researchers saw a need to combat obesity in the Dan River Region. Located in south-central Virginia and north-central North Carolina, this region suffers from health and economic disparities and has been deemed a

medically underserved region (Virginia Department of Health, 2008). The region is home to some of the highest rates of obesity, diabetes, and cardiovascular disease in the country.

A two-day comprehensive participatory planning and evaluation workshop identified community priorities and concerns (Zoellner, Zanko, Price, Bonner, & Hill, 2012). Two prioritized interventions included community gardens (CGs) to increase accessibility to fresh foods and programming for PA. Since this workshop, the coalition has executed several related projects and health initiatives within the region (Dan River Partnership for a Healthy Community, 2014). Currently, the partnership includes approximately 25 local organizations, including the Cooperative Extension. By spearheading subcommittees and engaging in and leading community programming, the Extension plays a vital role in the networking and collaborations of the partnership.

In 2010-2011, a community needs assessment and mixed-methods case study was conducted to further understand opportunities and barriers for sustainable CG initiatives in the Dan River Region (Zoellner et al., 2012) (Zanko, 2012). In 2012, the partnership launched a study evaluating the feasibility of developing and implementing a gardening and nutrition curriculum in two low-income housing authority sites (Grier, 2015). In this initial small-scale study, significant pre-post improvements were found for self-efficacy for asking for FV, overall gardening knowledge, and knowledge of MyPlate recommendations. However, the initial feasibility phase of this study was performed at two community sites with a limited number of youth participating and no control site, and community partners were not involved in intervention delivery. Extending from this initial study, the purpose of the current research was to further strengthen the CBPR components and improve the overall study design methodology for evaluating the feasibility of the CG program.

Purpose and Objectives

Guided by Bowen and colleagues feasibility framework, the objectives of this study were to assess acceptability, demand, implementation, and limited effectiveness of the gardening and nutrition program (Bowen et al., 2009). The acceptability of an intervention reflects how both the targeted individuals and those involved in program implementation react to the intervention. Intervention demand evaluates the extent to which intervention aspects are used by target participants. Implementation is defined as the extent, likelihood, and manner in which an intervention can be fully implemented as planned and proposed. Limited effectiveness refers to the potential of the program to successfully improve targeted outcomes with the intended population. In the advancement of the partnership's CG initiative, an important distinction in the current phase was the involvement of extension agents as key partners in the research implementation, most notably in program delivery.

Methods

This mixed-methods, quasi-experimental pre-post study design included six youth-based community sites in the Dan River Region. The sites were matched by type (i.e., 2 structured summer camps, 2 Boys & Girls Club sites, and 2 housing authority sites), and one of each was assigned to receive either the CG program or a matched-contact PA program. The 8-week programs were offered at the assigned sites, with one weekly, 90-minute session. In addition to strengthening the research design to further test the feasibility of the CG program, this research design allowed all enrolled youth to participate in health-related programming. This research was approved by the Virginia Tech Institutional Review Board and signed parent consent and youth assent were obtained prior to program initiation. A \$5 gift card was also given to youth who participated in the focus groups.

Research partners, the Extension, and the regional United States Department of Agriculture Summer Feeding Program identified sites and planned the study. Each selected site participated in the feeding program. Researchers and community site program leaders met to discuss the purpose and potential benefits of the programs and to engage community staff in recruitment and program facilitation.

To be eligible, youth had to attend one of the sites, be 8-14 years old, and complete the baseline assessment. Although all youth in attendance were allowed to engage in the programs, data were not collected if the eligibility criteria were not met.

Community Gardens (CGs)

The CG program included 60 minutes of classroom education for nutrition and gardening content, which was delivered via didactic presentations and group discussions. Thirty minutes was allotted to experiential gardening, where youth participated in hands-on application of classroom content in the garden. The results and lessons learned from the first study informed curriculum modifications (Grier, 2015). Curriculum content and topics focused on gardening techniques (e.g., planting, maintenance, harvesting) and healthy food and beverage choices based on MyPlate recommendations. Food preparation and sampling was provided each week and a collection of recipes used during the program was provided to participants. The curriculum was a combination of the Junior Master Gardener's curriculum (Junior Master Gardener Teacher/Leader Guide. Level One, 1999) (Welsch, Whittlesey, Seagraves, Hall, & Harlow, 1999) and Virginia Tech Cooperative Extension Agriculture and Nutrition curriculum. Bi-weekly newsletters on gardening and home FV consumption were given to youth and their parents. Two Virginia Cooperative Extension personnel, who are active members of the partnership's nutrition subcommittee, collaborated with three Virginia Tech researchers to

deliver the program content. One was a Family Nutrition Program Assistant, while the other was a 4-H Youth Development Extension Agent who was proficient in agriculture. Both agents live and work within the area and have extensive experience in youth engagement.

Physical Activity

The PA program included 30 minutes of content and instruction and 60 minutes of PA relating to the curriculum content for that week. Curriculum content was delivered by three researchers and was adapted from the SPARK-Afterschool curriculum (Sports, Play, and Active Recreation for Kids), a research-based program designed to be enjoyable while promoting high levels of PA (Sallis et al., 1997). Bi-weekly newsletters were also given to youth and their parents to encourage daily PA.

Measures

Acceptability and Demand

The acceptability and demand of both programs were measured in youth and program site leaders. For youth, attendance and program retention was assessed, and for site leaders, post-program interviews were conducted. Also, in youth, post-program focus groups were conducted, using a 10-item semi-structured script to capture opinions about program components. Nutrition and gardening measures were pre-tested in the previous feasibility study with youth that were 8-14 years of age in the targeted region (Grier, 2015). Focus groups were audio recorded and transcribed verbatim. For site leaders at each site, individual post-program interviews were planned and conducted by trained research staff and researcher field notes were taken. Nine open-ended questions evaluated perceptions about the program components, recruitment experience, youth engagement, and potential for program continuation.

Implementation

For each session, a 4-point implementation measure was completed collectively by program delivery staff to reflect the degree to which learning objectives were met (1=not met and 4=met completely). Field notes related to facilitators and barriers to implementation were also recorded. After each class, staff discussed and reached consensus on the degree to which each objective was met. Time spent on activities was also recorded.

Limited Effectiveness Testing

Limited effectiveness was measured using baseline and follow-up data from youth (Table 3). Nutrition and gardening measures were pre-tested in the previous feasibility study with youth that were 8-14 years of age in the targeted region (Grier, 2015). The primary CG outcome was willingness to try FV (Thomson et al., 2010). Other outcomes included self-efficacy for eating FV (Geller, Dzewaltowski, Rosenkranz, & Karteroliotis, 2009) and self-efficacy for asking for FV (Domel et al., 1996), as well as measures previously developed for the purposes of this study (specifically expectations for eating FV, fruit and vegetable consumption (Centers for Disease Control, 1999), self-efficacy for gardening, gardening knowledge, and nutrition knowledge). For the PA group, the primary outcome was number of days active for 60 minutes over the previous 7 days (Eaton et al., 2012). Other outcomes included screen time (Eaten et al., 2012), PA self-efficacy (Eaten et al., 2012), and PA knowledge. Depending on youth and site needs, surveys were either interview-administered in small groups or self-completed. Demographic data were assessed. Height was measured using a portable stadiometer, and weight and BMI were measured using a Tanita body fat analyzer model TBF-310GS. BMI z-scores were calculated using standard scoring procedures (The Children's Hospital of Philadelphia, 2015) to identify the

proportion of youth enrolled who were overweight or obese. All data collectors were trained prior to assessments.

Data Analysis

Data were analyzed using SPSS 21.0. Cronbach's alpha was used to determine the measure of reliability at baseline, excluding knowledge outcomes. Repeated measures ANOVAs were used to determine time and group effects. Knowledge scores were calculated as percent correct vs. incorrect. Only data from participants who completed both pre- and post-assessments and attended at least 1 CG or PA session were included in the analysis. A $p < 0.05$ was used as the level of statistical significance. Qualitative data were coded through a semi-open coding by three independent researchers and subsequently discussed for consensus and analyzed for emergent themes (Creswell, 2012).

Results

Acceptability and Demand

Among the three CG sites, approximately 93 youth were eligible, of which 32 (34%) enrolled in the program and 19 (59%) completed follow-up assessments (Figure 1). During the 8-week program, enrolled participants attended an average of 4.1 (51%) CG classes. Among the three PA sites, approximately 141 youth were eligible, of which 61 (43%) enrolled and 49 (80%) completed follow-up assessments (Figure 2). Enrolled participants attended 4.9 (61%) of the PA sessions. Site differences in study enrollment, completion, and attendance are further illustrated in Figures 3-1 and 3-2.

[Insert Figure 3-1]

[Insert Figure 3-2]

Upon completion of the intervention, 40 youth participated in seven focus groups. There were approximately five to seven youth in each focus group, which were conducted at four of the six sites, each lasting about 25 minutes. For the CG sites, 96% of the youth expressed positive impressions of the “most liked” components, including food sampling and playing games. For PA sites, 92% of the youth gave positive feedback, and playing games and learning about being active were the “most liked” components. The most common suggestion to making both programs more enjoyable was increasing the number of games incorporated into lessons.

Key informant interviews were conducted with 5 of the 6 program site leaders, averaging 15 minutes. Site leaders at both the CG and PA sites expressed enthusiasm for continuing the program. For example, one site leader said, “*The kids enjoyed the staff and would like to have the program again.*” Site leaders also noticed more cohesiveness, excitement, and anticipation of the program in youth participants. They did not report any major threats to acceptability.

Implementation

On a 4-point scale, the average degree to which objectives were met for CG was 3.6 (0.35) and 3.6 (0.9) for PA (Table 1). For both conditions, the structured summer camps had the highest degree of objectives met. Overall time spent on nutrition lessons averaged 57.7 (7.6) minutes, whereas time spent on gardening averaged 22.0 (5.2) minutes. The housing authority site generally spent less time on the lesson, and the Boys & Girls Club, less time in the garden. However, the structured summer camp and Boys & Girls Club slightly exceeded the allotted time for instruction. This was attributed to two main causes: the need to manage classroom distractions and allowing enough time to prepare ingredients for food sampling. Time spent delivering the curriculum at the housing authority site was approximately 10 minutes shorter than intended, which was largely due to the age variation of attendees. Lesson content was

adjusted as needed to account for a lower comprehension level and allow for participation of all youth present. The average time spent delivering PA lessons was 34.5 (7.2) minutes, whereas the time spent on PA averaged 51.3 (6.7) minutes. The housing authority site spent more time on the PA lesson, which was largely due to classroom management. The structured summer camp spent the least amount of time engaged in PA, which was due to the summer camp schedule.

[Insert Table 3-1]

Limited Effectiveness

Of the 19 youth who completed baseline and follow up at the CG site, the average age was 10.54 (1.63) years, 81% of the population were male, and 90.5% were African American. BMI z-scores indicated that 5.2% of CG participants were overweight. Of the 49 youth who completed baseline and follow up at the PA sites, the average age was 10.76 (1.89) years, 52% were males, and 72.9% were African Americans. Also, 14.3% of PA participants were overweight, and 6.1% were obese. In regards to race and gender, there were no between-group differences in the CG and PA group or among study completers and non-completers.

There were few time-by-group differences of effectiveness outcomes between the two conditions. The results indicated that there was a statistically significant interaction between time and groups for FV consumption. Indicating the gardening group decreased their FV consumption, whereas the PA group increased their FV consumption between pre- and post-testing (Table 2).

[Insert Table 3-2]

[Insert Table 3-3]

Discussion

Building on our on-going CG initiative of the Dan River Partnership for a Healthy Community and Bowen and colleagues' feasibility framework, we set out to answer the question *'does it work?'* or more precisely *'does an experiential theory-based gardening and nutrition program work in the Dan River Region?'* (Bowen et al., 2009) Given the mixed findings related to acceptability and demand, implementation, and limited effectiveness, the answer to this question, perhaps, is *'not yet.'* Qualitative information related to acceptability and demand revealed that both youth and program site leaders enjoyed the program and would be interested in participating in the future. Likewise, our implementation findings indicated that extension agents partnered with researchers were able to deliver the program successfully with a high level of fidelity. However, the effectiveness results revealed that neither the gardening nor activity program improved targeted outcomes. The between-group effects in which the gardening group decreased their FV consumption and the PA group increased their FV consumption were unexpected (Table 2). Given that the overestimation of healthy food intake is common in the dietary assessment literature and that youth in the gardening program learned about FV portion sizes throughout the curriculum, these factors could have accounted for improved accuracy in reporting during the post-assessment. Another factor may be that the pre-assessment occurred the week after school was released, where youth were likely enrolled in both the National School Breakfast and Lunch Programs. However, the post-assessment occurred during the summer months when youth only had access to the summer feeding program and may have had less opportunity to consume FV with one instead of two federal meals. These factors, as well as limited statistical power, influence our limited effectiveness outcome findings and should be considered in future studies examining program effects.

Of the 103 youth who provided consent, only 66% participated, which could have been due to activities built into the youth's schedule prior to program enrollment. However, extension was an invaluable partner and leader in the delivery of the CG program. Strengthening the collaborative relationship between local extension agents and university partners is vital to offering, evaluating, and sustaining future youth-programming efforts.

Several factors may explain the lack of improvement in targeted outcomes. The age eligibility was restricted to 8-14-year-olds; however, all youth were welcome to participate. Consequently, children under age 8 largely outnumbered eligible participants. On many days, there were as many, if not more, unenrolled youth participating. Lesson content at both sites was adjusted to account for lower comprehension levels and to allow participation for all youth present, which complicated the goal of delivering the program as planned. Second, there were unforeseen challenges with the survey administration. This included a combination of the youth staying engaged to complete the survey due to outside distractions from other youth who were not in the program. If possible and if the size of the staff permits, future researchers should consider interview-administering the survey instruments in a one-on-one setting to all involved youth. Also, the short timeframe for project execution within the academic summer was a challenge. Finally, we recognize that the small post-program sample influences our ability to examine between group effects. We encourage future researchers to consider these lessons learned when implementing their programs.

Conclusion

In application of the CBPR approach, there is always the balance between making a difference and measuring a difference (Resnik & Kennedy, 2010). The general sense is that both the CG and PA programs made a difference. We were able to successfully implement the

programs at the United States Department of Agriculture feeding sites and engage at-risk youth in a nutrition or activity initiative aimed at promoting healthful behaviors. However, future efforts are needed to refine the measurement and evaluation processes and procedures related to effectiveness testing. Similar to other studies (Phelps, Hermann, Parker, & Denney, 2010; Brennan, Barnett, & Baugh, 2007; Landry, Chittendon, Coker, & Weiss, 2015), we found that the extension plays a vital role in engaging youth with the local community.

Figure 3-1 Eligible Youth Who Completed Baseline and Follow-up Assessments and Average Attendance of Youth in the CG Intervention

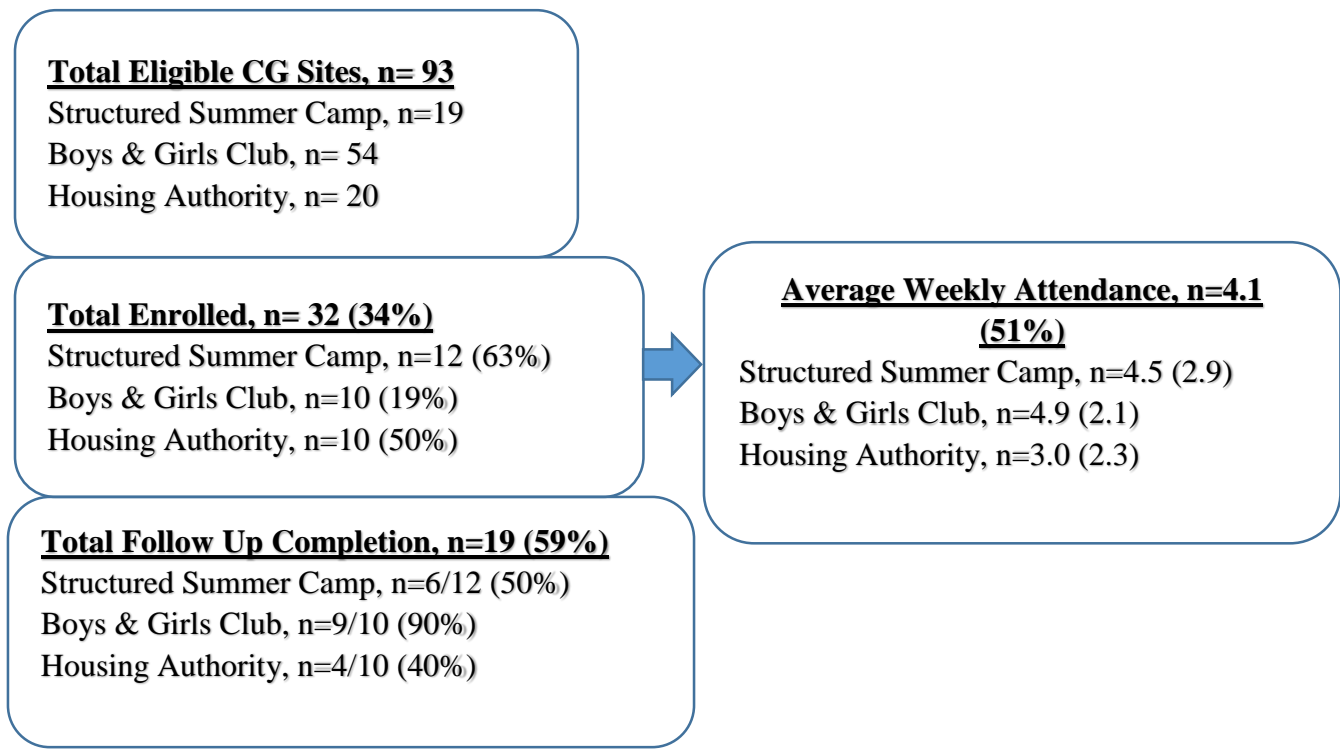


Figure 3-2 Eligible Youth Who Completed Baseline and Follow-up Assessments and Average Attendance of Youth in the PA Intervention

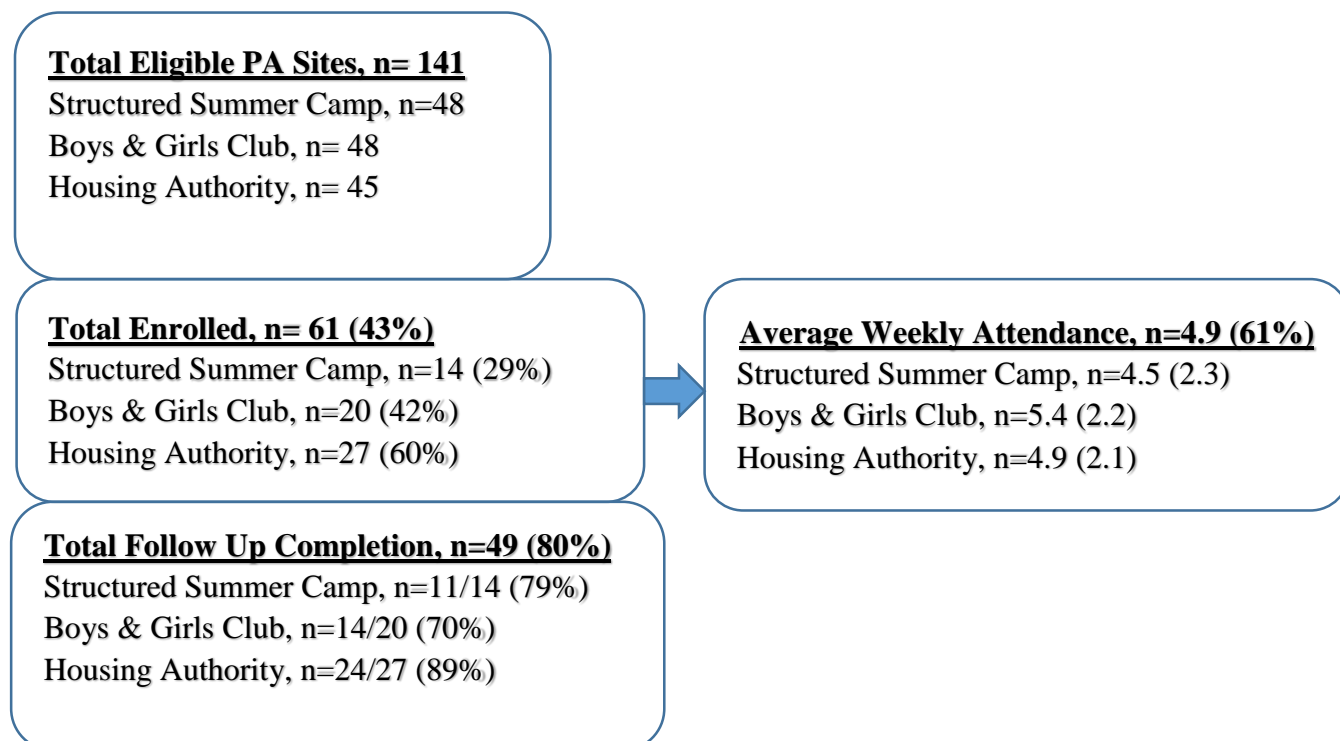


Table 3-1 Average Implementation of Learning Objectives and Time Spent On Programming

	Overall Average	Structured Summer Camp	Boys & Girls Club	Housing Authority
Community Garden Sites	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
¹ Average implementation of Learning Objectives	3.6(0.35)	3.9(0.01)	3.6(0.5)	3.2(0.7)
² Average amount of time spent on lesson (minutes)	57.7(7.6)	61(6.8)	63(17.0)	49(15.0)
² Average amount of time spent on gardening (minutes)	22.0(5.2)	25.0(5.0)	16.0(8.0)	25.0(15.0)
Physical Activity Sites	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
¹ Average implementation of Learning Objectives	3.6(0.29)	3.9(0.2)	3.4(0.6)	3.4(0.6)
² Average amount of time spent on lesson (minutes)	34.5(7.2)	31.0(14.0)	30.0(4.5)	43.0(11.0)
² Average amount of time spent on physical activity (minutes)	51.3(6.7)	44.0(12.0)	53.0(10.0)	57.0(15.0)
<i>SD, standard deviation</i>				
¹ Implementation was the degree to which learning objectives were met and was assessed on a 4-point Likert scale; 1, not met; 4, met completely				
² Reported as times per day				

Table 3-2 Pre- and Post-Test Differences Between CG Program and Matched Contact PA Control

Table 2. Pre- and Post-Test Differences Between CB Program and Matched Contact PA Control										
		CG (n=19)				PA (n=49)			Overall Effects	Between Group Effects
Gardening Measures	Cronbach's α	# of items	Baseline Mean (SD)	Follow-up Mean (SD)	Change Score	Baseline Mean (SD)	Follow-up Mean (SD)	Change Score	p-value	p-value
Willingness to try FV¹	.965	24	1.12 (.43)	1.26 (.41)	0.13 (.30)	1.21 (.36)	1.25 (.38)	0.06 (.22)	.006	.253
Food Frequency²	.924	6	1.46 (.82)	.80 (.58)	-0.66* (1.01)	1.06 (.83)	1.11 (.87)	0.05 (1.08)	.044	.020*
Self-efficacy for eating FV³	.522	13	2.46 (4.89)	1.25 (.42)	-1.21 (5.08)	1.26 (.44)	1.29 (.45)	0.23 (.43)	.108	.092
Self-efficacy for asking for FV³	.940	8	2.11 (2.64)	1.51 (.43)	-0.61 (2.73)	1.68 (1.63)	1.45 (.49)	-0.22 (1.62)	.130	.477
Self-efficacy for gardening³	.942	6	1.21 (.41)	1.38 (.54)	0.17 (.59)	1.41 (.46)	1.79 (2.32)	0.38 (2.34)	.363	.722
Expectations for eating FV⁴	.780	7	1.47 (.40)	1.62 (.37)	-0.15 (.51)	1.47 (.47)	1.61 (.42)	0.14 (.51)	.042	.971
Gardening knowledge⁵	.637	6	80.8% (.16)	87.2% (.01)	0.06 (.17)	79.1% (.21)	86.3 (.13)	0.07* (.20)	.034	.892
Nutrition knowledge⁵	.681	10	54.4% (.25)	70.6% (.29)	16* (.20)	51% (.24)	55.5% (.27)	0.05 (.32)	.020	.181
PA Measures										
Self-Efficacy for PA³	.906	8	1.35 (.40)	1.57 (.344)	0.22 (.48)	1.41 (.42)	1.53 (.35)	0.12* (.32)	.001	.300
PA Knowledge⁵	.493	9	56.2% (.26)	69.1% (.22)	0.13 (.35)	60.0% (.17)	76.1% (.27)	0.16* (.28)	.001	.714
Screen Time⁶	.697	2	2.65 (1.25)	2.70 (1.75)	0.06 (2.31)	2.17 (1.48)	2.50 (1.50)	0.08 (1.64)	.792	.962
Number of days active for 60 minutes over the previous 7 days	-	1	3.94 (2.29)	5.11 (2.00)	1.17 (3.13)	4.31 (2.36)	5.45 (1.62)	1.14 (2.75)	.005	.976

FV indicates fruits and vegetables; SD, standard deviation

¹*Responses were on a 3-point scale; 0, not willing; 1, maybe willing; 2, willing*

²*Reported as times per day*

³*Responses were on a 3-point scale; 0, no; 1, maybe; 2, yes*

⁴*Responses were on a 3-point scale; 0, not sure; 1, somewhat sure; 2, sure*

⁵*1, correct; 0, incorrect*

⁶*Reported as hours per day*

^{*}*Denotes Significance (p<0.05)*

Table 3-3 Feasibility and Sample Questions

Area of Feasibility Focus	Target	Measure	Sample Question
Acceptability and Demand	Youth	Post-Program Interview	<ul style="list-style-type: none"> • What did you like most about the program? • What did you like least about the program? • What was your favorite game? • How would you feel about working with program site leaders as assistant staff if this program were to come back to your site?
	Youth	Attendance	<ul style="list-style-type: none"> • How many children are present that enrolled in the program?
	Program Site Leaders	Post-Program Interview (SL) Intervention Delivery Staff	<ul style="list-style-type: none"> • Talk to me about your experience in trying to recruit your youth to enroll in the program. • Did you notice any changes or willingness to try fruits and vegetables? • Did you notice any changes in willingness to engage in physical activity? • What was your perception of the data collection component of the program?
Implementation	N/A	Evaluation and Field Notes	<ul style="list-style-type: none"> • What were the barriers or challenges to implementation?
Limited Efficacy	Youth	Pre-Post Gardening Survey <ul style="list-style-type: none"> • Willingness to try FV • Expectations for eating FV • Self-efficacy for eating FV • Self-efficacy for asking for FV • Self-efficacy for gardening • FV consumption 	<ul style="list-style-type: none"> • Would you be willing to taste a new fruit? • For dinner do you think you can eat your favorite fruit instead of your usual dessert? • For breakfast, do you think you can add fruit to your cereal? • Do you think you can ask someone in your family to buy your favorite fruit or vegetable? • Do you think you can prepare the soil and plant seeds or young plants for a garden? • During the past 7 days, how many times did you eat fruit? (<i>Do not count fruit juice.</i>)
		Pre-Post Physical Activity Survey <ul style="list-style-type: none"> • Screen time (TV and games) • Self-efficacy for PA • Days active for 60 minutes 	<ul style="list-style-type: none"> • On an average day, how many hours do you spend watching TV? • Do you think you can be physically active with other kids your age? • During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?
		Knowledge <ul style="list-style-type: none"> • Gardening knowledge • Nutrition knowledge • PA knowledge 	<ul style="list-style-type: none"> • Do plants need air to grow? • Is dairy part of the MyPlate picture? • How many minutes of physical activity should someone your age get every day?

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Chapter 4: Manuscript 2

Abstract

Chapter 4 is embedded in the Partnering for Obesity Planning and Sustainability (POPS) Community Advisory Board (CAB), a subcommittee of the Dan River Partnership for Healthy Community (DRPHC). The POPS-CAB adapted, implemented, and evaluated an evidence-based childhood obesity treatment program, *iChoose*. *iChoose* is a 3-month family-based childhood obesity treatment program that resulted in modest decreases in child BMI-z-scores and high levels of program fidelity among local delivery agents. The purpose of this mixed-methods study was 1) to describe parent satisfaction with *iChoose* and examine the degree to which satisfaction was related to changes in BMI, and 2) to examine delivery agent satisfaction with the training and delivery of *iChoose*. Parent satisfaction was assessed through 30 quantitative items and 20 qualitative questions. Ninety-four families were enrolled in *iChoose*, and 61 (60%) completed the summative evaluation. Average parent satisfaction ratings were high (i.e., family classes=9.4(0.8), PA classes=8.9(1.7), workbook=9.1(1.3), newsletter=9.1(1.3), missed class call=9.0(1.8) support calls=7.9(1.8), and future participation=7.4(2.6) on a 10-point scale). Program satisfaction ratings were not significantly correlated to improvements in parent BMI or child BMI z-scores. Qualitative responses were positive; however, a universal theme revealed that the support calls were too lengthy. Delivery agent satisfaction was assessed through 34 quantitative and 11 qualitative questions. There were 5 clinical delivery agents and 1 community delivery agent who completed the *iChoose* training. Quantitative findings revealed moderate satisfaction ratings (i.e., training sessions=6.8, support calls=6.7, and family class delivery=6.6 on a 10-point scale). Qualitative findings revealed that calls were too long but that delivery agents enjoyed building rapport with families in the classes and over the phone. The results from

this mixed-methods evaluation provides information on strengths of *iChoose*, as well as opportunities to refine the intervention and training protocol for future *iChoose* families and delivery agents.

Introduction

Participant satisfaction with health-related programs has been linked to improved engagement in personal healthcare, reduced primary care use, and better health status (LaVela, Gering, Schectman, & Weaver, 2012) (Stroupe, Hynes, Giobbie-Hurder, Oddone, Weinberger, Reda, & Henderson, 2005) (Zapka, Palmer, Heargraves, Nerenz, Frazier & Warner, 1995). Studies have also shown that evaluating participant perceptions through summative evaluations can provide insight for program modifications and program sustainability. Therefore, summative evaluations are useful for newly developed programs and can be pivotal in assisting program developers in revising and improving the quality of a program (Fragaglia-Pinkhan, O'Neil, & Haley, 2010).

Participant satisfaction has been assessed in a variety of settings, including parent satisfaction in a community-based exercise program for children with disabilities (Fragaglia-Pinkhan, O'Neil, & Haley, 2010) and participant satisfaction in a community-based exercise program for people with arthritis (Schoster, Callahan, Meier, Mielenz & DiMartino, 2005). The results from both these programs revealed that understanding participant satisfaction was helpful in guiding program changes and promoting the future development and sustainability of the program (Fragaglia-Pinkhan et al., 2010 and Schoster, Callahan, Meier, Mielenz & DiMartino, 2005). Regarding delivery agent satisfaction, there are no known published studies that examine the degree to which delivery agents were satisfied with the training and implementation aspects of an evidence-based community-based behavioral program. This missed opportunity and lack of satisfaction evaluation data represents a gap in the literature that could be key to detecting and addressing programmatic challenges of training local delivery system staff to implement behavioral programs.

Even though there has been a plethora of well-documented family-based childhood obesity programs that report successful outcomes (Economos, Hyatt, Goldberg, Must, Naumova, Collins, & Nelson, 2006) (Savoye, Nowicka, Shaw, Dziura, Chavent, & Caprio, 2011) (Grow, Hencz, Verbovski, Greerson, Liu, Dossett, Larison, & Saelens, 2014), little information is available regarding participant satisfaction with these programs. Given the time devoted to the development and delivery of these community-based programs, critical evaluation on several dimensions is key to optimizing program effectiveness (Fragaglia-Pinkhan et al., 2010) (Goodman, 1998). Consequently, understanding parental and child satisfaction in these programs can be helpful in guiding program changes and program development (Fragaglia-Pinkhan et al., 2010). Parents also play a pivotal role in helping researchers understand their family's needs, motivations, and resources for behavioral change (Morabia & Costanza, 2010). Additionally, evaluations provided by program delivery agents can also help inform the effectiveness of the program and assist with program development and sustainability (Fragaglia-Pinkhan et al., 2010).

Therefore, this paper seeks to fill this gap by exploring parent and delivery agent satisfaction in the family-based childhood obesity program, *iChoose*. Specifically, the purpose of this mixed-methods study was to use quantitative and qualitative data to 1) examine parent satisfaction in multicomponent family-based childhood obesity program and examine whether parent satisfaction is correlated with changes in parent BMI and child BMI-z-score and 2) examine delivery agent satisfaction with the training and delivery of *iChoose*.

Methods

Community-Academic Partnership

Under the umbrella of an academic and community-based partnership known as the Dan River Partnership for a Healthy Community, the Partnering for Obesity Planning and Sustainability Community Advisory Board (POPS-CAB) was formed. Using a community-based participatory research (CBPR) and systems-based approach, the goal of the POPS-CAB was to design, implement, and evaluate a family-based childhood obesity program that could be sustained in the Dan River Region. The developed program was *iChoose*. One of the primary aims of the *iChoose* program was to determine the effectiveness of the newly developed intervention through three waves of iterative intervention testing and formative feedback loops in a public health and healthcare system. Adopted from Bright Bodies (Savoye, Dziura, Tamborlane, Guandalini & Caprio, 2007) (Savoye, Nowicka, Shaw, Dziura, Chavent, & Caprio, 2011), an intensive family-based childhood obesity program, *iChoose* is a 3-month family-based childhood obesity intervention implemented across three different waves of testing. To be eligible for *iChoose*, youth participants had to be referred by their pediatrician, be between the ages of 8 and 12, and have a BMI-z-score at or above the 85th percentile. To promote sustainability efforts, each wave differed by delivery agent. Wave 1 was research-delivered, Wave 2 delivery was combined, and Wave 3 was community/clinic-delivered. Following waves 1 and 2, program improvements were made to enhance program effectiveness and promote successful delivery efforts for community/clinical agents. *iChoose* consisted of six family classes, twenty-four physical activity classes, six parent support or missed class calls, and six child newsletters. Overall, the program results revealed modest decreases in child BMI-z-scores,

in addition to high levels of program fidelity, indicating that community and clinical partners could successfully implement the multicomponent program.

Intervention Description

The *iChoose* family classes consisted of nutrition education and behavior education. Nutrition education included energy balance, MyPlate, portion sizes, and food label reading. Behavioral changes and goal setting practices presented in the family classes included the understanding of SMART goals, identifying environmental changes that would help families achieve their goals, learning how to plan, prepare, and provide nutritious snacks, how to deal with bullying, and how to prevent relapsing into old habits.

The twenty-four physical activity classes provided families with 60 minutes of moderate to vigorous exercise, in addition to helping families understand their heart rate in relation to the intensity of their activity.

Support calls were conducted after each family session to review concepts learned in the family class. Missed class calls summarized the lesson for those who were unable to attend the class and provided families with opportunities to set new goals. However, both the missed class call and support call used the teach-back method to ensure parents understood concepts learned in each class. During both calls, parents also identified solutions to overcome nutrition and physical activity barriers. Finally, newsletters were sent every other week as a way to stay in touch with the kids and provide them with helpful tips to stay active and make healthy nutrition choices.

During wave 1, all intervention content was delivered by research staff, except weekly physical activity classes. Because the research staff could not travel during the weekdays to implement the PA classes, our community stakeholders identified different people who could

deliver these sessions. During wave 2, the research staff, along with the Recreation Specialist, combined program delivery. Family class education, PA classes, support calls, and missed class calls were divided among the research staff and the recreation specialist. During wave 3, all intervention components were delivered by the community and clinical agents. However, support and missed class calls were divided among the community/clinical agents and research staff.

Delivery Agent Training and Program Delivery

The community/clinical delivery agents consisted of five public health nurses from the Pittsylvania-Danville Department of Health, one recreation specialist at *Danville Parks and Recreation*, and Virginia Tech research staff. The research staff consisted of one academic professor and three graduate research assistants in the Department of Human Nutrition, Foods, and Exercise. Using evidence-based approaches to design the training sessions with a consultee focus (Edmunds, Beidas & Kendall, 2013), wave 1 training was bi-weekly and wave 2 training was monthly. Following waves 1 and 2, community/clinical delivery agents engaged in a bi-weekly two-hour training conducted by the research staff. The training consisted of the research staff teaching and demonstrating to the community/clinical agents how to track *iChoose* attendance, conduct class weigh-ins, deliver program reminders, follow-up with absent families, deliver nutrition and behavior content for the family classes, and deliver the PA classes. Following the teaching and demonstration of *iChoose*, the community/clinical agents would practice demonstrating each portion of *iChoose* back to the research staff. The research staff also taught the community/clinical agents how to prepare and deliver the missed class calls and support calls, in addition to how to track call attempts and the protocol for tracking and reporting the calls that they completed. The community/clinical agents were also paired with a graduate

student to practice each of their weekly calls prior to administering them to program participants. Finally, during the training, the community/clinical agents would discuss questions or concerns they had during weekly program delivery.

Measures

Participant Satisfaction

At the completion of *iChoose*, participants completed an interview-administered summative evaluation. This evaluation was administered by members of the POPS-CAB who did not participate in the delivery of *iChoose*. The interviews were audio recorded, and field notes related to qualitative responses were also recorded. The summative evaluation consisted of fifty questions that were designed to elicit participant satisfaction for each component of *iChoose*. The thirty quantitative items were measured using a Likert scale from 1-10, with 10 being highly satisfied. The twenty qualitative questions focused on participant likes and dislikes about program components, how interested participants would be in participating in future *iChoose* activities, and moving *iChoose* to an internet-based program. Wave 1 interviews were administered in December 2013, wave 2 interviews were administered in May 2014, and wave 3 interviews were administered in June 2015. Following the summative evaluations of wave 1 and 2, program modifications were made based on participants likes and dislikes.

BMI and BMI-z-scores

Height was measured using a portable stadiometer, and BMI and BMI-z-scores were measured using a Tanita body fat analyzer model TBF-310GS. The BMI z-scores were calculated using standard scoring procedures (The Children's Hospital of Philadelphia, 2015).

Delivery Agent Satisfaction

At the end of wave 3, delivery agent satisfaction was assessed. To evaluate satisfaction related to program training and program delivery, a 45-item mixed-methods survey was administered via Survey Monkey, an online survey development database. The 45-item mixed-methods survey consisted of thirty-four quantitative and eleven qualitative questions. Qualitative questions were measured on a 10-point Likert scale from 1 to 10 with 1 being strongly disagree and 10 being strongly agree. Each question was designed to assess satisfaction related to the bi-weekly two-hour training sessions and the delivery of *iChoose*.

Data Analysis

Program satisfaction across each component of *iChoose* was examined using SPSS 22.0. Cronbach's alpha was used to assess questionnaire validity and accuracy. Mean scales were created for each evaluation component, and descriptive statistics were reported on each item. Changes in program satisfaction across each wave were assessed using a series of one-way ANOVAs with $p < 0.05$ as the level of statistical significance. Also, qualitative data were analyzed for emergent themes. A correlation matrix was used to assess the relationship between *iChoose* satisfaction and changes in child BMI-z-scores and changes in parent BMI, and $p < 0.05$ was used as the level of statistical significance.

Results

Participants

Among the three waves of *iChoose*, 94 families were enrolled, of which 61 (60%) completed the summative evaluation. Wave one families had 26 families enrolled, 16 (59%) of which completed the summative evaluation. In wave two, 33 families were enrolled and 23 (66%) completed the summative, and wave three had 34 families enrolled and 22 (56%) completed the summative evaluation.

[Insert Figure 4-1]

Participant Satisfaction

Family Class Satisfaction

Parents were asked how satisfied they were with the organization of the class, type of information presented in the class, and the types of class activities. The findings revealed that on a 10-point scale, overall satisfaction was high across each wave of *iChoose* for family classes (See Table 4-1). The average satisfaction rating for the family classes across each wave was (9.4). Following wave 1, parents suggested changing the location of the classes. Therefore, classes were moved to a larger space with a better ventilation system, in addition to the new location, during wave 3, families were able to track their weight at each class session. The qualitative data (See Table 4-2) revealed that the kids had fun during the family classes and enjoyed engaging with other kids. They also enjoyed engaging with our community partners during each component of the family classes. However, in the future, parents suggested changing the day and time of the family classes due to their work schedules, in addition to their kids not wanting to wake up early on the weekends.

[Insert Table 4-1]

[Insert Table 4-2]

Workbook Satisfaction

Across each wave, families were satisfied with workbook content. The average satisfaction ratings for workbooks were 9.1 across each wave of *iChoose*. Following wave 1, workbooks were revised using clear communication health literacy strategies, and following wave 2, workbooks were designed to look like “actual” books instead of being placed in a three ring binder. Also, unlike waves 1 and 2, all workbook content was given to participants in wave 3 on

the first day of the family classes, instead of a bi-weekly basis. The qualitative data revealed that parents thought that the workbooks were well organized and helped them understand concepts in the classes. However, parents suggested that in the future, workbooks should have more recipes and chapters should be broken into smaller sections with less information.

Newsletter Satisfaction

Newsletter satisfaction was high across each wave of testing with an average satisfaction rating of 9.1 (See Table 4-1). The qualitative data revealed that overall the children enjoyed receiving the newsletters in the mail because they liked the activities in the newsletters and seeing their photographs. The newsletters also helped reinforce concepts reviewed in the class. However, because the format of each of the newsletters was the same and the information reflected class concepts, the parents suggested being more creative with the newsletters to hold their children's attention.

Physical Activity Satisfaction

Across waves 1, 2, and 3, the average satisfaction rating with *iChoose* physical activity classes was 8.9. Because researchers were unable to come for every class during wave 1, physical activity instructors varied weekly. However, during wave 2, the instructor for the classes did not change and stayed consistent over time. In wave 3, parents were given more options to attend physical activity classes; however, qualitative data revealed that timing was still a conflict with individual schedules. Our qualitative findings also showed that children and parents enjoyed interacting with other families and playing group activities. However, some families did not enjoy games that involved dancing and would have preferred more outside activities.

Support and Missed Class Calls

Overall satisfaction related to support calls were high during *iChoose* (7.9) and slightly higher for missed class calls (9.0). Qualitative data revealed that parents enjoyed receiving the calls because it helped them remember their goals and program content (See Table 4-2). However, for the future, parents suggested that the length of each call be shorter, particularly the missed class call. They also commented that teach-back questions in the calls made parents feel like they were in “school”.

Future Participation in iChoose

When asked whether parents were interested in participating in the continuation of *iChoose*, the average rating was (7.35). Summative data revealed that future participation decreased consecutively across each wave. However, some parents did report that they would like to be involved in future programming. Even though families enjoyed interacting with each other, our qualitative data revealed that many of the program components interfered with parents work schedules.

[Insert Table 4-1]

[Insert Table 4-2]

Satisfaction and Changes in child BMI-z-scores and Parent BMI

Correlation tests revealed no significant correlations to satisfaction scales and changes in child BMI-z-scores or parent BMI (See Table 4-3). These findings imply that regardless of changes in child BMI-z-scores and parent BMI, families were satisfied with each component of *iChoose*.

[Insert Table 4-3]

Delivery Agent Satisfaction

In total, there were 5 clinical delivery agents and 1 community delivery agent (100%) who completed the *iChoose* training and 5 (83%) engaged in actual program delivery during wave 3. Delivery agents were asked about satisfaction related to missed class calls, teach-back calls, family classes, and training sessions. Satisfaction ratings were moderate (i.e., training sessions=6.8, support calls=6.7, and family class delivery=6.6 on a 10-point scale) (see Tables 4-4). Qualitative data (Table 4-5) revealed that calls were too long, it was challenging to get the families on the phones, and it was hard to stick to the call script. Some community partners felt as though they did not have enough time to deliver weekly phone calls outside of traditional work hours in addition to completing their work-related obligations. Regardless of call length and call scripts, community partners enjoyed getting to know the families and building a rapport with them over the phone. Community partners also enjoyed having a practice session before the actual intervention and thought that the role-playing was helpful. Overall, delivery agent satisfaction did not influence their ability to deliver the program.

[Insert Table 4-4]

[Insert Table 4-5]

Discussion

This summative evaluation gave us a richer and more detailed understanding of the *iChoose* program by allowing us to hear directly from participants and community/clinical delivery agents. By gaining insight into the satisfaction of the participants and agents with the program, this evaluation helped guide program improvements and promote sustainability. Overall, satisfaction was high with the *iChoose* program regardless of wave and changes in BMI and child-BMI-z-scores. Both our quantitative and qualitative findings revealed a very similar

range of responses from program participants in each wave of *iChoose*. The responses indicated that the majority of the participants felt satisfied with all aspects of *iChoose*, especially the family classes. We found that parents enjoyed interacting with other families and community/clinical delivery agents. Therefore, as *iChoose* continues to grow, we will involve former families in programming efforts to aid as motivators for future *iChoose* participants.

Even though the results from this study did not reveal significant differences in satisfaction related to changes in BMI and BMI-z-scores, the information learned from this mixed-methods evaluation can be used to improve the *iChoose* program. For example, the day and time of family class delivery could be changed to be more conducive to parental work schedules and the length of telephone calls could be reduced. Our high rates of satisfaction revealed that frequent evaluation and program modifications based on participant satisfaction could aid in program design and implementation. Hence, frequent evaluation is an important factor to enhance participant satisfaction over time and to possibly lead to increased program retention in the future.

We attribute our high satisfaction findings to two reasons. Given the multiple program components, participants may have felt that even if they missed a session, there were enough opportunities to learn what was discussed during the family sessions through the workbooks, newsletters, physical activity classes, and phone calls. Also, participation in all *iChoose* activities was voluntary; therefore, people who engaged in the program were more likely to come back to the three-month follow-up and express their satisfaction with *iChoose*.

While satisfaction responses were not as high for delivery agents compared with participants, they were still able to deliver the program with high fidelity. The *iChoose* program is not only intensive for the participants, but for the delivery agent as well. Therefore, in the

future, the length of training should be reduced to fit into individual work schedules in addition to grouping some of the training sessions together. In the future, including community/clinical delivery agents in the program development and design could help them be more comfortable and familiar with *iChoose*. Also, by engaging in the program development, community/clinical agents could have made more suggestions related to overall program aspects, which could have guided the training and delivery sessions.

Despite our findings, this study is not without limitations. Our findings were consistent with those of past studies, which suggest that patients rate satisfaction higher when using Likert-scale measures (Kurata, Nogawa, Phillips, Hoffman, & Werblun, 1992). Therefore, future satisfaction should employ more qualitative analysis to elicit richer responses from participants. Also, if possible, future researchers should implement more program improvements identified by the participants and delivery agents. For example, the length of calls should be reduced and various aspects of *iChoose* should be implemented via the Internet and social media so that the program does not interfere with work schedules. Also, for our community/clinical partners, this was their first time teaching large groups of parents and children. As suggested by Griffin and colleagues, future researchers should assess community/clinical agents' teaching style and their ability to teach in various environments. In turn, this may help community/clinical agents to select the teaching format that best fits their abilities (Griffin, Gillilan, Perez, Helitzer & Carter, 1999). Allowing the agents to express their preference in how they want to teach information may increase their skills, familiarity, and comfort with teaching the information to participants. It may also affect their satisfaction with delivering program components, in addition to affecting participant satisfaction with the program. We assessed participant satisfaction following each wave of *iChoose*. However, delivery agent satisfaction was only assessed one time. Since

iChoose is a new program, there should be frequent assessments during the beginning and end of the program (Fragla-Pinkham, et al., 2010). Also, assessing community/clinical agents' satisfaction with the training and program delivery earlier in the study can help make the training and program delivery more effective (Fragla-Pinkham, et al., 2010). Determining their satisfaction with delivering the program can also help inform program modifications and sustainability. Finally, we recognize that the small sample size influenced our ability to examine between-group effects. Therefore, we encourage future researchers to consider these lessons learned when assessing program satisfaction.

Conclusion

Overall, satisfaction ratings were high with the *iChoose* program regardless of BMI and BMI-z-score changes. Our evaluation provided information on which aspects should be maintained and improved for future participants. Similar to other community-based satisfaction evaluations, our results revealed that participant satisfaction can be a helpful tool in guiding program changes that have the potential to promote program sustainability (Fragagla-Pinkhan et al., 2010 and Schoster et al., 2005). We also learned that delivery agent satisfaction did not influence their ability to deliver the program. Apart from determining program effectiveness, understanding participant and community/clinical agent satisfaction may help guide future programing efforts related to family-based childhood obesity interventions in the Dan River Region.

Figure 4-1 Families who Completed the Summative Evaluation Across each Wave of *iChoose*

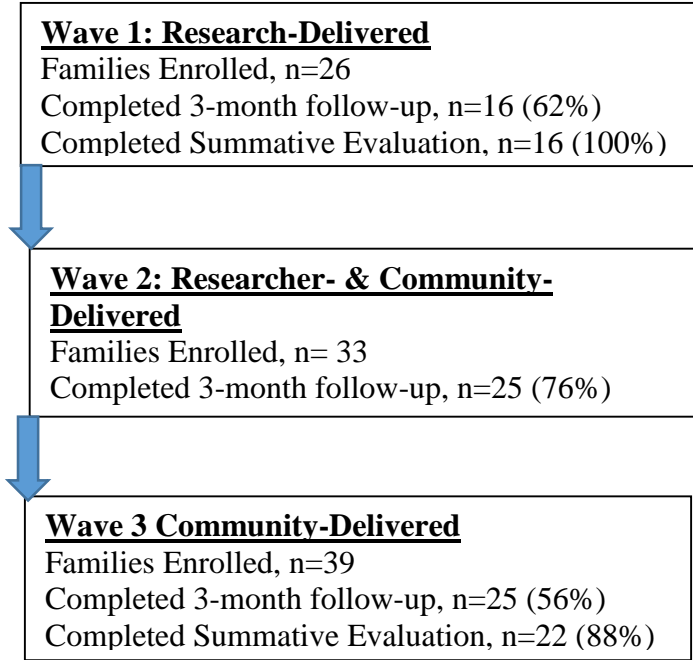


Table 4-1 Program Satisfaction across Each Wave of *iChoose*

			Wave 1 Research n=16 ^a	Wave 2 Combined n= 23 ^a	Wave 3 Community n= 22 ^a	Average Satisfaction Across Each Wave	Overall Effects
Summative Measures	Scale Cronbach's α	# of items	M(SD)	M(SD)	M(SD)	M(SD)	p-value
Family Class Satisfaction ¹	.631	2	9.50 (0.76)	9.24 (0.92)	9.59 (0.77)	9.43 (0.77)	.373
Workbook Satisfaction ¹	.759	4	9.37 (0.55)	8.96 (1.26)	9.04 (1.37)	9.09 (1.27)	.424
Newsletter Satisfaction ¹	.685	4	9.29 (1.19)	8.86 (1.47)	9.25 (1.12)	9.11 (1.27)	.514
Future iChoose Participation ¹	.623	2	7.77 (2.15)	7.70 (2.85)	6.70 (2.46)	7.35 (2.55)	.334
PA Class Satisfaction ¹	.847	3	8.58 (0.94)	9.35 (1.17)	8.85 (2.25)	8.99 (1.65)	.418
Missed Class Call ¹	.945	3	8.87 (2.71)	9.35 (1.77)	9.14 (1.20)	9.04 (1.80)	.913
Support Calls ¹	.871	7	8.67 (0.76)	7.39 (1.92)	8.03 (1.91)	7.91 (1.78)	.144

^a This is the total n for participants in these groups. Actual n in the analyses may be lower due to participants not answering the question or not being asked a question due to not completing the specific component.

¹ Responses were on a 10-point scale; 10, Completely Satisfied; 1, Completely Dissatisfied

Table 4-2 Participant Qualitative “Likes and Dislikes” with *iChoose* Components

Interview Question	Sample Quotes-“Likes”	Sample Quotes- “Dislikes”
What did your childlike/dislike about the family classes?	“Enjoyed the activities with other kids.”	“Did not like getting up early.”
What did you (parent) like/dislike about the family classes?	“Gave her something to look forward to and get excited about and learning new things	“People arriving 20-30 min late-disruptive and delayed programming because they would have to be caught up”
What did you like/dislike about the physical activity classes?	“ Really worked with kids to encourage them to move”	“Hot in the gym, needing a cool down period after exercises, 5 min not long”
What did you like/dislike about the phone calls classes?	“Reinforced content that was learned, staff were sweet and polite (knowledgeable about content and able to answer questions, provided positive reinforcement)”	“Length of calls - particularly the missed class calls”
What did your child like/dislike about the newsletters?	“Liked seeing her picture”	“ Could be more creativity--maybe a mascot that kids can relate to that would attract kids attention more”
In the future, there may be options to deliver parts of the program on the internet. Talk to me about how you think it might work if this program was delivered on the internet?	“I would rather have face to face. It allows for friendship and bonding. Could make the support calls automated and workbooks could be accessed online. But need to have physical activity classes for it to work.”	“Would not work for computer illiterate families. Could work for those with computers and comfortable using computers.”
Was this location convenient to you for the family sessions and kids physical activity session? Why or why not?	“Think this is a good central location.”	“Another community center (Coates) is more centrally located.”
Is there anything that you would like to tell us about the program that we haven't asked you?	“We are exercising more and watching what we eat as a family since completing <i>iChoose</i> . Working with older son and using <i>iChoose</i> info. Loved it! Just what we needed at the time to get us on track.”	“Use more social media/internet to advertise.”

Table 4-3 Correlations Between Satisfaction with *iChoose* and Changes in Child BMI-z-score and Parent BMI

		Changes in Child BMI-z-score n=61 ^a	Change in Parent BMI n=61 ^a
Family Class Satisfaction	Pearson Correlation	.098	-.158
	p-value	.506	.289
Physical Activity Class Satisfaction	Pearson Correlation	-.087	-.055
	p-value	.545	.706
Missed Class Calls Satisfaction	Pearson Correlation	.232	-.251
	p-value	.140	.113
Support Call Satisfaction	Pearson Correlation	-.062	-.217
	p-value	.661	.127
Workbook Satisfaction	Pearson Correlation	.008	-.202
	p-value	.948	.121
Newsletter Satisfaction	Pearson Correlation	.026	.162
	p-value	.846	.229
Future Participation in <i>iChoose</i>	Pearson Correlation	-.214	-.012
	p-value	.100	.926

^aThis is the total n for participants in these groups. Actual n in the analyses may be lower due to participants not answering the question or not being asked a question due to not completing the specific component.

Correlations between *iChoose* satisfaction with changes in child BMI-z-score and parent BMI were not significant at $p < 0.05$.

Table 4-4 Delivery Agent Satisfaction with Content Delivery and Training for *iChoose*

Summative Measures	Scale Cronbach's α	Community n=6 M(SD)
Missed Class Calls Satisfaction	.918	5.47(2.09)
Support Call Satisfaction	.904	6.67(1.85)
Family Class Satisfaction	.999	6.64(3.14)
Training Session Satisfaction	.979	6.77(1.82)

Table 4-5 Delivery Agent Qualitative “Likes and Dislikes” with Content Delivery and Training of *iChoose*

	Likes	Dislikes
Call Delivery	“When discussing goals with the families; they seemed to really open up and share their struggles and success they were having.”	“Hard sticking to the script exact due to how the conversation is going.”
Family Class Satisfaction	“Interaction-making a connection with families and they with staff.”	“Hard sticking to a checklist exact when the conversation sometimes jumps ahead or information might be better said elsewhere.”
Training Session Satisfaction	“Having a practice run on the delivery of information. This was the time where we could make adjustments if the information did not sound right or needed to be removed/ placed elsewhere.”	“Reduce the length of the training session. We could cover everything in about 2.5 hrs. to 3 hrs.”

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Chapter 5: Manuscript 3

Abstract

Chapter 5 is guided by CBPR principles, with the goal of developing an *iChoose* parental advisory team (PAT). The goal of this study was to engage past *iChoose* families as key collaborators and equal partners in the development of an *iChoose* maintenance phase. The purpose of this process evaluation was to report on the short-term progress of the PAT. Twenty-six parents/caregivers who participated in at least 50% of the 3-month *iChoose* intervention components were contacted to participate in the PAT. Of the 26 contacted parents, 10 (38.5%) consented to participate. Between June 2015 and March 2016, the PAT engaged in 9 monthly meetings, each lasting about 2 hours. During the first 4 meetings, the PAT engaged in key activities related to understanding *iChoose* program outcomes and defining their roles and purpose as an advisory team. During these meetings, the PAT developed and completed an evaluation plan to establish baseline data for community capacity and group dynamic dimensions. Seven of 10 (70%) parents completed the capacity evaluation. Overall, ratings were high (i.e., collective efficacy=4.3, communication=3.9, community's power=3.9, leadership=4.4, participation and influence=3.9, problem assessment=4.3, personal and community influence=3.8, and PAT satisfaction=4.1 on a 5-point scale). Qualitative data revealed that the consistency of meetings and working relationships were positive aspects of the PAT and that continuation of monthly meetings could lead to future improvements in the PAT's capacity. During the next 5 meetings, the PAT initiated content development and pilot testing of intervention sessions for an *iChoose* maintenance phase. As prioritized by PAT members, the content was focused on skill-building activities, such as preparation of healthy snacks, exposure to new group-based physical activity opportunities (specifically, POUND class and urban line

dancing class), and addressing body image concerns among youth. The accomplished objectives reveal that the PAT members have remained engaged in the process. As the PAT continues to develop, the intermediate goals are to continue to develop and pilot test weight maintenance content and to conduct a follow-up mixed-methods capacity evaluation plan to explore changes in community capacity and group dynamics over time. The long-term goals of the PAT are to engage in program delivery and to act as a support ‘safety net’ in the future effectiveness testing of *iChoose*. Engaging parents in all aspects of this research process and understanding changes in their capacity fills an important gap in the childhood obesity treatment literature.

Introduction

As the rate of obesity continues to rise in children, the prevention of childhood obesity has been deemed a national priority for health professionals and policy makers (Morabia & Costanza 2010). It is also evident that low-income and ethnic minority children are disproportionately affected by childhood obesity. Therefore, evidence and theory have suggested that including parents/caregivers as agents of change can be pivotal to childhood obesity prevention efforts (Golan, 2006 and Davidson, K., Lawson, H., & Coatsworth, J., 2010). Parents can play an influential role in the prevention of childhood obesity because they are knowledgeable about the needs of their family, motivations, and resources for behavioral change. They also understand their family dynamics and ecological factors that influence daily living (Morabia & Costanza 2010). Therefore, engaging parents in childhood obesity efforts can lead to better integration with parents' sociocultural context. It can also lead to improvements in program acceptability, cultural relevance, and program participation (Jurkowski, Mills, Lawson, Bovenzi, Quartimon & Davison, 2012).

Guided by participatory principles, one approach to engaging parents in programming efforts is through community-based participatory research (CBPR). CBPR is an approach to research that actively and equitably involves community members in the research process (Israel, 2005). Although the use of CBPR has increased, the actual involvement of the target audience in all phases of the research remains limited. Usually, community representatives who serve intervention participants and are knowledgeable about the community are the ones deemed as stakeholders in CBPR efforts (Jurkowski, Mills, Lawson, Bovenzi, Quartimon & Davison, 2012). Consequently, few studies engage actual participants in the research process.

Dan River Region

In south-central Virginia and north-central North Carolina, the Dan River Region (DRR) is federally designated as a medically under-served area/population. The DRR is also considered a health disparate area, with African Americans and Hispanics making up over half of the population (US Department of Health and Human Services, 1997) (Virginia Department of Health, 2008) (Motley, Holmes, Hill, Plumb & Zoellner, 2013). The region is also home to some of the highest rates of obesity, diabetes, and cardiovascular disease in the country. When stratified by income, obesity rates approach 43% for those living on < \$25,000/yr (Centers for Disease Control, 2011). These statistics are also mirrored by local school district data that found nearly 20% of 1st graders and 36% of 5th graders were obese (Centers for Disease Control, 2011). To address these issues, stakeholders from the Pittsylvania/Danville Health District, Children's Healthcare Center, Danville Parks Recreation & Tourism, and Boys & Girls Club, along with investigators from the Translational Obesity Research Program at Virginia Tech developed the Partnering for Obesity Planning and Sustainability Community Advisory Board (POPS-CAB). The POPS-CAB is a subcommittee under the umbrella of an academic and community-based partnership known as the Dan River Partnership for a Healthy Community (DRPHC). Using a CBPR and systems-based approach the POPS-CAB adapted, implemented, and evaluated an evidence- and family-based childhood obesity treatment program, *iChoose*.

The *iChoose* program is adapted from an evidenced-based program, Bright Bodies, which is an intensive family-based lifestyle intervention specially tailored for inner-city minority children (Savoye, Shaw, Dziura, Tamborlane, Rose, Guandalini, & Caprio 2007). The *iChoose* program has demonstrated promising reach and modest decreases in child BMI-z-scores. However, two key limitations to our current efforts have been identified. First, actual and

potential program participants from the targeted audience have not yet been fully engaged in the research efforts. Engaging families who represent the targeted *iChoose* families is necessary to understand the needs of program participants and promote sustainability of our CBPR efforts. Likewise, engaging families in the research processes may promote open communication, build trust, and break down hierarchal relationships (Jurkowski et al., 2012). Second, our current *iChoose* program is a 3-month program, unlike Bright Bodies, which is a 6-month, and in some cases 12-months, family-based program (Savoie, Shaw, Dziura, Tamborlane, Rose, Guandalini, & Caprio 2007) (Savoie, Nowicka, Shaw, Yu, Dziura, Chavent, & Caprio, 2011). Given that Bright Bodies has shown significant and sustained effects for up to 12 months, we hypothesize that extending our current *iChoose* program with a maintenance phase will promote continued and sustained program results.

Consequently, the goal of this study is to develop, promote the capacity of, and evaluate an *iChoose* Parental Advisory Team (PAT) and engage members of this team as key collaborators and equal partners in the development of an *iChoose* maintenance phase. Therefore, the purpose of this paper is to report on the short-term progress of the PAT.

Methods

All program aspects were approved by the Institutional Review Board at Virginia Tech, and parents provided written consent. To compensate them for their time to participate, the parents were provided with gift cards following each meeting.

Parent Advisory Team (PAT) membership

Following the successful implementation of waves 1 and 2 of *iChoose*, 26 of the parents/caregivers who completed at least 50% of the program were contacted to participate in

the PAT. Letters were mailed, followed by 3 phone calls from project staff. Of the 26 who were contacted, 10 parents (38.5%) consented to participate.

PAT Meeting Structure

Between June 2015 and March 2016, the PAT engaged in nine meetings. Meetings were held in a local community center that was used during the implementation of *iChoose*. Meetings were facilitated by the research staff. However, agenda items for each meeting were identified by the research staff and PAT participants. Depending on identified agenda items, PAT members would lead group discussions. Meetings consisted of small group activities, group discussions, and the pilot testing of different lessons and activities identified by the PAT that would be implemented during the *iChoose* maintenance phase. Also, each meeting began with an icebreaker and consisted of dinner so PAT members could feel comfortable engaging with one another.

During the first 4 meetings, the PAT engaged in key activities related to understanding *iChoose* program outcomes and defining their role and purpose as an advisory board. After becoming aware of *iChoose* program outcomes, the PAT formed working groups to rate their strategies on importance and feasibility in order to improve *iChoose* recruitment, retention/participation, and maintenance. Strategies were ranked on a 5-point Likert scale with 1 being not at all important or not at all feasible and 5 being extremely important or extremely feasible. To define their success as a partnership, the team collaboratively engaged in developing and executing a PAT Community Capacity Evaluation Plan. During this process, the PAT was presented with capacity and group dynamic dimensions used by the POPS-CAB to define partnership success. They then reflected and prioritized the capacity and group dynamic dimensions that they felt were most important to evaluate PAT success over time. Guided by

previously published community capacity and group dynamic measures (Goodman, Speers, McLero, Fawcett, Kegler & Parker, 1998) (Sandoval, Lucero, Oetzel, Avila, Belon, Mau, & Wallerstein, 2012), a 42-item plan consisting of 39 quantitative items and 3 open-ended questions was established to evaluate baseline capacity and group dynamic dimensions.

After the development of the evaluation plan, the next five meetings consisted of content development and pilot testing of intervention sessions for an *iChoose* maintenance phase. During this time, the PAT engaged in a resource identification process. Throughout this process, the PAT identified resources within the community, POPS-CAB, and PAT that would support the implementation and sustainability of an *iChoose* maintenance phase. The top *iChoose* maintenance strategies prioritized by PAT members were focused on skill-building activities and future strategies to support new families in *iChoose*. Once strategies were established, the research team identified evidence-based programs and strategies from family-based interventions through pediatric obesity literature that had similar strategies. The family-based program with similar strategies identified by the PAT was a 4-month maintenance program developed by Wilfley and colleagues that included behavioral skill maintenance and social facilitation strategies (Wilfley, Stein, Saelens, Mockus, Matt, Hayden-Wade & Epstein, 2007). Therefore, the PAT adopted similar strategies from Wilfley and colleagues to help parents facilitate child peer networks that support healthy eating and physical activity.

Data Analysis

Quantitative data from improving and feasibility ratings in addition to the capacity evaluation plan was analyzed using SPSS 22.0. Mean scales and descriptive statistics were reported in improvement and feasibility rating, as well as in each dimension of group dynamics

and community capacity. Meeting minutes and goals were also recorded to track PAT accomplishments over time.

Results

The PAT was able to accomplish 9 objectives during the first four meetings (see Table 5-1). The top strategies identified as important and feasible to the PAT in order to improve *iChoose* recruitment were in person efforts in local schools, health fair pediatrician referrals, and the use of social media. The top strategies identified as important and feasible in order to improve attendance/retention were hands on class activities and changing the format of *iChoose* support calls. Lastly, the PAT identified that holding class in multiple locations can help during the maintenance phase of *iChoose* (See Table 5-2). In total, 9 of the 10 PAT members engaged in this ranking process. To create the Capacity Evaluation Plan, the PAT was presented with 12 capacity and group dynamic dimensions. However, they selected 9 dimensions that they thought were most relevant to their success in partnership. Selected dimensions were collective efficacy, communication, community's power, leadership, participation and influence, problem assessment, and personal and community influence. Outlined in Table 5-3, 7 of the 10 PAT members rated each dimension high (i.e., collective efficacy=4.3(0.8), communication=3.9(0.2), community's power=3.9(0.4), leadership=4.4(0.4), participation and influence=3.9(0.5), problem assessment=4.3(0.7), personal and community influence=3.8(0.6), and PAT satisfaction=4.1(0.4) on a 5-point scale). Qualitative data from the evaluation plan revealed that the consistency of meetings and working together were aspects of the PAT that were going well. PAT members also believed that the continuation of meetings could lead to future advisory team improvements. Therefore, the results from this evaluation plan establish baseline data for community capacity and group dynamic dimensions for the PAT.

[Insert Table 5-1]

[Insert Table 5-2]

[Insert Table 5-3]

During the next 5 meetings, the PAT initiated content development and pilot testing of intervention sessions for an *iChoose* maintenance phase. Designed by the PAT, the proposed *iChoose* maintenance phase will include monthly group classes, each lasting 2 hours, that include opportunities for skill-building and networking in between classes. Skill-building activities prioritized and pilot tested by the PAT included healthy snack preparation, exposure to new group-based physical activity opportunities (specifically POUND class and urban line dancing class), and addressing body image concerns among youth. Also, to encourage healthy peer support during *iChoose*, the PAT met one time outside of organized PAT meetings to engage in a group walking session, in which they provided healthy snacks following the walk. The PAT also established their role in the maintenance phase as a support system for future *iChoose* families.

Discussion

The PAT was able to accomplish all of their short-term goals, which included engaging in key activities related to understanding *iChoose* program outcomes, defining their roles and purpose as an advisory team, and lastly, initiating content development and pilot testing of intervention sessions for an *iChoose* maintenance phase. The accomplished objectives reveal that the PAT members have remained engaged in the coalition process. Baseline satisfaction outcomes from the Capacity Evaluation Plan revealed that PAT is satisfied with their *iChoose* maintenance development and the rate of meeting progress and activities. We attribute our satisfaction rankings to the specific group dynamic strategies used within PAT meetings. By employing certain strategies, such as peer sharing, collaboratively developing group goals, and

monthly meetings and small group interactions with a primary focus on goals for *iChoose*, the research team was to able engage parents as equal partners in the participatory process to build capacity and facilitate the development of an *iChoose* maintenance phase (Estabrooks, Harden & Burke, 2012).

As the PAT continues to develop, intermediate goals are to continue to develop and pilot test weight maintenance content, the PAT will use the Centers for Disease Control Clear Communication Index (CDC Clear Communication Index, 2014) to help develop communication materials that will be used in the *iChoose* maintenance phase. This index will help the PAT clearly communicate health behavior objectives that will be used in all aspects of program material. Once the curriculum has been finalized, the PAT will present their proposed *iChoose* weight maintenance phase to the POPS-CAB for feedback. Following this process, the PAT will make the necessary program revisions and finalized *iChoose* maintenance phase. Outlined by Newman and colleagues as a “best process” for evaluation partnership success, the PAT will conduct a follow-up mixed-methods capacity evaluation plan to explore changes in community capacity and group dynamics over time (Newman, Andrews, Magwood, Jenkins, Cox & Williamson, 2011). The PAT will also engage in key informant interviews to provide a richer platform for the team’s identified capacity and group dynamic dimensions. These types of evaluations that address partnership priorities increase the likelihood that the partnership collaboration continues and is sustained over time (Butterfoss, 2007) (Butterfoss, 2009).

The long-term goals of the PAT are to engage in program delivery and to act as a support ‘safety net’ in the future effectiveness testing of *iChoose*. To fulfill this role, they will engage in leadership, recruitment, and peer support roles. PAT members will attend the *iChoose* maintenance meetings, for which they will serve as co-facilitators for the *iChoose* staff and in

supportive roles for the families. As the PAT engages in future *iChoose* activities, they will also incorporate their identified strategies of importance and feasibility related to recruitment, attendance/retention, and maintenance.

Conclusion

In agreement with the findings of Jurkowski and colleagues (Jurkowski, Mills, Lawson, Bovenzi, Quartimon & Davison, 2012), documenting partnership success and developing strategies for engaging PAT participants was fundamental in our participatory efforts in our early coalition stages. Engaging parents in all aspects of this research process and understanding changes in their capacity fills an important gap in the childhood obesity treatment literature. As we move forward, we aim to engage the PAT in all phases of the participatory process; the development of capacity will be an important step in addressing childhood obesity and building coalition effectiveness (Griffith, 2010).

Table 5-1 PAT Meeting Accomplishments

Meeting Month	Accomplished Objectives
Meetings 1-4	<ul style="list-style-type: none"> • The parent/caregiver members will understand their roles as the Parent Advisory Team (PAT) and establish a shared vision for the partnership and goals of the project.
	<ul style="list-style-type: none"> • The PAT will develop a structure for meeting organization and decision-making.
	<ul style="list-style-type: none"> • The PAT will engage in team building activities to build trust among participants. • The PAT will decide the degree to which <i>iChoose</i> youth will be involved.
	<ul style="list-style-type: none"> • The PAT will reflect on and prioritize capacity and group dynamic dimensions that are most important in defining partnership and project success (<i>this information will guide the development of the mixed-methods evaluation and critical reflection data points</i>).
	<ul style="list-style-type: none"> • Complete baseline mixed-methods evaluation and critical reflection.
	<ul style="list-style-type: none"> • The PAT will become familiar with outcomes of the 3-month <i>iChoose</i> Program as it relates to weight, attendance, and participation. The PAT will identify factors that influenced these outcomes.
	<ul style="list-style-type: none"> • The PAT will identify specific community and parental resources that will aid in the development, implementation, and sustainability of a culturally relevant <i>iChoose</i> maintenance phase in the Dan River Region (i.e., resource mapping).
	<ul style="list-style-type: none"> • The PAT will become familiar with evidence-based family-based interventions.
	<ul style="list-style-type: none"> • The PAT will evaluate aspects of evidence-based interventions/strategies that can be modified to become culturally relevant for <i>iChoose</i> participants.
	<ul style="list-style-type: none"> • Rank strategies for importance and feasibility to the PAT in order to improve <i>iChoose</i> recruitment, attendance/retention, and maintenance.
Meetings 5-9	<p style="text-align: center;">Accomplished Objectives</p>
	<ul style="list-style-type: none"> • The PAT will discuss program length and implementation plans for the weight maintenance phase.
	<ul style="list-style-type: none"> • The PAT will initiate content development of the <i>iChoose</i> weight maintenance phase.
	<ul style="list-style-type: none"> • Pilot test healthy snack preparation.
	<ul style="list-style-type: none"> • Pilot test new group-based physical activity opportunities (e.g., POUND class and urban line dancing class).
<ul style="list-style-type: none"> • Pilot test youth body image lesson plan. 	

Table 5-2 Strategies Identified by the PAT to Promote Future *iChoose* Improvements

	Importance ^a n=9	Feasibility ^b n=9
Recruitment	M(SD)	M(SD)
In person efforts in local school	3.78(0.97)	3.67(1.12)
Health Fairs	4.33(0.50)	4.22(0.97)
Pediatrician Referral	3.22(1.30)	4.33(0.87)
Social Media	4.56(0.53)	4.89(0.33)
Attendance/Retention	M(SD)	M(SD)
Hands on Class Activities	4.66(0.71)	4.77(0.44)
Change format of Support Calls	4.11(0.87)	4.44(0.88)
Maintenance	M(SD)	M(SD)
Multiple Locations for Class (i.e., Park)	3.77(1.20)	3.11(1.16)

^aResponses were on a 5-point scale; 1 not at all important; 2 slightly important; 3 moderately important; 4 very important; 5 extremely important

^bResponses were on a 5-point scale; 1 not at all feasible; 2 slightly feasible; 3 moderately feasible; 4 very feasible; 5 extremely feasible

Table 5-3 Baseline Capacity Evaluation Outcomes

Dimensions	Definition of Dimensions	# of Items	T1 Mean (SD)
Collective Efficacy	Level of group confidence in developing an <i>iChoose</i> maintenance intervention	4	4.29 (.80)
Communication	The degree to which CAB members can rely on one another to share information openly, follow through on tasks, and remain committed to the project	5	3.89 (.16)
Community's Power	The ability to effectively leverage change or resist change that matters to people who share a common interest, concern, or experience	3	3.86 (.38)
Leadership	The degree to which members are able to guide/direct the PAT, including team working skills, leadership opportunities, and willingness of members to take on or share leadership responsibilities	5	4.37 (.35)
Participation and Influence	The degree to which every member feels valued, heard, and has some influence in the group	7	3.87 (.48)
Problem Assessment	The ability to identify, solve, and act on a problem including detecting, defining, and solving problems as they arise	4	4.25 (.69)
Personal and Community Influence	The amount of control PAT members have on decisions that affect their lives, and the amount of influence the PAT has on decisions that affect their community	7	3.80 (.55)
Satisfaction	Satisfaction with program development, rate of progress, activities, and allocation of resources	4	4.07 (.35)

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Chapter 6: General Conclusion

Driven by the need to address health disparities, community-based participatory research (CBPR) has gained momentum with the recognition that community engagement is imperative for effectively addressing health disparities (Minkler & Wallerstein, 2003; Israel, Eng, Schulz, & Parker, 2005; Blumenthal & DiClemente, 2004). Communities and philanthropic agencies are also demanding alternative approaches to traditional research in order to address multifaceted health and social problems (D'Alonzo, 2010). Through these collaborative partnerships, academic researchers and community stakeholders have been successful at identifying, prioritizing, and addressing community concerns. Despite the increased support and demand for CBPR work, there are still gaps in achieving the best possible balance between research methodologies and community collaboration (Viswanathan, Ammerman, Eng, Garlenhner, Lohr, Griffith, Rhodes, Samuel-Hodge, Maty, Lux, Webb, Sutton, Swinson, Jackman, and Whitener, 2004).

Therefore, by 1) assessing four indicators of feasibility (i.e., acceptability, demand, limited effectiveness, and implementation) of an 8-week community gardening and nutrition program in youth with a matched contact-control physical activity intervention, 2) assessing parental and program delivery satisfaction in a multicomponent family-based childhood obesity program across three cohorts, and 3) describing the process of engaging parents directly as co-researchers in the development of a childhood obesity maintenance program to foster capacity building among parents this dissertation builds upon those identified gaps in CBPR through the improvement of community capacity and health outcomes in the Dan River Region.

Through the engagement of community extension agents, manuscript one demonstrates the usefulness of CBPR. Our findings revealed that more testing is needed to understand the

effectiveness of an experiential theory-based gardening and nutrition program in the Dan River Region. However, we were still able to strengthen our CBPR components from previous gardening studies in the region. By engaging community partners in the intervention delivery, we were successfully able to engage at-risk youth in a nutrition or physical activity initiative aimed at promoting healthful behaviors. As the field of CBPR and youth engagement continues to grow, future efforts should focus on engaging children and adolescents in the CBPR process. They would be ideal candidates for community-academic partnerships because much of the academic literature addressing issues pertaining to youth do not include youth in any developmental phases of the research (Jacquez, 2013). Moreover, to further strengthen the field of CBPR, there is a need to develop and analyze participatory methods and frameworks for engaging youth in CBPR research (Yonas, Burke, Rak, Bennett, Kelly, and Gielen, 2009).

By continuing to address the obesity concerns in the Dan River Region, manuscript two and three focused on the needs and concerns of program participants. Similar to Cargo and colleagues, using a CBPR approach, we were able to capture the voice of multiple program participants, which strengthened our findings related to the practicality and relevance of our program (Cargo & Shawna, 2008). Consequently, study two revealed that evaluating participant and program delivery agent satisfaction, we were able to improve the quality of the *iChoose* program. By evaluating community concerns, this approach to research is more likely to result in successful outcomes in the future for translating evidence-based programs into community settings (Levin, 2008). Study three strengthened our CBPR approach by engaging parents directly as co-researchers in the development of a childhood obesity maintenance program to foster capacity building among parents. Through this study, we were able to build upon our

CBPR efforts and understand how we can make our program better for future participants, in addition to improving future outcomes.

Therefore, as we continue to advance health disparities in the region, our next steps involve building upon community engagement, particularly as it relates to our current *iChoose* efforts. By extending the program to 12 months instead of 6 months and engaging our Parent Advisory Team as Community Health Works (CHW), we seek to improve program enrollment, participation, and retention of future participants. Based on our qualitative feedback from studies two and three, we will optimize program components to be less burdensome on participant and delivery agents in the future. Even though the application of CBPR by researchers and practitioners to address health outcomes has been successful in minimizing health disparities (Salimi, Shahandeh, Malekafzail, Loori, Kheiltash, Jamshidi & Majdzadeh, 2012), attention still needs to be given to the research design, approaches to assessing program effectiveness, and the researcher-community relationship (Wallerstein, 2006).

Overall, each study presented in this dissertation had limitations consistent with other CBPR literature related to community engagement and the recruitment and retention of underrepresented groups (Minkler, Blackwell, Thompson & Tamir, 2003) (Levkoff & Sanchez, 2003). Therefore, as we continue to develop and promote CBPR projects, future researchers need to test various pathways from the process to outcomes of the CBPR Logic Model to develop a better understanding of the best practices for CBPR efforts (Wallerstein, Oetzel, Duran, Tafoya, Belong & Rae, 2008). Understanding each of the CBPR pathways and how they are connected is essential to promoting new approaches to capacity assessment, system changes, and improving health outcomes while promoting the use and impact of CBPR (Wallerstein, Oetzel, Duran, Tafoya, Belong & Rae, 2008).

In conclusion, the CBPR method promotes a greater involvement of the community along the research continuum, which aids in the development of understanding the significance and knowledge of research for community participants, organizational agents, and academic researchers (Hergenrather, Geishecker, McGuire-Kultz, Gitlin, and Rhodes, 2010). Since a multitude of complex factors influence an individual's behavior, the role of "outsiders" coming into communities are diminishing, especially in health disparate regions. Consequently, CBPR provides a channel for communities to express their needs and concerns (Wallerstein and Duran, 2008). Because one of the primary aims for CBPR is to increase community capacity and empower the powerless, CBPR is the ideal process for engaging communities that suffer from health disparities (Israel et al., 2005). Thus, applying each dimension of the CBPR Logic Model and engaging community members as collaborators, our studies reported on the relevance and application of CBPR while simultaneously addressing health and capacity outcomes in the health disparate Dan River Region.

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Community Garden Informed Consent Form

Title of Research Project: Planting Seeds of Change

Investigators: Dr. Jamie Zoellner, Karissa Grier, and Ramine Alexander; Department of Human Nutrition, Foods and Exercise; Virginia Tech

I. Purpose of this Research/Project

The purpose of this project is to evaluate a gardening and nutrition education program delivered to youth attending summer camps and/or meal programs.

II. Procedures

The gardening and nutrition education program will be delivered to youth during the regular summer camp and/or meal program day. There is no extra cost for this program. The garden and nutrition education program includes about 8 classes or about one lesson per week, each lasting about 60-90 minutes. The caregivers/parents will receive newsletters about gardening and nutrition approximately 4 times during the summer program. As part of the program, your child will complete a brief evaluation before the program begins and at the end of the program. Project staff will read the survey aloud to your child and responses will be recorded through paper/pencil surveys or electronically with iclicker devices. The survey includes questions about willingness to try fruits and vegetables, dietary intake, physical activity, attitudes about nutrition, gardening, and physical activity and will take about 30 minutes to complete. Height and weight measurements will also be taken on the child. In addition to the survey we will ask your child questions to get feedback of the program.

III. Risks

There are no known risks associated with participation in this gardening and nutrition education program and evaluation.

IV. Benefits

This program is offered as part of your child's summer camp and/or meal program and all activities will happen as part of their summer experience. Your child will learn more about gardening and nutrition through the hands-on programs and activities. Caregivers/parents will learn more about gardening and nutrition through the newsletters.

V. Extent of Anonymity and Confidentiality

Your child's identity will be kept confidential at all times and will only be known by the research investigators. An identification number will be assigned to the each child's responses and only the investigators and trained researchers at Virginia Tech will have access to the child's data. All results of the program evaluation will be presented in de-identified and aggregate form.

VI. Participant's Responsibilities

I give permission for my child's responses to the survey, including height and weight to be used to evaluate the gardening and nutrition education program. My child can refuse to answer

questions and it will not affect his/her participation in the program at his/her summer camp and/or meal program.

VII. Participant's Permission

I have read the Consent Form and I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

Name of Child Participating in the Study: _____

Printed name of Parent: _____

Signature of Parent: _____ Date: _____

Signature of Researcher: _____ Date: _____

Should I have any pertinent questions about this research or its conduct, and research subjects' rights, and whom to contact in the event of a research-related injury to the subject, I may contact:

Karissa Grier
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Chair, Virginia Tech Institutional Review
Board for the Protection of Human Subjects
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moored@vt.edu

Physical Activity Informed Consent

Title of Research Project: Planting Seeds for Change

Investigators: Dr. Jamie Zoellner, Karissa Grier, Ramine Alexander; Department of Human Nutrition, Foods and Exercise; Virginia Polytechnic Institute and State University

I. Purpose of this Research/Project

The purpose of this project is to evaluate a physical activity and physical education delivered to youth attending summer camps and/or meal programs.

II. Procedures

The physical activity education program will be delivered to youth as part of their regular summer camp and/or meal program day. There is no extra cost for the physical activity education program. The physical activity education program includes about 8 classes or about one lesson per week, each lasting about 60-90 minutes. As part of the program, your child will complete an evaluation before the program begins and at the end of the program. Project staff will read the survey aloud to your child and responses will be recorded through paper/pencil surveys or electronically with iclicker devices. The survey includes questions about physical activity, willingness to try fruits and vegetables, dietary intake, nutrition, and will take about 30 minutes to complete. Height and weight measurements will also be taken on the child. In addition to the survey we will ask your child questions to get feedback of the program. Caregivers/parents will receive information about the physical activity program via a newsletter sent home with your child approximately 4 times during the summer program.

III. Risks

The risks associated with this program are low. The only known risk is some discomfort associated with participating in physical activity if your child has been previously inactive. However, the activities conducted as part of this program are appropriate for children and no more intensive than they would have experience as part of other camp activities.

IV. Benefits

This program is part of your child's summer camp and/or meal program and offered at no additional cost. Your child will learn about the benefits of engaging in physical activity through education and activities as well as participate in physical activity as part of their summer experience. Caregivers/parents will also learn more about physical activity through the newsletters.

- V. **Extent of Anonymity and Confidentiality** Your child's identity will be kept confidential at all times and will only be known by the research investigators. An identification number will be assigned to the each child's responses and only the investigators and trained researchers at Virginia Tech will have access to the child's data.

All results of the program evaluation will be presented in de-identified and aggregate form.

VI. **Participant's Responsibilities** I give permission for my child's responses to the survey, including height and weight to be used to evaluate the physical activity and education program. My child can refuse to answer questions and it will not affect his/her participation in summer camp and/or meal program.

VII. **Participant's Permission**

I have read the Consent Form and have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

Name of Child Participating in the Program:

Printed name of Parent: _____

Signature of Parent: _____ Date: _____

Signature of Researcher: _____ Date: _____

Should I have any pertinent questions about this research or its conduct, and research subjects' rights, and whom to contact in the event of a research-related injury to the subject, I may contact:

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Board for the Protection of Human Subjects

Community Garden Assent Statement for Children

Parental Permission on File: Yes No
(If “No”, do not proceed with assent or research procedures.)

Hi, my name is _____ and I’m a student at Virginia Tech. We are going to have a summer gardening and nutrition program here for a few weeks. The good thing about this program is that it will help us teach children like you about gardening and eating fruits and vegetables. If you would like, you can be in the program. If you decide you want to be in the program I will ask you a few questions and take your height and weight. There is no right or wrong answer to the questions. The only people who will see your answers are the other researchers at Virginia Tech. At the end of the program I will ask you the same questions and take your height and weight again. I will also ask you a few more questions so you can tell me how you felt about the program. Your *<Mom/Dad/Guardian>* knows about the program and has already said that its okay for you to be in it but you don’t have to if you don’t want to. You can stop being in the program at any time. No one will be mad if you don’t want to be in the program.

Do you have any questions for me?
If you have any questions that you think of later you can call Karissa or Ramine or you can ask your parents to call one of them. Their number is 540-231-1267. Their number is also on the flyer that your *<Mom/Dad/Guardian>* has.

Would you like to be in the program?
Child’s Voluntary Response to Participation: Yes No

Name of Child:

Signature of Researcher:

(Optional) Signature of Child:

Date: _____

Physical Activity Assent Statement for Children

Parental Permission on File: Yes No
(If “No”, do not proceed with assent or research procedures.)

Hi, my name is _____ and I’m a student at Virginia Tech. We are going to have a summer physical activity program here for a few weeks. The good thing about this program is that it will help us teach children like you about being physically active. If you would like, you can be in the program. If you decide you want to be in the program I will ask you a few questions and take your height and weight. There is no right or wrong answer to the questions. The only people who will see your answers are the other researchers at Virginia Tech. At the end of the program I will ask you the same questions and take your height and weight again. I will also ask you a few more questions so you can tell me how you felt about the program.

Your <Mom/Dad/Guardian> knows about the program and has already said that its okay for you to be in it but you don't have to if you don't want to. You can stop being in the program at any time. No one will be mad if you don't want to be in the program.

Do you have any questions for me?

If you have any questions that you think of later you can call Ramine or you can ask your parents to call one of them. Her number is 540-231-1267. Her number is also on the flyer that your <Mom/Dad/Guardian> has.

Would you like to be in the program?

Child's Voluntary Response to Participation: Yes No

Name of Child:

Signature of Researcher:

(Optional) Signature of Child:

Date: _____

Appendix D- Parent Permission Form for Manuscript 1

Parent Permission for focus group

We appreciate you allowing your child to participate in our {gardening and nutrition **or** physical activity} program. We have questions that we want to ask your child about their opinion and experience in the program with other children in a focus group. The focus groups will be led by research assistants from Virginia Tech. Each focus group will be audio recorded and written notes will be taken. The focus group will last about 45-60 minutes and are optional. Information obtained from these questions will help us improve the program in the future. If your child participates in the focus group s/he will receive a \$5 gift card.

Do you give your permission to participate in the focus group?

- Yes, my child may participate in the focus group
- No, my child may not participate in the focus group

Name of child:

Name of parent:

Signature of parent: _____

Date: _____

Signature of researcher: _____

Date: _____

Child Assent for focus group

Read aloud to the child:

I have a few questions that I would like to ask you in a focus group that will only take about 45-60 minutes. The focus groups will be led by research assistants from Virginia Tech. Each focus group will be audio recorded and written notes will be taken. You don't have to answer these questions if you don't want to. These questions are about your opinion and experience in the program. Your answers will help us improve the program in the future. If you choose to participate in the focus group you will be given a \$5 gift card. Do you have any questions for me? Would you like to participate in the focus group?

Child's response: Yes No

Interviewer signature: _____

Child signature (optional): _____

Date: _____

Appendix F- Site Leader Informed Consent Form for Manuscript 1

Site leader consent for exit interview

We appreciate you allowing us to implement our program at your site. We have questions that we want to ask you about your opinion of the program. These questions will take about 10 minutes and are optional. Information obtained from these questions may help us improve the program in the future.

Will you answer the exit interview questions?

- Yes

- No

Name of site leader:

Signature of site leader: _____

Date: _____

Signature of researcher: _____

Date: _____

Data Collection Instruments

Directions

DO NOT write your name on this survey.

This is not a test. Please answer the questions as honestly as possible.

Circle your answer for each question.

If you change your answer, erase or cross out your old answer completely.

Part 1



- | | | | | |
|---|---|----|-------|-----|
| 1 | Would you be willing to taste a new food if offered? | No | Maybe | Yes |
| 2 | Would you be willing to taste a new food at home? | No | Maybe | Yes |
| 3 | Would you be willing to taste a new food at a relative's home? | No | Maybe | Yes |
| 4 | Would you be willing to taste a new vegetable at a friend's home? | No | Maybe | Yes |
| 5 | Would you be willing to taste a new food at a restaurant? | No | Maybe | Yes |
| 6 | Would you be willing to taste a new food at church? | No | Maybe | Yes |
| 7 | Would you be willing to taste a new vegetable? | No | Maybe | Yes |
| 8 | Would you be willing to taste a new fruit? | No | Maybe | Yes |

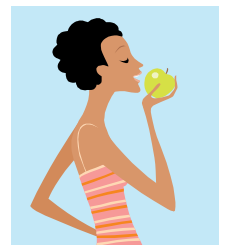
9	Would you be willing to taste a new dish (like a casserole)?	No	Maybe	Yes
10	Would you be willing to taste an apricot?	No	Maybe	Yes
11	Would you be willing to taste baby carrots?	No	Maybe	Yes
12	Would you be willing to taste blueberries?	No	Maybe	Yes
13	Would you be willing to taste broccoli?	No	Maybe	Yes
14	Would you be willing to taste cauliflower?	No	Maybe	Yes
15	Would you be willing to taste celery sticks with dip?	No	Maybe	Yes
16	Would you be willing to taste a cucumber?	No	Maybe	Yes
17	Would you be willing to taste grape tomato?	No	Maybe	Yes
18	Would you be willing to taste green squash?	No	Maybe	Yes
19	Would you be willing to taste honeydew melon?	No	Maybe	Yes
20	Would you be willing to taste mandarin oranges?	No	Maybe	Yes
21	Would you be willing to taste a plum?	No	Maybe	Yes
22	Would you be willing to taste yellow squash?	No	Maybe	Yes
23	In general, do you consider yourself a healthy eater?	No	Maybe	Yes
24	In general, do you consider your parent a healthy eater	No	Maybe	Yes

Part 2

1	You will have more energy for playing (sports, recess or after school) if you eat fruits and vegetables	No	Maybe	Yes
2	You will get sick more often if you don't eat fruits and vegetables	No	Maybe	Yes
3	Eating fruits and vegetables will help you grow	No	Maybe	Yes
4	You will have healthier skin if you eat fruits and vegetables	No	Maybe	Yes
5	If you eat fruits and vegetables, you will have stronger eyes	No	Maybe	Yes
6	If you eat fruits and vegetables at breakfast, you will be able to think better in class	No	Maybe	Yes
7	Eating fruits and vegetables may help keep you from getting cavities	No	Maybe	Yes

Part 3

1	For breakfast, do you think you can drink a glass of your favorite juice?	No	Maybe	Yes
2	For breakfast, do you think you can add fruit to your cereal?	No	Maybe	Yes



3	For lunch at school, do you think you can eat a vegetable that's served	No	Maybe	Yes
4	For lunch at school, do you think you can eat a fruit that is served	No	Maybe	Yes
5	For lunch at home do you think you can eat carrot or celery sticks instead of chips	No	Maybe	Yes
6	For lunch at home do you think you can eat your favorite fruit instead of your usual dessert	No	Maybe	Yes
7	For a snack do you think you can choose your favorite fruit instead of your favorite cookie	No	Maybe	Yes
8	For a snack do you think you can choose your favorite fruit instead of your favorite candy bar	No	Maybe	Yes
9	For a snack do you think you can choose your favorite raw vegetable with dip instead of your favorite cookie	No	Maybe	Yes
10	For a snack do you think you can choose your favorite raw vegetable with dip instead of your favorite candy bar	No	Maybe	Yes
11	For a snack do you think you can choose your favorite raw vegetable with dip instead of chips	No	Maybe	Yes
12	For dinner do you think you can eat a big serving of vegetables	No	Maybe	Yes
13	For dinner do you think you can eat your favorite fruit instead of your usual dessert	No	Maybe	Yes



Part 4

- | | | | | |
|---|---|----|-------|-----|
| 1 | Do you think you can write your favorite fruit or vegetable on the family's shopping list | No | Maybe | Yes |
| 2 | Do you think you can ask someone in your family to buy your favorite fruit or vegetable | No | Maybe | Yes |
| 3 | Do you think you can go shopping with your family for your favorite fruit or vegetable | No | Maybe | Yes |
| 4 | Do you think you can pick out your favorite fruit or vegetable at the store and put it in the shopping basket | No | Maybe | Yes |
| 5 | Do you think you can ask someone in your family to make your favorite vegetable dish for dinner | No | Maybe | Yes |
| 6 | Do you think you can ask someone in your family to serve your favorite fruit at dinner | No | Maybe | Yes |
| 7 | Do you think you can ask someone in your family to have fruits and fruit juices out where you can reach them | No | Maybe | Yes |
| 8 | Do you think you can ask someone in your family to have vegetables cut up and out where you can reach them | No | Maybe | Yes |



Part 5

- | | | | | |
|---|----------------------------------|-----|----|--------------|
| 1 | Do plants need air to grow | Yes | No | I don't know |
| 2 | Do plants need water to grow | Yes | No | I don't know |
| 3 | Do plants need sunlight to grow | Yes | No | I don't know |
| 4 | Do plants need nutrients to grow | Yes | No | I don't know |
| 5 | Do plants need soil | Yes | No | I don't know |
6. Which of these do plants grow best in?
- A. Sand
 - B. Silt
 - C. Clay
 - D. A mixture of sand, silt and clay
 - E. I don't know





Part 6

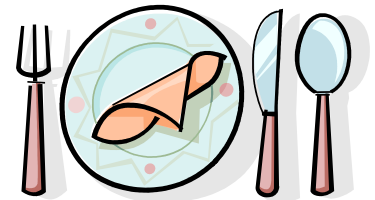
- | | | | | |
|---|--|----|-------|-----|
| 1 | Do you think you can find a space for a garden at your home? | No | Maybe | Yes |
| 2 | Do you think you can prepare the soil and plant seeds or young plants for a garden? | No | Maybe | Yes |
| 3 | Do you think you can choose plants or seeds that will grow in your garden? | No | Maybe | Yes |
| 4 | Do you think you can weed and water the garden? | No | Maybe | Yes |
| 5 | Do you think you can pick and eat the vegetables that you have grown in your garden? | No | Maybe | Yes |
| 6 | Do you think you can find the time and energy to have a garden? | No | Maybe | Yes |



Part 7

MyPlate is a picture that has replaced the food pyramid as a guide for the different foods you should eat. Part 7 has some questions about MyPlate

- | | | | | |
|---|--|-----|----|--------------|
| 1 | Is water part of the MyPlate picture | Yes | No | I don't know |
| 2 | Is dairy part of the MyPlate picture | Yes | No | I don't know |
| 3 | Is fruit part of the MyPlate picture | Yes | No | I don't know |
| 4 | Is sugar part of the MyPlate picture | Yes | No | I don't know |
| 5 | Is oil part of the MyPlate picture | Yes | No | I don't know |
| 6 | Is protein part of the MyPlate picture | Yes | No | I don't know |
| 7 | Are grains part of the MyPlate picture | Yes | No | I don't know |
| 8 | Are vegetables part of the MyPlate picture | Yes | No | I don't know |
10. How many cups of fruit should a child your age should eat every day?
- A. $\frac{1}{2}$
 - B. 1
 - C. $1\frac{1}{2}$
 - D. 2
11. How many cups of vegetables should a child your age should eat every day?
- A. $\frac{1}{2}$
 - B. 1
 - C. $1\frac{1}{2}$
 - D. 2



Part 8

Part 8 asks about some of the things you ate in the past 7 days. Please answer honestly.

- 1. During the past 7 days, how many times did you drink 100% fruit juices such as orange juice, apple juice, or grape juice? (Do not count punch, Kool-Aid, sports drinks, or other fruit-flavored drinks.)**
 - A. I did not drink 100% fruit juice during the past 7 days
 - B. 1 to 3 times during the past 7 days
 - C. 4 to 6 times during the past 7 days
 - D. 1 time per day
 - E. 2 times per day
 - F. 3 times per day
 - G. 4 or more times per day

- 2. During the past 7 days, how many times did you eat fruit? (Do not count fruit juice.)**
 - A. I did not eat fruit during the past 7 days
 - B. 1 to 3 times during the past 7 days
 - C. 4 to 6 times during the past 7 days
 - D. 1 time per day
 - E. 2 times per day
 - F. 3 times per day
 - G. 4 or more times per day

- 3. During the past 7 days, how many times did you eat green salad?**
 - A. I did not eat green salad during the past 7 days
 - B. 1 to 3 times during the past 7 days
 - C. 4 to 6 times during the past 7 days
 - D. 1 time per day
 - E. 2 times per day
 - F. 3 times per day
 - G. 4 or more times per day

4. During the past 7 days, how many times did you eat potatoes? (Do not count french fries, fried potatoes, or potato chips.)

- A. I did not eat potatoes during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

5. During the past 7 days, how many times did you eat carrots?

- A. I did not eat carrots during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day



6. During the past 7 days, how many times did you eat other vegetables? (Do not count green salad, potatoes, or carrots.)

- A. I did not eat other vegetables during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

Part 9

When thinking about physical activity, think of activities such as **strenuous, moderate or mild.**

- **Examples of strenuous activities are:** running, jogging, hockey, football, soccer, basketball, roller skating, and increase swimming
- **Examples of moderate activities are:** fast walking, baseball, tennis, easy bicycling, volleyball, and easy swimming
- **Examples of mild activities are:** stretching, yoga, archery, fishing from river bank, bowling, horseshoes, golf, and easy walking

1. During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spent in any kind of physical activity that increased your heart rate and made your heart rate and made you breathe hard some of the time.)

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

2. How many DAYS in the past week did one of your parents encourage you to do physical activity?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days



3. How many DAYS in the Past week did one of your parents take you to a place to do physical activity?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

4. How many DAYS in the past week did you walk, bike, skateboard, play, run or do anything type of physical activity?

- A 1 day
- B 2 days
- C 3 days
- D 4 days
- E 5 days
- F 6 days
- G 7 days

5. Which one of the following describes you best for the last 7 days? Read all five statements before deciding on the one answer that describes you then circle the letter of the answer you choose.

- A All or most of my free time was spent doing things that involve little physical effort
- B I sometimes (1-2 times last week) did physical things in my free time (e.g. played sports, went
- C I often (3-4 times last week) did physical things in my free time
- D I quite often (5-6 times last week) did physical things in my free time)
- E I very often (7 or more times last week did physical things in my free time

6. Circle how often you did physical activity (like playing sports, games, doing dance, or any other physical activity) for each day last week

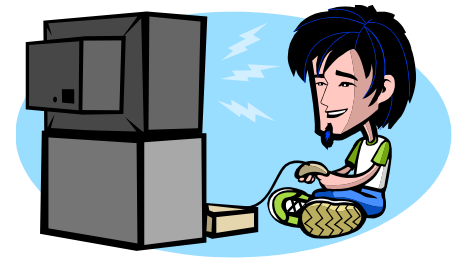
DAYS

Sometimes
(1 to 3 times per week)

Often
(7 times per week)

Monday	Sometimes	Often
Tuesday	Sometimes	Often
Wednesday	Sometimes	Often
Thursday	Sometimes	Often
Friday	Sometimes	Often
Saturday	Sometimes	Often
Sunday	Sometimes	Often





Part 10

1. On an average day, how many hours do you spend watching TV?
 - A I do not watch TV
 - B Less than 1 hour per day
 - C 1 hour per day
 - D 2 hours per day
 - E 3 hours per day
 - F 4 hours per day
 - G 5 or more hours per day

2. On an average day, how many hours do you spend playing video or computer games or use a computer for something that is not education related? (Count time spent on things such as Xbox, PlayStation, Nintendo DS, other portable video games, an iPod, an iPad, or other tablet, a smartphone, YouTube, Facebook or other social networking tools, and the Internet)
 - A I do not play video or computer games or use a computer for something that is not education related
 - B Less than 1 hour per day
 - C 1 hour per day
 - D 2 hours per day
 - E 3 hours per day
 - F 4 hours per day
 - G 5 or more hours per day

Part 11

1	Do you think you can ask your parent/guardian to do physical activity things with you?	No	Maybe	Yes
2	Do you think you can be physically active with other kids your age?	No	Maybe	Yes
3	Do you think you can be physically active even if you have to stay at home?	No	Maybe	Yes
4	Do you think you can set goals to be physically active?	No	Maybe	Yes
5	Do you think you can be physically active no matter how busy your day is?	No	Maybe	Yes
6	Do you think you can be physically active instead of watching TV or playing a video/computer/smartphone game?	No	Maybe	Yes
7	Do you think you can try different kinds of physical activity?	No	Maybe	Yes
8	Do you think you can be physically active by yourself	No	Maybe	Yes



Part 12

1. How many minutes of physical activity should someone your age get every day?
 - A. 15
 - B. 30
 - C. 60
 - D. 150

2. Is Aerobics a type of physical activity? Yes No I Don't Know

3. Is Muscle Strength a type of physical activity? Yes No I Don't Know

4. Bone Strength a type of physical activity? Yes No I Don't Know

5. What is the most amount of time you should spend watching TV or playing video games?
 - A. 30 minutes
 - B. 1 hour
 - C. 2 hours
 - D. 2 ½ hours



Part 13

6	Being physically active will help me have strong bones	Yes	No	I Don't Know
7	Being physically active will help me have a healthy heart	Yes	No	I Don't Know
8	Being physically active will help me have strong muscles	Yes	No	I Don't Know
9	Being physically active will help my body stay healthy	Yes	No	I Don't Know

Great Job! You're Done!





STOP. Do not answer the questions on this page. If you are done take this survey to one of the assistants.

Demographics (Dem)

Interviewer instructions: Do not read 1 and 2 aloud; just select appropriate answer.

Dem01. Race (Please circle one): White Black Hispanic Other

Dem02. Gender (please circle one): Female Male

Interviewer: Read aloud and record responses

Dem03. How old are you? _____

Dem04. How many sisters & brothers do you have? #sisters _____ #
brothers _____

Anthropometrics (Anthro)

Anthro1: Height (cm): | ____ | ____ | ____ |. | ____ |

Anthro2: Weight (kg): | ____ | ____ | ____ |. | ____ |

Appendix H- Garden Child Exit Questions for Manuscript 1

Gardening Child Exit Questions

1. What did you like most about the program?
2. What did you like least about the program?
3. What ideas do you have for us to make the program more fun or exciting in the future?
4. How do you think we can get more kids from your neighborhood to come to the program?
5. How has the program helped you with gardening?
6. How has the program helped you with nutrition and eating fruits and vegetables?
7. If any, what are some new fruits and vegetables you've tried since starting the program?
8. Do you think you will continue to set goals to eat the recommended amount of fruits and vegetables after the program ends?
9. For Older Students) How would you feel about working with program leaders as assistant staff if this program were to come back to your site?
10. Would you be interested in working with local youth in the Dan River Region to organize health fairs and other local programs to improve the health of youth in the Danville, VA.?

Appendix I- Physical Activity Child Exit Questions for Manuscript 1

Physical Activity Child Exit Questions

1. What did you like most about the program?
2. What did you like least about the program?
3. What ideas do you have for us to make the program more fun or exciting in the future?
4. How do you think we can get more kids from your neighborhood/summer program to come to the program?
5. What was your favorite game?
6. Do you think you will continue to set goals to be physically active?
7. How has the program helped you with physical activity?
8. (For Older Students) How would you feel about working with program leaders as assistant staff if this program were to come back to your site?
9. Would you be interested in working with local youth in the Dan River Region to organize health fairs and other local programs to improve the health of youth in the Danville, VA.?

Appendix J- Site Leader Gardening Questions for Manuscript 1

Gardening Questions for Site Leaders

1. Talk to me about your experience in trying to recruit your youth to enroll in the program.
2. What resources do you think were most important and do you feel you had enough of these resources for your garden site?
3. Do you plan to have a community garden next year?
 - a. What things might you change or modify for your garden next year?
4. Do you plan to use the gardening and nutrition curriculum in the future for the youth?
5. Did you notice any changes in the relationship or cohesiveness of the residents who participated in the program?
6. What benefits to the community did you notice from the program?
7. Did you notice any changes in asking for fruits and vegetables from the kids?
8. Did you notice any changes in willingness to try fruits and vegetables?
9. What was your perception of the data collection component of the program?

Appendix K- Site Leader Physical Activity Questions for Manuscript 1

Physical Activity Questions for Site Leaders

1. Talk to me about your experience in trying to recruit your youth to enroll in the program.
2. What resources do you think were most important and do you feel you had enough of these resources for your site?
3. Do you plan to use some of the games in the future for the youth?
4. Did you notice any changes in the relationship or cohesiveness of the youth who participated in the program?
5. What benefits to the community did you notice from the program?
6. Did you notice any changes in engaging in physical activity from the kids?
7. Did you notice any changes in willingness to engage in physical activity?
8. What was your perception of the data collection component of the program?

Informed Consent

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants
In Research Projects Involving Human Subjects

Project Title: *iChoose*

Principle Investigators: Jamie Zoellner, PhD, RD, Department of Human Nutrition, Foods and Exercises and Paul Estabrooks, PhD, Department of Human Nutrition, Foods and Exercise

I. Purpose of this Research:

Virginia Tech is teaming up with several health and community organizations in the Dan River Region to offer a free 6-month health program to manage weight in overweight children who are 8-12 years of age. Both you and your child have been invited to join this study. The goal of this program is to improve your child's weight and health by providing helpful tips to improve you and your child's eating and physical activity behaviors.

You--the parent/guardian/caregiver--will be required to sign this form if you and your child would like to join the study. The study will also be explained to your child, and he/she will be asked to sign the assent included with this form. If you would like to join this study, you will join a small group with about 15 other families who have an overweight child.

II. Procedures

This study will include health screenings, an education program for both you and your child, and group physical activity classes for your child, see below:

Health Screenings

As a part of the program, you will need to attend 3 health screenings. The first one will be at the start of the program, the second one will be at the end of the program (3 months), and the third will be 3 months after the program has finished (6 months). The health screening information for you and your child will be collected in-person and includes:

- Surveys about your eating and physical activity habits, health status, home, and quality of life
- Height, weight, and waist measurements
- Blood pressure
- A blood sample to measure blood sugar, lipids, and leptin levels (this will only be measured at the first two screenings)
- Wearing an accelerometer (a small box you can put on your belt that measures your physical activity). You and your child will receive an accelerometer, along with directions, and will be asked to wear it for one week.

It will take about 60 minutes to do the health screening. Both you and your child can do the health screening at the same time. If you do not want to do parts of the health screening or answer some of the questions, you do not have to.

At the health screening at the end of the program we will ask you and your child a few questions about what you liked and did not like about the program. To make sure we have all your opinions, we will audio record your answers.

Group Health Program

The health program will last for 3 months. During this time you will be asked to:

- Attend 6 health classes, each one will last about 90 minutes. The health classes are for both you and your child.
- Complete about 6 telephone calls (or emails, if you prefer) to provide support and to help you and your child reach your eating and physical activity goals. Each call or email will take about 5-10 minutes.
- Your child will also receive 6 mailed newsletters to help them meet their program goals.

Group Physical Activity Classes

In addition to the health classes, there will be fun physical activity classes for your child. These classes will last 60 minutes and the goal is for you child to be active during this time. In total there are 2 physical activity classes each week of the program. In weeks when the health class is also offered, your child only needs to go to one other physical activity session. In weeks when there is no health class, your child will need to go to two physical activity classes. In summary, your child is asked to be involved in the program 2 days a week, for the 3-month program.

Over 3-months, the total time for the program for you is about 10 hours. The total time for your child, including both the health classes and physical activity sessions, is about 27 hours.

III. Compensation

Both you and your child will get a \$25 gift card (\$50 total) for your time involved in each of the first two health screenings. You and your child will get a \$50 gift card (\$100 total) if you complete the third health screening. If you complete all three health screenings, that is a total of \$200 for your family.

You and your child will also get small non-money prizes at the health and physical activity classes to help you reach your goals.

IV. Risks

There are minimal risks for being involved in this study. It is possible that the health screening could cause stress or anxiety for you or your child. You and your child will always have the right to refuse to participate or to answer any questions in the health screening. If you or your child becomes too tired during the health screening, you can take a break or finish on another day.

Some risks related to the blood sample include a small amount of bleeding, temporary pain, and soreness.

The main risk of taking part in the physical activity sessions is a small risk associated with starting a physical activity program, if you and/or child have not been physically active. To lower this risk, you and/or your child will always participate in the physical activity sessions at your own pace. Inappropriate levels of physical activity could lead to muscle and bone injuries during or following physical activity. Further, it is possible that cardiovascular and respiratory related adverse events could occur. In order to protect against these risks, the study will guide participants in selecting appropriate levels and intensity of physical activity.

Although not expected, if you must seek medical or counseling services as a direct result of being in this study, neither the investigators, Virginia Tech, nor the health care facility has funds to pay for such services. The costs of any such services must be paid by you.

This study may include risks that are unknown at this time. You will be informed of new findings that develop during the course of this study that may affect your willingness to continue to participate in this study.

V. Benefits

If you decide to take part in this study, there is no guarantee that you and/or your child will have any changes in your health. However, you and/or your child may receive the following benefits: weight loss, learning how to improve eating and physical activity behaviors, and/or other improvements in your health.

At each of the health screenings you will receive a handout that explains the results.

Furthermore, to cover your transportation costs and time spent in the health screenings; you will get a gift card at each screening.

It is hoped that the information gained from this study may help the future treatment of child obesity in the Dan River Region.

VI. Confidentiality

Several steps will be taken to ensure confidentiality. All staff will be well trained. Only trained study staff will have access to data about you obtained for this study. This information will be kept confidential and will not be released without your written permission, unless compelled by law. We will use study ID numbers in order to protect the confidentiality of your data. At the start of the study you will be assigned a study ID number, so that you will only be identified by that number for study purposes. It is possible that the Institutional Review Board may view this study's data for auditing purposes. The IRB is responsible for oversight of the protection of human subjects involved in research. All identifiable information about you will be destroyed as soon as possible after the study is over.

VII. Freedom to Withdraw

You being in this study is completely voluntary. You and your child are free to stop being in the study at any time without penalty. If you and your child choose to quit the program, please contact the study staff to let them know of your decision. You and your child are also free not to answer any questions or to complete any parts of the study that you choose not to without penalty. It is also possible that the study sponsor or other regulatory boards may terminate the study at any time.

VIII. Participant's Responsibilities

I voluntarily agree to join this study which will include:

For parent/guardian/caregiver and child:

- Complete 3 health screenings, each lasting 60 minutes and which includes: surveys, height, weight, waist, and blood pressure measurements. Give 2 blood sample measurements, one at the beginning of the program and one at the end (3-months). Wear an accelerometer for one week at the beginning, one week at the end of the program (3-months), and one week at the end of the study (6-months).
- Attend 6 health classes with my child, each lasting about 90 minutes.

For parent/guardian/caregiver only:

- Complete about 6 telephone calls, each lasting 5-10 minutes.

For child only:

- Attend physical activity classes 2 times per week, each lasting about 60 minutes.

IX. Participant's Permission

I have read the consent form and conditions of this project. I have had all of my questions answered. I give my voluntary consent for myself and my child to be a part of this study:

_____ Date: _____
Parent/guardian/caregiver Signature

Parent/guardian/caregiver Name (Please Print)

Child's Name (Please Print)

Should I have any questions about this research, my research rights, or a research related injury, I may contact:

Principle Investigators:

Dr. Jamie Zoellner
Associate Professor
Department of Nutrition, Foods and Exercise
Exercise
Virginia Tech
540-231-3670
Zoellner@vt.edu

Dr. Paul Estabrooks
Professor
Department of Nutrition, Foods and
Virginia Tech
540-857-6664
estabrkp@vt.edu

Child Assent Form

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Project Title: *iChoose*

Principle Investigators:

Jamie Zoellner, PhD, RD, Department of Human Nutrition, Foods and Exercise

Paul Estabrooks, PhD, Department of Human Nutrition, Foods and Exercise

What is the name of the study? What is it for?

The name of our study is “iChoose.” Our study will have fun activities to help you and your parents/caregiver move more and eat better. The study will last for 6 months.

Why me?

Your doctor told us that you weigh a little more than other kids your age and that you might like learning about eating and physical activity. We want to help kids have fun and learn about ways to make their bodies feel better by playing games and trying new foods.

What will I have to do?

If you are in the study, you will come to 6 health classes. Your parents/caregiver will bring you. Sometimes you might do some stuff with your parents/caregiver and sometimes you might have a class just for kids. The classes will be fun and sometimes you will get to learn how to cook, or play games. You will also come to fun physical activity classes on 2 days of the week. These sessions will get you moving and will include a lot of fun games. About every other week, you will also get a newsletter in the mail. It will have fun health activities for you to read and do.

You will also come to 3 health screenings. We will ask you to answer some questions about what you eat and how much exercise you get. Some of the questions might ask you how you feel or about how you think your health affects your feelings or school work. During the research visits, we will measure how tall you are and how much you weigh. We will measure your waist and hip size with a measuring tape. We will take your blood pressure. We will also take a blood sample from your arm the first two screenings. Your parent/caregiver will be with you.

Also, we will ask you to wear an accelerometer, a very small box on your belt, for one week at the start and the end of program, and for one week 3 months after the program so we know how much you move around each day.

When the program is over, we will ask you some questions about what you liked and did not like about the program. We will audio record your answers to make sure we get the complete responses.

How long will it take?

The study will take 6 months. There will be:

- 6 health classes that you go to with your parent/caregiver, each will last about 1 ½ hours.
- 2 fitness classes every week, each will last about 1 hour
- 3 health screenings, each will last about 1 hour

Will it hurt?

It may hurt a bit when the nurse draws your blood and you may be a little bit sore afterwards. You will not feel anything while we measure your height, weight, waist, or blood pressure. All you have to do is be still while we take the measures.

How will this help me? How will this help other children?

We hope you will learn fun, healthy ideas from the classes. You might learn about new foods or exercises to keep you very healthy. And you might feel better if you make some of the healthy changes you will learn about from the classes. After this study is over, other children might get to go to the health classes.

Will I get paid?

Both you and your parent/caregiver will get a \$25 gift card (\$50 total) for each of the first two health screenings, one at the start and at the end of the program. For the last health screening, 3 months after the program is over you and your parent/caregiver will get a \$50 gift card (\$100 total). These are the three visits where we take some measurements. If you complete both health screenings, that is a total of \$200 for your family.

What if I want to stop?

You can choose not to be in this study. Also, if you do sign up to be in the study you can stop whenever you want. No one will be mad and you will not get in trouble if you say you do not want to be in the study. Also, if you have a new sickness while you are in the study, your doctor might decide the study isn't right for you anymore.

Who can I ask questions?

You can ask any person on the research team if you have questions. You can also ask your nurse or your doctor more questions about the study if you go to the clinic for a checkup.

Assent

Signing here means that you have read this paper or someone read it to you and that you are willing to be in this study. If you don't want to be in this study, don't sign the paper. Remember, being in this study is up to you, and no one will be mad at you if you don't sign this, or even if you change your mind later.

The research has been explained to me and I agree to take part.

Printed Name of Minor

Signature of Minor

Date

I certify that I was present for the assent discussion and that the subject had an opportunity to ask questions and appeared to understand the information presented and agreed to participate voluntarily in the research.

Printed Name of Person Obtaining Assent

Signature of Person Obtaining Assent

Date

Printed Name of Investigator

Signature of Investigator

Date

Data Collection Instrument

Summative Evaluation



Summative Evaluation

Well done, you have almost completed the 3-month health assessment. Now I would like to ask you some questions about your thoughts on the program. We are really interested in your honest opinions, including things you liked and things you didn't like about the program. Please don't think you are going to hurt our feelings, because all the information you provide will really help us evaluate the program and figure out how we can make it better for members in your community in the future.

Also, I am going to audio record your answers so I make sure I don't miss anything. When we write the report, your answers will not be linked to your name- so all answers you provide will be kept confidential.

There are several sections to this final part. I will ask you about your thoughts on the family classes, the kids physical activity sessions, the telephone calls, and the materials provided. When you provide your answers, we will be using these scales.

[NOW SHOW & EXPLAIN LIKERT-SCALE HANDCARDS]

Any questions before we get started?

Family Classes

RECORD FROM PROCESS DATA, DO NOT ASK: Number of Classes Attended: _____

IF ATTENDED 0-4 CLASSES:

We know Saturday's can be busy days for many families, and I noticed that you missed some of the classes.

1. What made it hard for you to attend the family classes?

2. What could our iChoose team have done differently to help you attend more family classes?

If ATTENDED 0 classes skip to question 13.

IF ATTENDED 1-6 CLASSES:

|____| 3. How satisfied were you with how the family classes were **organized**?
[USE SATISFACTION
HAND CARD]

|____| 4. How satisfied were you with the **type of information** in the family classes?
[USE SATISFACTION
HAND CARD]

|____| 5. How satisfied were you with the **type of class of activities** in the family classes?
[USE SATISFACTION
HAND CARD]

6. As you know, in this program we had 6 family classes that met 90 minutes every 2 weeks on Saturday mornings. Do you think this number of times and the amount of time for each meeting was about right or would you recommend something different? Please share your thoughts on the number of meetings, the amount of time, and the frequency of meetings. [Continue to probe for a complete answer of number, time, and frequency].
7. What were the three top things you learned from the family classes that you were able to use at home to help your family?

8. What was your favorite activity we did in the family classes?

9. Was there any information or activities presented in the family classes that you would suggest we change in the future? If so, can you talk to me about that.

11. Can you please tell me about what you liked and disliked about the family classes. Is there anything else you haven't already mentioned?

Probe: Anything else you liked? Anything else you disliked?

11a. Like	11b. Dislike

11. What about [CHILD'S NAME], what did you hear him/her saying that he/she liked or disliked about the information or activities in the family classes.

Probe: Anything else he/she liked? Anything else he/she disliked?

12a. Like	12b. Dislike

Kids Physical Activity Sessions

RECORD FROM PROCESS DATA, DO NOT ASK: Number of Saturday morning Tuesday night Physical Activity Classes Attended: _____

IF ATTENDED 0-12 CLASSES:

Now let's switch gears a bit and talk about the physical activity sessions for the kids. We know things can get hectic for many family, and I noticed that your child missed several of the Saturday morning and Tuesday evening physical activity sessions.

13. What made it hard for your child to attend the physical activity classes?
14. What could our iChoose team have done differently to help your child attend more physical activity classes?
15. Did you stay and observe the PA classes, if so what did you think of them?

|____| 16. How satisfied was [CHILD'S NAME], with the Tuesday and Saturday physical activity sessions?

[USE SATISFACTION HAND CARD]

|____| 17. How satisfied were you, with the Tuesday and Saturday physical activity sessions?

[USE SATISFACTION HAND CARD]

|____| 18. How much do agree or disagree with this statement: Your child participating in Tuesday and Saturday PA sessions helped your family be more active outside the class?

*[USE AGREEMENT
HAND CARD]*

19. Can you please tell me about what you and [CHILD'S NAME] liked and disliked about the physical activity sessions? Is there anything else you haven't already talked to me about?

Probe: Anything else you liked? Anything else you disliked

19a. Like	19b. Dislike

Teach Back Calls

[RECORD FROM PROCESS DATA, DO NOT ASK]

Number of TOTAL Support Calls completed: ___/6

Number of Missed Class Calls completed: _____

Number of Regular Follow-up Calls completed: _____

[SKIP to Question 22, if participant completed ALL 6 calls]

Now I'd like to ask you a few questions about the telephone calls that were a part of our program. For some of our program participants, it was hard to complete the telephone calls. I noticed that you missed some, so I'm curious about a few things.

20. What made it hard for you to complete these calls?

21. What could our iChoose team have done differently to help you complete more calls?

[SKIP to Question 23 if they did NOT do any missed class calls]

22. For some of the classes you missed, we called to update you on the information, strategies, and goals that we talked about. Thinking about these calls only, how much do you agree or disagree with the following statements:

|____| 22a. Overall, I was satisfied with the calls I got after the time(s) I missed class.
[USE AGREEMENT HAND CARD]

|____| 22b. I was satisfied with the length of the calls for the missed class.
[USE AGREEMENT HAND CARD]

|____| 22c. In the future, I think you should keep using the missed class calls as part of the iChoose program.
[USE AGREEMENT HAND CARD]

Now I'm just going to ask you a few questions about the telephone calls you received after each class you attended. Please tell me how much you agree or disagree with each statement.

|____| 23. The iChoose telephone calls helped me learn the class material better.

[USE AGREEMENT HAND CARD]

|___| 24. Some of the questions from the call were hard.

[USE AGREEMENT HAND CARD]

|___| 25. In the future, I think you should keep using the calls as part of the iChoose program.

[USE AGREEMENT HAND CARD]

|___| 26. I was satisfied with the length of the calls.

[USE AGREEMENT HAND CARD]

|___| 27. The calls helped my family improve our eating habits

[USE AGREEMENT HAND CARD]

|___| 28. The calls helped my family be more active.

[USE AGREEMENT

HAND CARD]

|___| 29. I felt comfortable during each call.

[USE AGREEMENT HAND CARD]

|___| 30. Overall, how satisfied were you with the calls?

[USE SATISFACTION HAND CARD]

31. Please tell me about what you liked and disliked about the telephone calls. Is there anything else you haven't already talked to me about?

Probe: Anything else you liked? Anything else you disliked?

31a. Like	31b. Dislike

Workbook

Now let's talk about the materials we gave you. Let's start with the workbook.

|___| 32. How satisfied was [CHILD'S NAME], with the kids workbook?

[USE SATISFACTION HAND CARD]

|___| 33. How satisfied were you with the parent workbook?

[USE SATISFACTION HAND CARD]

|____| 34. Not including during the family class session, how often did you use the workbook **outside** of the family classes?

- [1] Did not use it at all
- [2] Used it 1-2 x total
- [3] Used it about 1 x week
- [4] Used it about 2-3 x week
- [5] Used it 4 or more x per week

[IF DID NOT USE IT AT ALL GO TO QUESTION 39]

For these next two questions, how much do agree or disagree with this statement:

|____| 35. It was easy to find information that you needed in the workbook.

[USE AGREEMENT HAND CARD]

|____| 36. The information in the workbook was helpful for you.

[USE AGREEMENT HAND CARD]

|____| 37. How often did use the goal setting and tracking sheets in the workbook?

- [1] Did not did it at all
- [2] Used it 1-2 x total
- [3] Used it about 1 x week
- [4] Used it about 2-3 x week
- [5] Used it 4 or more x per week

|____| 38. How often do you think that you will use the workbook now that the program has ended?

- [1] Will not use it at all
- [2] Will use it 1-2 x total
- [3] Will use it about 1 x week
- [4] Will use it about 2-3 x week
- [5] Will use it 4 or more x per week

39. Talk to me about what else you liked and didn't like about the workbook. Are there any other thoughts you'd like to provide?

Probe: Anything else you liked? Anything else you disliked?

39a. Like	39b. Dislike

Newsletters

Now I have just a few questions about the newsletters your child received in the mail.

____| 40. How satisfied was [CHILD'S NAME], with the newsletters?

[USE SATISFACTION HAND CARD]

____| 41. How satisfied were you with the newsletters?

[USE SATISFACTION HAND CARD]

____| 42. How often did [CHILD'S NAME] use the newsletters?

- [1] Did not use them at all
- [2] Used them 1-2 x total
- [3] Used them about 1 x week
- [4] Used them about 1 x month
- [5] Used them about 2-3 x month

43. Please tell me about what you and your child liked and disliked about the newsletters.

Probe: Anything else you liked? Anything else you disliked?

43a. Like	43b. Dislike

Summary Questions

Okay great – we’re almost done, just a few more questions.

44. Of all the parts of the program, what helped motivate you the most?

[Do NOT read list, check all that they mention, and probe for an explanation why]

[1] **Family Classes – why?**

[2] **Physical Activity Sessions – why?**

[3] **Telephone Calls – why?**

[4] **iChoose Workbook why?**

[5] **iChoose Newsletters – why?**

|____| [6] **Other** - _____ - **why?**

Now we are trying to get a sense for how interested you may be in the iChoose program in the future, so just tell me how much you agree or disagree with each of these 3 statements:

|____| 45. Now that the program is over, I am interested in **continuing to meet** with the other families?

[USE AGREEMENT HAND CARD]

|____| 46. When our iChoose team offers this program again in the future to other families in your community, I would be interested in helping the iChoose staff **lead** family classes or physical activity sessions for other families?

[USE AGREEMENT HAND CARD]

|____| 47. In the future, I would be interested in meeting with other families and working with the iChoose staff to **create more programs** on health and fitness in my community in the near future?

[USE AGREEMENT HAND CARD]

48. In the future, there may be options to deliver parts of the program on the internet. Talk to me about how you think it might work if this program was delivered on the internet? [Probe for perceived benefits and challenges].

49. As you know, all of the program components were held at the Danville City Auditorium. Was this location convenient to you for the family sessions and kids physical activity session? Why or why not.

Are there other buildings/locations in the area that the iChoose team should consider in the future to help other families participate in the classes? Why that building/location?

50. Is there anything that you would like to tell us about the program that we haven't asked you?

Thanks so much for your time, your answers are extremely valuable and will really going to help us evaluate and improve the program!

[Discuss potential to attend a focus group and schedule a time for the focus group



iChoose Phase 2 Delivery Staff Process Evaluation

We've completed the second wave of the iChoose program and we couldn't have done it without your help! Now we'd like to ask you some questions about the program training and delivery that you participated in. We are really interested in your opinions, including things you liked and things you didn't like. Please be honest and thorough with your feedback, because the information you provide will really help us evaluate the program and figure out how we can make it better for participant families and delivery staff in the future. You'll be asked about your thoughts on several components of the program: the telephone support calls, family classes, and training sessions. Some of these survey questions may not apply to your iChoose experience. Please select the "N/A" option if a question doesn't apply to you (*e.g.*, questions about support calls for those who did not make calls). Thank you very much for your time and work on iChoose and on this survey!

AFFILIATION

1. What organization are you affiliated with?
[1] VDH PDHD
[2] Parks & Recreation
[3] Virginia Tech

SUPPORT CALLS

Thinking about the missed class calls only, how much do you agree or disagree with the following statements:

2. Administering the missed class calls helped me build a personal relationship with the participants.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
3. I felt comfortable during each missed class call.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
4. I was satisfied with the length of the missed class calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]

5. Overall, I was satisfied with administering the missed class calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
6. In the future, my organization should keep using the missed class calls as part of the iChoose program.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
7. In the future, the missed class calls could be delivered by an automated system.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]

Thinking about the support calls for parents who did NOT miss the class, how much do you agree or disagree with the following statements:

8. Administering the follow-up calls helped me build a personal relationship with the participants.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
9. I felt comfortable during each follow-up call.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
10. I was satisfied with the length of the follow-up calls,
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
11. Overall, I was satisfied with administering the follow-up calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
12. In the future, my organization should keep using the follow-up calls as part of the iChoose program.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
13. In the future, the follow-up calls could be delivered by an automated system.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]

Think about ALL support calls for the following questions:

14. We are thinking about using an automated telephone system to complete calls with the families in the future. This system would be monitored by those that are delivering the program sessions for the families.
 - a. What are some advantages of automating the support calls? What do you like about the idea of automating iChoose support calls?
 - b. What are some disadvantages of automating the support calls? What do you dislike about the idea of automating iChoose support calls?

15. Was there any information or exercises in the call scripts that you would suggest we change in the future? If so, please describe.
16. Please describe what you LIKED about delivering the support calls (be as specific as possible).
17. Please describe what you DISLIKED about delivering the support calls (be as specific as possible).

FAMILY CLASSES

18. How satisfied were you with how the family classes were organized?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]
19. How satisfied were you with delivering the nutrition sessions?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]
20. How satisfied were you with the length of the nutrition sessions?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]
21. How satisfied were you with delivering the kids behavioral sessions?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]
22. How satisfied were you with the length of the kids behavioral sessions?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]
23. How satisfied were you with delivering the parents behavioral sessions?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]
24. How satisfied were you with the length of the parents behavioral sessions?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]
25. Was there any information or activities presented in the family classes that you would suggest we change in the future? If so, please describe.
26. Please describe what you LIKED about delivering the family classes (be as specific as possible).
27. Please describe what you DISLIKED about delivering the family classes (be as specific as possible).

TRAINING SESSIONS

Thinking about family class training, how much do you agree or disagree with the following statements:

28. The materials and information provided to me at the trainings helped prepare me for the family classes.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
29. Rehearsing family classes during trainings helped prepare me for the upcoming classes.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
30. It was helpful when we reviewed lessons learned at the end of each Saturday session with each other.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
31. Overall, the trainings on family class delivery were helpful.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]

Thinking about support call training, how much do you agree or disagree with the following statements:

32. The materials and information provided to me at the trainings helped prepare me for the support calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
33. Rehearsing support calls prepared me for the upcoming calls I made with the families.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
34. Rehearsing family classes during trainings helped me prepare for the support calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
35. Writing things down in the call scripts helped me stay on track during the calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
36. Trainings helped me evaluate how I was doing with the support calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
37. Hearing about challenges that other callers experienced made me feel more comfortable with how I was completing the calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]
38. I felt comfortable using Google Docs to track calls.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]

39. E-mail updates about support calls were helpful.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]

40. Overall, the trainings on telephone support were helpful.
[INSERT AGREEMENT SCALE MULTIPLE CHOICE OPTIONS]

Think about the training sessions OVERALL for the following questions:

41. How satisfied were you with the length of the training sessions?
[INSERT SATISFACTION SCALE MULTIPLE CHOICE OPTIONS]

42. If you could change something about the training sessions, what would it be? Please describe.

43. Please describe what you LIKED about the training sessions (be as specific as possible).

44. Please describe what you DISLIKED about the training sessions (be as specific as possible).

OTHER COMMENTS

45. Please share any other feedback you have on the iChoose program delivery and training sessions, including anything that earlier questions have not asked about.

Informed Consent

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants
In Research Projects Involving Human Subjects

Project Title: Developing a Parental Advisory Board (PAB) of the iChoose Program

Principle Investigators

Jamie Zoellner, PhD, RD, Department of Human Nutrition, Foods and Exercise

Paul Estabrooks, PhD, Department of Human Nutrition, Foods and Exercise

Ramine Alexander, Department of Human Nutrition, Foods and Exercise

I. Purpose of this Research

The overall goal of this research is to form a Parent Advisory Board of iChoose parents. This Parent Advisory Board will help develop a maintenance phase for future iChoose families. Also, the parents will provide in-depth viewpoints about their involvement in the Parent Advisory Board. Information collected from these meetings be used for research purposes such as research grant proposals and fellowship applications to continue the financial support of the iChoose program. Information from these meetings will also be published to inform the public on the programing taking place in the Dan River Region.

II. Procedures

You are invited to serve as a member of the iChoose PAB.

The goals of this study will be accomplished through process tracking and audio recording each monthly meeting. Phone interviews and surveys will be completed by each advisory board member.

- ***PAB meetings:*** The PAB meetings will last about 2 hours and will be held about 2 times per month for 6 months. All meetings will be audio-taped, transcribed, and evaluated for dimensions of community capacity and group dynamics (e.g. partnership, leadership, participation, problem assessment, organizational structure, resources, skills, critical reflection, and community power).
- ***Phone interviews:*** You will be asked to provide feedback related to the ability of the PAB in the development of a maintenance phase for future *iChoose* families. The interview will last about 30-60 minutes. The interviews will be audio-taped and transcribed for evaluation.
- ***Surveys:*** You will also be asked to complete surveys related to the ability of the PAB to develop a maintenance phase for future *iChoose* families. This survey will be assessed at regular intervals. There should be 3-4 surveys over the 6 month period with each lasting about 5-10 minutes.

III. Compensation

You will receive \$25.00 for your time involved in attending each meeting. In total there will be about 12 meetings, or about 2 meetings per month over the 6 month period (May to November).

IV. Risks

There are minimal risks for being involved in this study. The survey results will be private and will be evaluated by trained and IRB-certified graduate research assistants and/or community research assistants. At the completion of the research, the survey data will be deleted from the researcher's computer and hard copy surveys shredded and discarded.

V. Benefits

There are no guaranteed benefits for participating in this study. However, by participating in the development of an iChoose maintenance phase you can help make the program better for other families. Along with developing a sustained PAB.

VI. Confidentiality

For all data sources (i.e., meeting audio tapes, interviews, and surveys), a user code number will be assigned to you. This code will take the place of your name on the transcripts and surveys, and will be used for all analyses and reports. Given the relatively small group size, it is possible that your responses may be identifiable when information is shared within the internal PAB. However, you will not be personally identified in any of the reports generated for use or publication beyond the PAB meetings.

Only certified and trained study personnel will have access to information about you obtained for this study. Your responses will be kept in a secure location, including locked filing cabinets and password protected computers, to ensure privacy. All identifiable information about you will be destroyed at the earliest opportunity following the completion of the study. It is possible that the Institutional Review Board (IRB) may view this study's data for auditing purposes. The IRB is responsible for oversight of the protection of human subjects involved in research.

VII. Freedom to Withdraw

Participation in this study is completely voluntary. You are free to stop participating in the study at any time without penalty. You are also free not to answer any questions or to complete any portions of the study without penalty.

VIII. Participant's Responsibilities

I voluntarily agree to participate in this study, including to:

1. Have PAB meetings audio-taped
2. Provide regular feedback related to the capacity of the PAB
3. Complete regular surveys related to the capacity of the PAB

IX. Participant's Permission

I have read the consent form and conditions of this project. I have had all of my questions answered. I hereby acknowledge the above and give my voluntary consent:

_____ Date: _____

Participant signature

Participant Name (Please Print)

Should I have any pertinent questions about this research or its conduct, research participants' rights, and whom to contact in the event of a research related injury to the subject, I may contact:

Jamie Zoellner, Principal Investigator
Associate Professor of Department of Human Nutrition, Foods and Exercise
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1981 Kraft Drive (0913), Blacksburg, VA 24061
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David M. Moore, Chair of Virginia Tech Institutional Review Board
For the Protection of Human Subjects
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Appendix Q- Community Capacity Evaluation Survey for Manuscript 3

Data Collection Instrument
Community Capacity Evaluation Survey

Dan River Region:

iChoose Parent Advisory Team (PAT)

Community Capacity Evaluation Survey

Your Initials: _____

Date Completed: _____

It is estimated that this survey will take about 20 minutes to complete. There are no right or wrong answers. All data will be combined for reporting purposes; you and your answers will not single out or identified. We appreciate your honest feedback.

Please answer each of the following sections and questions based on your experiences with the iChoose-Parent Advisory Team (PAT).

Communication.

How much do people in the iChoose-PAT feel comfortable expressing their point of view?	Not at all	A little	Somewhat	Very Much
How much do members of the iChoose-PAT listen to each other’s points of view, even if they might disagree?	Not at all	A little	Somewhat	Very Much
How much do you feel comfortable about expressing your opinion in iChoose-PAT group meetings?	Not at all	A little	Somewhat	Very Much
How much is your opinion listened to in iChoose-PAT group meetings?	Not at all	A little	Somewhat	Very Much
How much are you willing to listen to others’ points of view in the iChoose-PAT group meetings?	Not at all	A little	Somewhat	Very Much

Problem assessment.

The iChoose-PAT has a clear and shared understanding of the problems we are trying to address.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
The iChoose-PAT has been successful at detecting and defining problems.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
The iChoose-PAT has been successful at setting priorities.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
The iChoose-PAT has been successful at solving problems.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree

Collective efficacy.

How confident are you that the iChoose-PAT can help improve the iChoose program for other families similar to yours?	Not at all Confident	Somewhat Confident	Moderately Confident	Very Confident	Completely Confident
How confident are you that the iChoose-PAT can help develop and implement <u>weight maintenance</u> strategies for iChoose families?	Not at all Confident	Somewhat Confident	Moderately Confident	Very Confident	Completely Confident
How confident are you that the iChoose-PAT can help develop and implement strategies to <u>recruit</u> more families for the iChoose program?	Not at all Confident	Somewhat Confident	Moderately Confident	Very Confident	Completely Confident
How confident are you that the iChoose-PAT can help develop and implement strategies to improve the <u>attendance and retention</u> of families for the iChoose program?	Not at all Confident	Somewhat Confident	Moderately Confident	Very Confident	Completely Confident

Leadership.

There are opportunities for iChoose-PAT members to take leadership roles.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
iChoose-PAT members are willing to take leadership roles.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
The people in iChoose-PAT have good skills for working with other people and organizations.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
The iChoose-PAT leadership facilitates and supports team building.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
iChoose-PAT leadership responsibilities are shared among group members.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree

Participation and influence.

I feel pressured to go along with decisions of the iChoose-PAT group, even though I might not agree.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
My opinions are listened to and considered by other iChoose-PAT group members.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
Certain individuals' opinions get weighed more than they should.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
One person or group dominates the iChoose-PAT meetings.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
Certain individuals talk more at iChoose-PAT meetings than others.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I am bothered that certain individuals talk more at iChoose-PAT meetings than others.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
Certain individuals have more influence over the agenda at iChoose-PAT group meetings than others.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree

Community power.

By working together, people in my community can influence decisions that affect the Dan River Region community.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
People in my community work together to influence decisions on a state or national level that affect the Dan River Region community.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I am satisfied with the amount of influence I have over decisions that affect	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree

the Dan River Region community.					
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Overall satisfaction with iChoose-PAT.

I am satisfied with the general way in which the iChoose-PAT has developed.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I am satisfied with the rate of progress the iChoose-PAT is making in achieving its goals.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I am satisfied with the activities of the iChoose-PAT over the past 4-6 months.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I am satisfied with my knowledge of how the iChoose-PAT resources are allocated.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree

Your influence in your life and community.

I have control over the decisions that affect my life.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
My community has influence over decisions that affect my life.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I am satisfied with the amount of control I have over decisions that affect my life.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I can influence decisions that affect my community.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
By working together, people in my community can influence decisions that affect my life.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
People in my community work together to influence decisions on the state or national level.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree
I am satisfied with the amount of influence I have over decisions that affect my community.	Strongly disagree	Disagree	Neither or Unsure	Agree	Strongly Agree

What aspects of the iChoose-PAT are going well?

What suggestions do you have for improving the iChoose-PAT?

Please provide any additional comments or insights.

THE END--*We appreciate your time!*

MEMORANDUM

DATE: March 21, 2014

TO: Jamie M Zoellner Dr, Karissa Niphore Grier, Jennie L Hill, Ramine Carrice Alexander

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires April 25, 2018)

PROTOCOL TITLE: Planting Seeds of Change

IRB NUMBER: 13-406

Effective March 20, 2014, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the Continuing Review request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 7**
Protocol Approval Date: **April 17, 2014**
Protocol Expiration Date: **April 16, 2015**
Continuing Review Due Date*: **April 2, 2015**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

MEMORANDUM

DATE: September 17, 2015

TO: Jamie M Zoellner Dr, Paul Andrew Estabrooks, Jennie L Hill, Madlyn Irene Frisard, Wen You, Ramine Carrice Alexander, Karissa Niphore Grier, Fabiana Brito Silva, Maggie Berrey, Donna Jean P Brock, et. al.

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires July 29, 2020)

PROTOCOL TITLE: POPS- Phase 2 iChoose Intervention

IRB NUMBER: 13-803

Effective September 16, 2015, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the Continuing Review request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 2,4,5,6,7**
Protocol Approval Date: **September 30, 2015**
Protocol Expiration Date: **September 29, 2016**
Continuing Review Due Date*: **September 15, 2016**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Invent the Future

Date*	OSP Number	Sponsor	Grant Comparison Conducted?
09/17/2013	12282906	National Institutes of Health	Compared on 09/17/2013

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

MEMORANDUM

DATE: April 7, 2016

TO: Jamie M Zoellner Dr, Ramine Carrice Alexander, Paul Andrew Estabrooks, Donna Jean P Brock

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires January 29, 2021)

PROTOCOL TITLE: Developing a Parental Advisory Board of the iChoose Program

IRB NUMBER: 15-089

Effective April 7, 2016, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the Amendment request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 5,6,7**
Protocol Approval Date: **April 16, 2016**
Protocol Expiration Date: **April 15, 2017**
Continuing Review Due Date*: **April 1, 2017**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Invent the Future

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.