

YOUTH CAN! IMPROVE THEIR COMMUNITIES

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ABSTRACT

This study examined the impact of a program with positive youth development combined with nutrition education and youth advocacy, Youth Can! Improve their Communities (n=7). The curriculum for this program was created by combining three previously used curricula, Youth Can!, the Mikva Challenge, and Michigan Model for Health. The eight-week summer program intended to increase nutrition knowledge, community engagement, and self-efficacy, assessed via pre- and post-test surveys. The results indicated that Youth Can! Improve their Communities significantly increased nutrition knowledge ($t = 3.422$, $df = 6$, $p = 0.014$), but not community engagement activities, community engagement beliefs, nor self-efficacy. Since Youth Can! Improve their Communities was a pilot program, the findings will aid in the development of improved programming and evaluation for this population.

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CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

Obesity in the United States

Child and adolescent obesity rates in the United States have increased significantly over the past three decades. In children, rates have more than doubled, and in adolescents, rates have more than quadrupled. The percentage of children considered obese has increased from 11% to 17.5%, and an even higher 14% to 20.5% in adolescents ("Childhood Obesity Facts," 2017). Due to racial and ethnic inequalities in the United States, overweight and obesity rates among African American and Latino children ages 2 to 19 are the highest, 32.5% and 38.9% respectively ("Obesity Rates & Trends Overview," 2017; "Racial and Ethnic Disparities in Obesity," 2012). It is important to curtail the prevalence of obesity in children and adolescents as it can lead to long-term health complications, such as stroke, various types of cancer, heart disease, pre-diabetes, type 2 diabetes, and osteoarthritis ("Childhood Obesity Facts," 2017; Li, Ford, Zhao, & Mokdad, 2009; "National Diabetes Fact Sheet," 2011). Youth who are obese may also be at a higher risk for chronic health conditions, such as cardiovascular disease, osteoarthritis, and sleep apnea, and psycho-social issues such as low self-esteem, and they may be more likely to be obese in adulthood (Benjamin, 2010; Daniels et al., 2005; Dietz, 2004).

Many societal factors, including families, communities, media, and local, state, and federal policies, influence diet- and physical activity-related behaviors, ("Childhood Obesity Facts," 2017) all of which represent factors in various levels of the social-ecological model. The social-ecological model describes how each level may influence diet, physical activity, and health outcomes ("The Social-Ecological Model," 2015). For example, the media may have an influence of various levels of the social-ecological model, especially the individual level. One

way the media can influence childhood obesity is through television viewing or screen time. Researchers have determined that less screen time and exposure to unhealthy marketing may influence decreased obesity rates (Dennison & Edmunds, 2008). Children who meet the recommendations for screen time and physical activity are less likely to be overweight than those that do not, so there should be an effort to increase physical activity and lessen screen time among youth (Janssen et al., 2005; Laurson et al., 2008). Although there is no specific amount of time that youth ages six and older should have to use media, the American Academy of Pediatrics recommends consistent amounts of screen time that allow for adequate time for sleep, physical activity, and other healthy behaviors (“American Academy of Pediatrics [AAP],” 2016). In terms of physical activity, youth should participate in at least one hour of physical activity per day (“Active Children and Adolescents,” 2008). These two factors have been shown as prevention and treatment methods for overweight and obesity in youth on various continents of the world (Janssen et al., 2005; Laurson et al., 2008).

In addition, a healthful diet and adequate amounts of physical activity are known to help children reach and maintain a healthy weight, as well as control other health conditions (“Nutrition, Physical Activity, and Obesity,” 2017). Research suggests that the dietary factors with the strongest associations to child and adolescent obesity are sugar sweetened beverages and saturated fats. More sugar sweetened beverages in the diet have been shown to increase body mass index (BMI) as well as obesity rates, and increased saturated fat intake is generally more prevalent in obese youth compared to those who are not obese (Gillis, Kennedy, Gillis, & Bar-Or, 2002; Ludwig, Peterson, & Gortmaker, 2001).

Positive youth development has been used by several different youth groups to improve health, especially when the focus is on risky behaviors (Interagency Working Group on Youth

Programs, 2016). Positive youth development promotes youth's successful transition into adulthood and their empowerment and engagement in their communities to make a difference (Interagency Working Group on Youth Programs, 2016). Peer leadership also allows for growth in youth, allowing for more leadership skills and improved confidence and self-esteem (Interagency Working Group on Youth Programs, 2016; Ullrich-French & McDonough, 2013). Along with positive youth development and peer leadership, youth advocacy has also improved youth engagement and confidence (Curtin University, 2010; Jenkinson, Naughton, & Benson, 2012). Youth advocacy provides youth opportunities for empowerment, to use their own voices to help others, and to make desired changes in their community (Berg, Coman, & Schensul, 2009; Calhoun, 2014; Glanz et al., 2007; Ramey, 2013; Ribisl et al., 2004). Youth advocacy has been used in several prevention programs, ranging from tobacco use to gun violence (Calhoun, 2014; Glanz et al., 2007; Ribisl et al., 2004). This paper will examine the use of positive youth development, peer leadership, and youth advocacy for their roles in health promotion, especially focusing on obesity prevention.

Positive Youth Development

The Interagency Working Group on Youth Programs is composed of 20 federal agencies and departments, such as the United States Departments of Agriculture and Health and Human Services, which support youth development. According to Interagency Working Group on Youth Programs (2016), positive youth development is composed of positive experiences, relationships, and environments (Interagency Working Group on Youth Programs, 2016). It has been used to engage youth and provide them the skills and knowledge needed to make changes in their families and communities. The concept of positive youth development is used to build upon the strengths of youth and encourage positive and productive behaviors. It may also be helpful in

building leadership skills and improving self-esteem among youth (Interagency Working Group on Youth Programs, 2016). In the past, positive youth development helped to prevent substance abuse, juvenile delinquency, and pregnancy during teenage years. It was a very successful tool; therefore, policy makers, researchers, and other community members realized that positive youth development was a great strategy and continued its use. Positive youth development is a promising approach to help promote healthy behaviors and protective factors, such as family support and positive peer groups, in addition to reducing risky behaviors (Interagency Working Group on Youth Programs, 2016).

In a commentary by Kreipe (2006), in which the author reflected on previous research and initiatives that focused on positive youth development in adolescents and how it affected their health and well-being, Kreipe concluded that this strategy is indeed beneficial (Kreipe, 2006). For example, the author discussed positive youth development approaches that were successfully incorporated into health counseling on high-risk behaviors, smoking cessation efforts, and varying county, state, and national initiatives for healthier environments. Kreipe explained that this concept may foster critical thinking and leadership skills in youth, and it can be used across all age groups and impact populations across all levels, whether individuals or large groups (Kreipe, 2006). This conclusion is important and helpful for public health professionals who work with youth across various levels of the social-ecological model to improve health.

Positive youth development has been shown to be a very successful concept in health-related studies, with long-term impacts on health, confidence, and self-efficacy in youth (Interagency Working Group on Youth Programs, 2016; Richard E. Kreipe, 2006; Schreier, Schonert-Reichl, & Chen, 2013; Ullrich-French & McDonough, 2013). Therefore, the concept of

positive youth development should continue to be researched in the field of nutrition. Although novel, using positive youth development for nutrition education may be one way to decrease childhood obesity rates.

Positive Youth Development for Obesity Prevention

In a study by Ullrich-French and McDonough (2013), the long-term effects of a positive youth development program that focused on physical activity were assessed (Ullrich-French & McDonough, 2013). Participants ($n = 215$) were selected from a larger program evaluation study based on their completion of pre- and post-surveys. The participants in this study were 8 to 13 years old and of various racial and ethnic backgrounds. All participants were considered low socioeconomic status, as all qualified for free or reduced lunch, and over half (57.4%) were overweight or obese according to their BMI. Leader support, social and physical competence, self-worth (global and physical), “attraction to physical activity”, hope, and BMI were measured on various scales. Researchers completed logistic regressions, MANCOVA, and repeated measures MANOVA for data analysis regarding returners versus non-returners and change across time points. The results showed that students “who were more likely to return to the program” had lower BMIs ($\chi^2 (9) = 39.10, p < 0.01$) and higher attendance ($\chi^2 (9) = 39.10, p < 0.01$) and perceived leader support ($\chi^2 (9) = 39.10, p < 0.05$) than those that did not return. Ullrich-French and McDonough (2013) also found that there were differences in psychosocial variables in youth who returned to the program reported than their peers who did not return. For example, there was an increase in global self-worth ($p < 0.05$) and perceptions of hope ($p < 0.05$) in the group that returned to the program. These data were examined by univariate analysis; however, no further statistics were presented. The results show that there may be promising long-term effects for positive youth development programs. However, these results should be taken

with caution as the significant changes may have been due to the sample size. For example, with global self-worth higher responses indicated higher self-worth, and scores only rose from 3.00 to 3.32. The same occurred for perceptions of hope, increasing from 4.52 to 4.79, with higher scores indicating more hope (Ullrich-French & McDonough, 2013).

In California, a statewide survey was used to examine physical activity and associated protective factors among low-income elementary school students (Madsen, Hicks, & Thompson, 2011). Madsen and colleagues (2011) researched Playworks, a national school-based program (n = 13,109) that used positive youth development, to determine if it would increase “physical activity levels, problem-solving skills, meaningful participation, and perception of caring adults”. Playworks served schools with free or reduced school meal rates of at least 50% and engaged communities and families. In this program, physical activity was incorporated into recess, lunch, and the daily school curriculum. Researchers studied the impact of Playworks, using a quasi-experimental time series design. Cumulative exposure was calculated as the primary predictor of the research study, data from the California Healthy Kids Survey was used to examine primary outcomes, and school characteristics were determined based on the number of students eligible for free or reduced meals and race/ethnicity in the school. There were more African American students in the intervention schools (32% versus 24%, respectively); all other school characteristics were similar between both groups. Linear regressions were used to analyze data. Students in intervention schools initially reported lower mean scores on safety and weapons questions than students in control (2.9 ± 0.2 and 1.9 ± 0.1 , respectively, $p < 0.05$). According to Madsen and colleagues, significance was found via *t*-test; however, no further statistics were reported. Participation in Playworks each year was related to higher levels ($p < 0.05$) of physical activity, meaningful school participation, problem-solving skills, and goals/aspirations. No other

statistics were provided beyond p-values. However, again, results must be interpreted carefully with such a large sample size. The researchers concluded that this youth development program might be a vehicle for improving protective factors affecting youth who are at-risk, as well as a way to address obesity and other diseases in youth (Madsen et al., 2011).

The research presented above indicates that positive youth development may have a promising future in improving health among youth. Youth learn to become more engaged and understand more about what can be done to improve their health (Madsen et al., 2011; Schreier et al., 2013; Ullrich-French & McDonough, 2013). Positive youth development is a concept that may be a promising component when creating obesity prevention programs; it allows adults to work with youth to help them understand how to help themselves.

Peer Leadership

Peer leadership involves individuals and/or groups taking action to influence the attitudes and behaviors of their peers (Curtin University, 2010). Components of peer leadership are usually found in peer education programs and are used to develop leadership qualities in individuals. Generally, a peer leader has natural leadership qualities, which may aid in their influence on others. Peer leaders are used to coach a group into making a change and working together respectfully. Their role is to be active and promote a better and more efficient environment (Curtin University, 2010). Peer leadership may be beneficial for youth and their health, including increases in their self-efficacy and self-esteem. However, it is important to ensure a peer leader has previous knowledge or training on the subject and some life experience with the subject in order to be effective (Hildebrand, Lobo, Hallett, Brown, & Maycock, 2012; Turner, 1999).

Ochieng (2003) conducted a study over a two-month period (Ochieng, 2003). Teenagers who were already peer leaders of an HIV/AIDS education program ($n = 15$), ages 15 to 17 years old, were interviewed and asked about how they felt towards peer leadership and how peer leadership affected them. Researchers conducted 60 to 90-minute in-depth interviews, with each of the participants separately, about becoming a peer leader, and how it affected their lives. Principles of Grounded Theory were used for data analyses. Seven categories were determined after transcription and theme development: reasons for being a peer leader, training, experiences of peer leaders, facilitating factors, inhibiting factors, attitudes towards HIV/AIDS, and impact on health-related behavior. Researchers found that the teenagers believed having the opportunity to act as peer leaders allowed them to improve cognitively, affectively, and socially. The peer leaders also determined that they learned necessary information related to HIV/AIDS awareness and practicing safer sex. Peer leadership may be very helpful in an adolescent's life when it comes to health promotion, and it may positively affect one's attitude towards a controversial topic, such as safer sex (Ochieng, 2003).

Jenkinson and colleagues (2012) tested a pilot program, Girls! Lead! Achieve! Mentor! Activate! (GLAMA), at a rural school in Australia, 34 young girls, 15 to 16 years old, were asked to become leaders and mentors to 31 of their peers that were ages 12 to 13 (Jenkinson et al., 2012). All participants were recruited through physical education teachers. The girls attended a pre-leadership training that allowed for role modeling and consisted of five main areas including developing communication skills, developing management skills, developing leadership skills, understanding leadership characteristics, and motivation and behavior modification techniques. Data for the pre-leadership training were collected using questionnaires to determine the effectiveness of the program, and the GLAMA intervention was evaluated using

questionnaires, as well as reports on observations and feedback. Each of the girls reported that the training before leadership was very helpful and allowed them to feel more confident and prepared. The researchers reported that 100% of the GLAMA girls believed that the training prepared them and provided the essential skills necessary to follow through with the intervention. Even after the GLAMA program, when the girls were asked about their readiness to lead peers, 100% of the girls felt prepared and confident in their abilities to help their peers. The results from this pilot project suggests that peer leadership may be a valuable tool that can also be used for future research. The youth in this study became more confident in their abilities as leaders, and felt ready to mentor others. This strategy may be applied in other similar programs (Jenkinson et al., 2012).

Schreir and colleagues (2013) designed a study of students in an urban high school (n = 106) in western Canada to improve cardiovascular risk profiles in adolescents (Schreier et al., 2013). In their design, adolescents from the 10th grade, assigned to the intervention group, volunteered with elementary-aged children for 10 weeks at an afterschool program. The afterschool programs included multiple clubs that covered many topics, such as homework, playing cards, and other games. The adolescents in the intervention group also received a two-hour training, on leadership development, coaching skills, and connection development, that was intended to help volunteers become better leaders as a part of this intervention. Participants' BMI, inflammatory markers (interleukin-6 [IL-6] and C-reactive protein [CRP]), and metabolic measures were used to assess cardiovascular risk. These data were collected to determine whether volunteering would have an impact on BMI, CRP, IL-6, and total cholesterol. The adolescents were also asked to complete psychosocial questionnaires to assess affect, self-esteem, and pro-social personality traits and determine potential explanations for intervention

effects. Post-intervention, the researchers found that the adolescents who volunteered with the elementary-aged students had marginal decreases in levels of CRP, but significantly decreased levels of IL-6, total cholesterol, and BMI. For this study, *t*-tests were used to assess baseline data, and analysis of covariance was used to assess group difference. Linear regressions were also used to determine associations between psychosocial and physiological data. Based on the post-intervention questionnaires, the following findings were found in the intervention group and not the control: lower IL-6 levels were associated with higher empathy scores ($\beta = -0.33$; $p = 0.04$), lower total cholesterol was associated with higher altruism scores ($\beta = -0.44$; $p = 0.004$), and higher CRP levels were associated with higher negative affect ($\beta = 0.46$; $p = 0.003$). The authors concluded that volunteering may assist with improving health, as well as guide adolescents in working in the community and giving back to others (Schreier et al., 2013). These findings showed that positive youth development and encouraging youth to help others may have an indirect impact on health and improve biomarkers that may be associated with chronic diseases.

Based on the research presented, peer leadership has been used for decades and can be beneficial for development of healthy behaviors. Peer leadership can have a strong influence on confidence, self-esteem, and the improvement of health outcomes (Curtin University, 2010; Hildebrand et al., 2012; Jenkinson et al., 2012; Ochieng, 2003; Turner, 1999). Therefore, this concept and its key principles provide a promising strategy when planning nutrition-related health programs for youth, including obesity prevention programs.

Peer Leadership for Obesity Prevention

Uyeda and colleagues (2009) reported on the Los Angeles Unified School District's work with three community advisory boards, including one that was composed of high school students, to determine community needs to address adolescent obesity and create a pilot, school-based intervention (Uyeda, Bogart, Hawes-Dawson, & Schuster, 2009). A needs assessment was completed, and advisory board members found that some of the obesity prevention initiatives had challenges in implementation. They also found that parents, students, and staff did not know of the obesity prevention initiatives; therefore, the community advisory boards designed a peer leadership intervention, Students for Nutrition and eXercise (SNaX), to empower students in middle school to "make healthy food choices and participate in physical activity." The peer leadership component was intended to target norms about healthy eating, school food, and physical activity in the entire school. SNaX had another component to make environmental changes in the school, such as more nutritious food offerings, improved marketing, and more availability of free water at lunch. Youth created the name of the program and materials that were used for the program. Survey data were collected from seventh graders and parents, other outcome measures were cafeteria sales records and student physical fitness records. Uyeda and associates found that the intervention increased healthy foods and fruit purchases in the school cafeteria. Researchers also concluded that it is important to include stakeholders from across the system, for example, teachers, assistant superintendent, as well as students and food service employees, to make positive changes in the school environment. The members of the youth community advisory boards were able to provide relevant information about adolescents, who were the target for the intervention (Uyeda et al., 2009).

Barr-Anderson and colleagues (2012) designed a study to develop and test the Presidential Active Lifestyle Award (PALA) program that included peer leadership and a toolkit to promote physical activity (Barr-Anderson et al., 2012). PALA is a six-week program ($n = 148$) that encourages youth in grades three and up to be physical active for 60 minutes or more per day during the program. Each student received an embroidered badge and certificate signed by the President of the United States upon completion of the program. The authors described the PALA+Peers intervention, and its evaluation findings because the PALA program had difficulty with motivation and support for implementation, since it depended on teachers and volunteers. A quasi-experimental design was conducted at four Midwestern elementary schools with 148 sixth graders. The two intervention schools were selected due to the availability of previous BMI screening assessments. The intervention schools received the PALA+Peers program, and the control schools received the PALA program. At each school, over 80% of students were eligible for free or reduced price meals, and all participants received PALA program materials that were collected each week. The PALA+Peers program development incorporated personal, social, and environmental factors based on the Social Cognitive Theory, and included three main components. The first component was viewing physical activity videos featuring other sixth grade students at the selected schools that served as an additional peer leadership component. The second component was peer- and teacher-led classroom sessions, and the third was healthy eating and physical activity homework activities. Twenty-eight peer leaders were facilitators between the teachers and their peers; each peer leader helped lead 45-minute physical activity sessions each week. Both *t*-tests and chi-square tests were used for data analysis. Researchers reported that the PALA+Peers program significantly increased moderate physical activity from a mean of 2.55 ($SD = 2.55$) to 3.01 ($SD = 2.88$) thirty-minute blocks ($p = 0.02$); students in the

intervention group increased moderate physical activity per day by a mean of 14 minutes, and the control group decreased by a mean of 29 minutes per day. Those in the intervention group completed, on average, more extracurricular physical activities than the control group throughout the program, 6.5 versus 4.5, and watched the videos 1,642 times more than the control group (about 3.1 times per student). Based on fidelity checks, peer leaders were able to effectively deliver classroom physical activity sessions, and both teachers and students were satisfied with the intervention (Barr-Anderson et al., 2012).

Neumark-Sztainer and colleagues (2009) completed a development and feasibility study of an after-school theater program, Ready. Set. ACTION!, in St. Paul, Minnesota. The program provided messages about obesity prevention to diverse, elementary students from low-income homes (n = 96) and their parents (n = 61) (Neumark-Sztainer et al., 2009). Researchers wanted to determine if program participation showed changes in weight-related behaviors and improvements in their homes. Participants were fourth to sixth graders selected from four schools where about 90% were eligible for free or reduced price meals; two schools were in the intervention group, and the other two were in the control group. Ready. Set. ACTION! included three foci: theater and booster sessions and family outreach, which were based on the constructs of the Social Cognitive Theory. Each theater session occurred after school for two hours, Children were given the opportunity to share healthy behavior changes that were made in their lives. Children also learned about physical activity, healthy eating, and positive body images. There was an opportunity for youth to share experiences of healthy eating and physical activity; these responses were then turned into scenes for the students' plays. During booster sessions, children completed various activities, including creating fruit and vegetable advertisements and brainstorming ways to be active. Descriptive statistics, such as frequencies and percentages, were

used to analyze data; no other statistics were reported. Participants also had the opportunity to teach their classmates and families about dance and strength training. The family outreach component included activities that positively reinforced healthy behaviors in the home environment, such as weekly Fun and Fitness packs. Program satisfaction was reported by about 75% of children and 90% of parents, and most children and parents (about 86% and 92%, respectively) would recommend the intervention to others. Parents reported that their children were positively influenced by Ready. Set. ACTION! in terms of attitudes towards and behaviors regarding healthy eating and activity. Children reported making new friends and understanding the importance of healthy behaviors. About 50% reported that the program helped them “a lot” to make changes. Based on survey responses, researchers also found that the children understood the main messages, and parents intended to make changes at home. The results showed that 29% of children who watched the play reported learning “a lot,” and another 59% reported learning “quite a bit” or “some.” In addition, 73% of children who watched the play responded that they intended to make healthy changes, such as consuming more fruits and vegetables. Self-efficacy and physical activity increased significantly. However, discussions on weight occurred more frequently with children in the intervention group, which was unwanted. The researchers concluded that this program may be beneficial, but there should be more educational and environmental components for obesity prevention (Neumark-Sztainer et al., 2009).

Peer leadership has also been shown to have positive impacts among youth in various regions of the United States via various programming (Barr-Anderson et al., 2012; Neumark-Sztainer et al., 2009; Uyeda et al., 2009). Peer leadership helps youth become more familiar with specific topics (Neumark-Sztainer et al., 2009; Ochieng, 2003; Uyeda et al., 2009), leading to more in-depth discussions with their peers. Peer leadership provides youth with the opportunity

to learn, practice, and teach the information that was learned in the provided programs (Barr-Anderson et al., 2012; Neumark-Sztainer et al., 2009; Ochieng, 2003; Uyeda et al., 2009). Youth leadership may be very useful in creating behavioral changes that could aid in obesity prevention.

Positive Youth Development versus Peer Leadership

Positive youth development and peer leadership can both promote positive, healthy behaviors, based on the information provided above. However, one distinguishing factor is that positive youth development has the Five Cs model, which highlights the strengths of youth and allows them to be seen as resources (Bowers et al., 2010). The Five Cs are competence, confidence, connection, character, and caring. Competence is about positive views of cognitive, social, academic, and vocational competence. Confidence refers to self-worth, self-efficacy, and self-regard. Connection is about positive bonds between people and institutions. Character represents respect for rules, both societal and cultural, morality, and integrity. Lastly, caring refers to sympathy and empathy for others. Therefore, the five of these combined with adult guidance compose positive youth development (Bowers et al., 2010). Peer leadership may have similar influences on youth, but all of the Five C's are not necessarily promoted in a peer leadership program.

Youth Advocacy

In Hartford, Connecticut, a program, Youth Action Research for Prevention (YARP), was implemented with the aim to increase individual and collective efficacy, as well as reduce and/or delay the start of drug and sex risk (Berg et al., 2009). YARP served African-Caribbean and Latino high school students ages 14 to 17 years ($n = 114$), teaching them to both conduct and

apply research at multiple levels of community settings, including the individual, group, and community levels. This community activism youth engagement program was intended to induce behavioral change as well. YARP was based on youth participatory action research, where research was conducted in a group to make social change and support group cohesion. Youth used both ecological framework and critical analysis in YARP to guide decision-making, especially focusing on three main purposes: youth self-reflection, intervention implementation, and analysis of advocacy and outcome. Berg and associates used a quasi-experimental design to focus on evaluating the process of YARP, looking at both strengths and challenges. YARP trained youth for four hours per day for seven weeks, where youth were able to select their topics and decide on plans of action to change social norms and promote advocacy. There were three different groups that studied risky teen sex, teen dropouts, and teen hustling; 202 youth served as a comparison group. Berg and colleagues used independent samples *t*-tests and chi-square tests to examine differences in demographics, and MANOVA to determine differences at baseline, intermediate, and long-term outcomes. Researchers found that facilitators were an important part of YARP since they helped youth become engaged. There was a significant increase in community-level efficacy in response to taking action to change norms in the community and promote advocacy in their school and community, and then reflecting on the impact they had with their actions ($p < 0.05$). No other statistics were reported for this finding. In addition, the researchers found that 85% of youth that entered the program with grades of C or less in their classes were able to graduate high school, which was critical to note since the high school's graduation rate was less than 50%. Following in-depth interviews, youth reported higher understanding, engagement, and empowerment after participating in research at the community level. Thirty-day alcohol use, collected using the Social and Health Assessment, was also lower

at final data collection when comparing youth that received the intervention to those that did not. This was assessed through researchers structural equation modeling ($\chi^2 = 11.30$, $p = < 0.001$) Berg and colleagues concluded that both research and action may be needed to influence individual and group outcomes (Berg et al., 2009).

Glanz and associates (2007) evaluated baseline data of a tobacco prevention program in Hawaii, Project SPLASH (Smoking Prevention Launch Among Students in Hawaii) (Glanz et al., 2007). Project SPLASH placed emphasis on student involvement with three unique components: youth advocacy training, virtual tobacco-free classrooms, and a drama program. Youth advocacy training was taught during a five-day period, where students were able to learn about the legislative process, and how to handle controversial topics. The virtual tobacco-free classrooms were provided via the Internet, showing youth the various impacts of tobacco on the environment and one's health. These virtual classrooms allowed youth to learn about smoking prevention through discussions, problem-solving, and social action. The drama program allowed the students to create, rehearse, and perform a play related to anti-smoking. Project SPLASH was studied in an ethnically diverse group of students in a Hawaiian middle school. Students were at 20 urban and rural public schools in the seventh and eighth grades among four islands in Hawaii: Oahu, Hawaii, Maui, and Kauai. The schools in this study were randomized and matched for location, size, and smoking rates. Students were given opportunities to assess their environments, express their ideas, and work with other students and teachers for health promotion. Their involvement was based on the Social Cognitive Theory, Social Action Theory, and Sense of Coherence construct from the Model of Health Behavior. Impacts of the program were measured using self-administered surveys at four different time points: baseline, year one, post-intervention, and two years post-baseline. The researchers used Chi-square analyses and *t*-tests to

compare the intervention and control schools; smoking rates were not statistically different among schools. They also found no significant difference among psychosocial characteristics in intervention and control schools. Control schools reported slightly higher ratings for anti-tobacco environments (3.28 [SD = 0.95] versus 3.21 [SD = 0.97], $p < 0.05$). No further statistics were reported for the following data. Around 50% of all respondents, more from control schools than intervention, participated in an anti-drug or anti-tobacco activities ($p < 0.01$). Intervention schools reported participating in various health promoting activities more than control schools ($p < 0.05$). Smoking behavior also varied by ethnicity; Hawaiians reported the highest rates of smoking (32.2%) compared other ethnicities. The authors concluded that Project SPLASH may be a useful intervention for tobacco prevention based on baseline data (Glanz et al., 2007).

Ribisl and colleagues conducted the North Carolina Youth Empowerment Study (NC YES), a three-year participatory evaluation of tobacco use prevention youth programs (Ribisl et al., 2004). Youth in North Carolina joined local groups, coalitions, and organizations, and participated in statewide activities to help prevent and control tobacco use, even though, North Carolina is one of the top states to grow and manufacture tobacco. This study was designed with three goals: to evaluate these youth programs by creating an advisory board of youth and adults, document certain characteristics of the youth programs, and tracking youth involvement related to creating and implementing 100% tobacco-free policies in schools. For the first goal, the advisory board consisted of eight youth and eight adults who helped with forming research questions, deciding strategies to collect data, and determining ways to interpret results. After participating in research, board members reported, via surveys, that they believed their knowledge, skills, and experience were included throughout the process, and reported learning more about research and evaluation. Ten of the participants also reported that research benefited

both researchers and board members. For the second goal, the researchers for this study created eligibility criteria when studying characteristics of the youth groups; the youth groups were required to have the following: group name, adult leader, goal of tobacco use prevention, existence of three months or more, participation in at least two tobacco-related activities each year, and existing formal or informal youth leaders. Diverse youth groups (n = 65) were interviewed via telephone for the study. Over 50% of the youth groups had written goals and objectives, and 43.1% had a mission statement. Youth groups were mostly active in schools and communities, and several had little or no funding. About 68% of the youth groups were created by adults, but 81.6% of youth groups had rules formed by youth members. Researchers also found that 97% of decision-making was completed mostly by youth or equally shared by youth and adults. Advisory board members found this information useful, so NC YES initiated and maintained a Directory of Youth Programs to facilitate networking. Along with the telephone interviews with the adults, 28 youth group members participated in six different focus groups about policy advocacy. Many youth reported that policy changes were important to affect tobacco use among youth, and they felt comfortable working in their local environments, rather than at the state level due to the monetary influence on tobacco. However, youth reported that adults were not listening, and politics were influencing decision making in their state. For the third goal, NC YES interviewed 40 key informants, who were found through newspaper articles district office calls, and local and state networks, in schools that had already implemented 100% tobacco-free school policies. The interviews included information related to the process and initiators of change, as well as youth and adult roles and barriers/enforcement problems. Responses indicated that youth pushed for policy changes with the involvement of their classmates in several ways, such as advocating at the school board, speaking at school board

meetings, visiting the governor's youth tobacco use prevention summit, and educating fellow students. Of the schools that originally adopted the 100% tobacco-free policies, over 70% had youth involvement and/or initiation, and adults reported that youth support and involvement was critical in policy implementation. However, one school district that did not have success implementing the policy reported that youth involvement was not enough, and that it was potentially dangerous to have youth and other outside organizations engaged in deciding school policies. The authors concluded that youth involvement has been growing, but the impact has been modest, which may be due to the novelty of the youth groups and time needed to make policy changes. They also noted that training is important for youth policy advocacy so that youth are able to develop skills and strategies related to policy change, and adult response was critical for success (Ribisl et al., 2004).

Calhoun (2014) discussed a youth advocacy project in Oakland, California, Youth ALIVE!, which was created to help reduce gun violence among youth (Calhoun, 2014). The conversation of stopping youth gun violence began without youth participation. However, Oakland youth wanted to join the conversation, so high school students began by gathering data on gun violence that are generally used to educate the community and create local policies. These data sparked their interest and lead to Youth ALIVE!'s initial efforts. Organizations in the community helped by providing "a program model, advocacy training, presentation skills, funding, and other technical assistance." Therefore, youth were able to use their own personal experiences in combination with collected data to provide more information to their communities, and even nationwide. Youth were also able to identify factors in their neighborhoods that subjected them to gun violence, important for program strategies. Youth met after school to develop their program, which included guidelines for membership, training needs,

and presentation goals. The curriculum that youth developed and presented to their peers allowed participants to understand violence, its causes and impacts, as well as ways to reduce violence. Several of the participants lived in low-income households, were not doing well in school, and lived in high crime neighborhoods; the same participants understood that prevention may be the best way to create safer environments for youth. Youth had goals to help their peers, as well as make policy changes surrounding gun violence, including changing the gun supply markets. They also had several conversations with media sources to discuss the placement of gun ads in the newspaper, and were eventually successful in changing policy. The policy change stated that only sporting rifles and hunting guns would be allowed in newspaper advertisement. Participants also helped ban residential gun dealers in Oakland, which reduced the number of dealers from 114 to 4. Based on anecdotal information, after participating in this youth advocacy project, youth reported finding a positive role for themselves and became positive role models for others. Youth ALIVE! also gave youth responsibilities, supervision, and a stipend that could help support their families and remove them from negativity in their environment. Calhoun also noted that Youth ALIVE! relied heavily on partnership in several disciplines in the community, ranging from hospitals to legislature. Although there were some challenges (staffing, impatience, trust, and data collection), Youth ALIVE! proved to be a very successful youth advocacy project (Calhoun, 2014).

Ramey (2013) described youth's role in a movement to advocate for publically funded education in Pittsburgh, Pennsylvania (Ramey, 2013). Yinzeration, a public education policy blog serving as an online platform for this advocacy, engaged and taught youth about advocacy so that children were not just used as props to pull emotions from policymakers. Yinzeration allowed youth to advocate for their own education, including the development of "WriteNow!",

which was an event to help empower and engage youth in public education. Youth made t-shirts, video messages, and wrote over 200 letters to gain the attention of their legislators. Yinzeration engaged youth from kindergarten to high school in various ways, and their efforts were rewarded. Some students were able to meet with legislators, and others were able to revive a library in their local community. Ramey concluded that youth advocacy is needed from students that are old enough to access and utilize social media as a platform, and students that are younger and do not have the ability to use social media can discuss their lives and how the environment outside of home affects them. Ramey also noted that it is important to remember that youth advocacy is more than just wearing t-shirts and holding signs (Ramey, 2013).

Youth Advocacy for Obesity Prevention

Millstein and Sallis discussed rationale for using youth advocacy to influence environmental changes related nutrition and physical activity, possibly affecting youth well-being as well. They also proposed a model that may be used for youth advocacy and obesity prevention to guide development, implementation, evaluation, and dissemination of youth's efforts. The model includes four inputs and outcomes with the following headings: "individual advocate, social environment, built environment, and policy". Although headings are the same for the inputs and outcomes, the points underneath each heading change based on education, skills development, behaviors, and broad engagement. The model is intended to explain multi-level interaction and overlap, and can be seen in Figure 1. The article also outlined challenges for advocacy to prevent obesity. However, the authors mentioned that youth advocacy for obesity prevention may be very useful in the future, and especially helpful for environmental changes as mentioned previously (Millstein & Sallis, 2011).

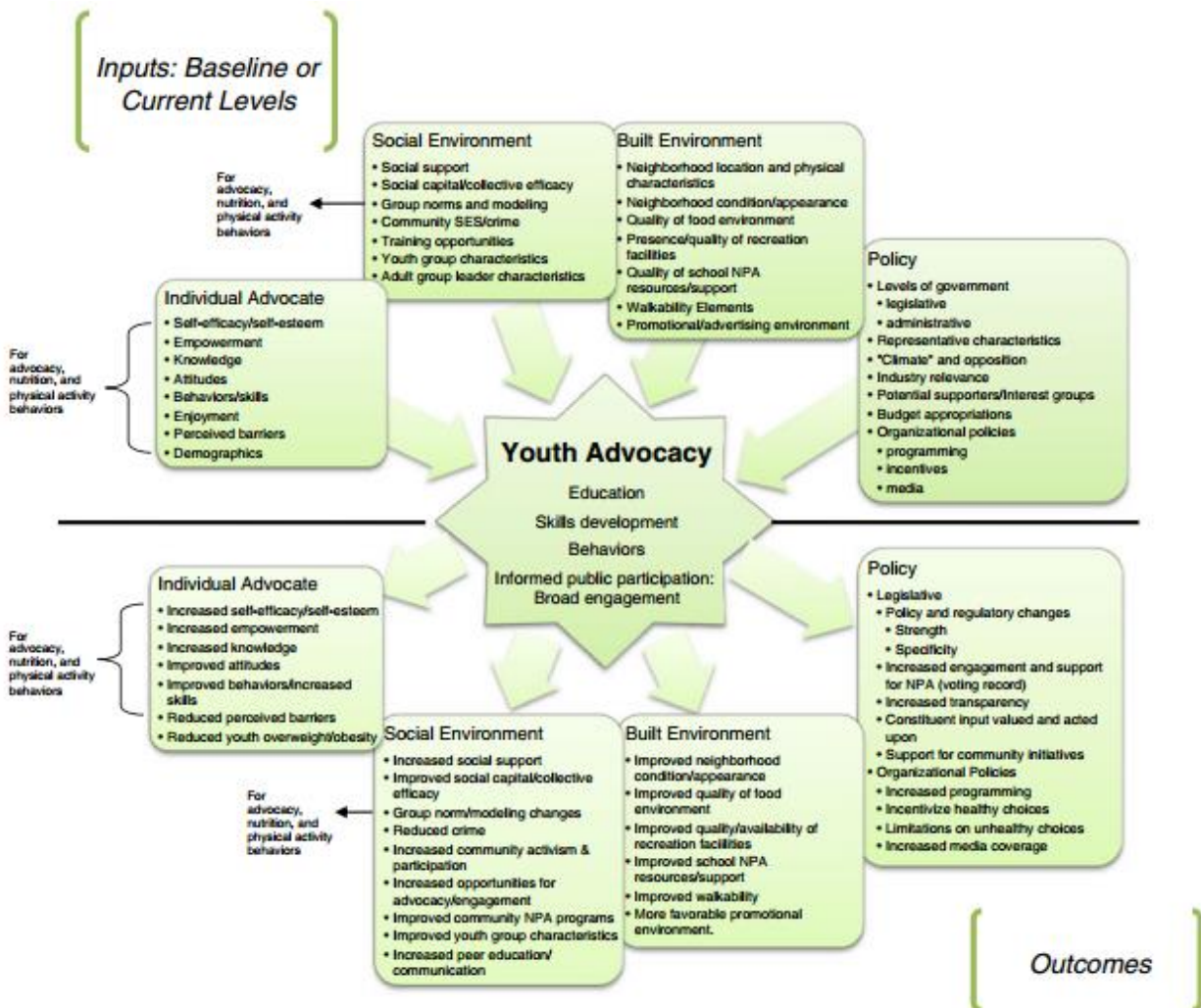


Figure 1 Millstein and Sallis Model of Youth Advocacy for Obesity Prevention

Linton and associates (2014) conducted a study that was completed in San Diego County to evaluate a youth advocacy project based on their processes and success in advocacy and decision-making (Linton, Edwards, Woodruff, Millstein, & Moder, 2014). The program that was evaluated was Youth Engagement and Action for Health! (YEAH!); this was designed to improve neighborhoods, by creating healthier environments for physical activity and eating. YEAH! allows youth to become engaged in the community, along with adult mentors, by completing community health assessments and creating a plan for implementation based on the prioritized issue to present to decision-makers in San Diego County. The evaluation of this program was completed by using surveys that collected both qualitative and quantitative data. Interviews were conducted with decision makers and presented to by YEAH! groups. In addition, surveys were given to both youth and adult leaders pre- and post-project completion. YEAH! surveys for youth assessed changes in behavior and attitude, self-efficacy, perceptions of control, and readiness to change. Adult leader surveys assessed group structure and dynamics, their characteristics, technical assistance, process information, and barriers to success. Decision makers were also evaluated; interviews were used to assess their perceptions and interactions with the youth. About 120 youth participants and 50 group leaders completed surveys. The researchers, Linton and colleagues, found that YEAH! was held in three different settings, high schools, middle schools, and community centers for about nine sessions during the 10-week period. They also found that 73% of the groups that began a project were able to complete it. The groups assessed various environments, including parks, schools, playgrounds, and outdoor advertising, and all were able to meet with decision-makers in the community. After advocacy efforts, 55% reported change, and 20% reported pending changes, including salad bars in the school, more lighting at the community center, and female-only swim time so that Muslim

women were able to participate in swim time. Researchers determined that the YEAH! program provided an opportunity to train future advocates and health professionals (Linton et al., 2014).

In South Omaha, Nebraska, a community readiness model was used to develop a pilot program, SaludableOmaha, in an underserved Latino community (Frerichs et al., 2012). The community readiness model has six dimensions: “community efforts, knowledge of community efforts, the community’s knowledge of issue, community climate, leadership support, and resource availability”. The program was created to change individual and community norms about obesity prevention through youth advocacy. The pilot program intended for youth to advocate for healthier community environments. Researchers assessed community readiness to address childhood obesity by using 20- to 45-minute interviews of key informants. The interviews began with a description of the project, and then continued to ask the standard community readiness model interview questions. Ten organizations representing schools, medical professions, social service, and recreational facilities, and eight parents were chosen as key informants. The key informants were chosen based on their relevance and influence on childhood obesity. Community readiness was also used to guide program development for youth. SaludableOmaha participants (n = 14) were high school students selected by faculty members to create a team with a range of perspectives and skills. Participants were trained via training sessions, workshops, and activities. The workshops for youth provided education on obesity, nutrition, physical activity, leadership, teamwork, and communication. After trainings, youth created and launched their brand, a framework with imagery regarding healthy lifestyles for the community, and then established youth advocacy in South Omaha, beginning in 2012. There are nine stages in the community readiness model, ranging from no awareness (1) to high level of community ownership (9). Key informant interviews were needed to determine a community’s

readiness; the interviews were scored on anchored rating scales. Researchers found that South Omaha was at a low readiness stage of three, indicating vague awareness, and parents scored at an even lower stage, indicating denial and resistance. However, the researchers mentioned that youth advocacy may be an appropriate measure to bring the community's attention to childhood obesity and health-promoting environments; youth advocacy may help improve community readiness to change (Frerichs et al., 2012).

The Food Empowerment Education and Sustainability Team (FEEST) began in 2008 and used an egalitarian youth-adult relationship and youth-driven programming in two neighborhoods of southwest Seattle, Washington (Charbonneau, Cheadle, Orbe, Frey, & Gaolach, 2014). FEEST was a part of the King City Food and Fitness Initiative that worked to facilitate collaborative and diverse leadership for equitable access to resources and choices intended to promote health. The King City Food and Fitness Initiative worked with the two neighborhoods to facilitate policy and systems changes for a healthier food environment due to the greater level of poverty and the diversity of the population. FEEST allowed youth to come together and prepare, share, and learn about healthy foods and how they are grown, providing youth with opportunities to become engaged in food resources and the built environment. Interns of FEEST promoted the weekly meetings to classmates, friends, and community members; teachers and the staff at the local YMCA also helped promote FEEST. During the weekly meetings, 15 youth helped prepare meals and others participated in activities focused on their own and the community's health and healthy eating. FEEST interns also led community potlucks, where community discussions occurred and decisions made. Youth interns worked on food systems projects that they selected; these projects were shared with the community, and allowed for growth in leadership skills and knowledge. Pre- and post-surveys were distributed

annually and focused on the impact of FEEST on youth and their communities, including self-esteem, awareness of food, connection to community, and youth perception on their influence, engagement, voice, and participation. In one cohort of FEEST youth, pre- and post-surveys indicated an improvement in each question from baseline to follow-up. There was no statistical analysis of the data, but authors noted that it appeared self-efficacy and improving the community had the greatest improvements. Several FEEST participants expressed their appreciation for gardening and the changes they made in their diets because of FEEST; one participant even reported weight loss related to FEEST. One FEEST intern began her own non-profit organization, Start With a Garden, after participation in the program, to encourage gardening in the community FEEST provided several opportunities for growth among youth and their communities. (Charbonneau et al., 2014).

Youth advocacy has shown to make notable changes in communities, especially low-income communities (Calhoun, 2014; Frerichs et al., 2012; Glanz et al., 2007). Youth who participated in these programs became engaged and ready to act to improve the health of themselves, their peers, and others in the community (Berg et al., 2009; Calhoun, 2014; Charbonneau et al., 2014; Linton et al., 2014; Millstein & Sallis, 2011; Ramey, 2013; Ribisl et al., 2004). Although adult support seemed to be critical for success (Calhoun, 2014; Charbonneau et al., 2014; Frerichs et al., 2012; Linton et al., 2014; Ramey, 2013; Ribisl et al., 2004), allowing youth to do the work on their own and present to others appeared to be very beneficial. Research suggests that youth advocacy programs have many beneficial outcomes in health-related programs, especially those with health-promoting behaviors that may help reduce obesity rates (Charbonneau et al., 2014; Linton et al., 2014).

Conclusion

The research studies presented in this literature review show various positive results from programs that use positive youth development, peer leadership, or youth advocacy. However, more research is needed that involves a combination of these three areas. A combination of positive youth development, peer leadership, and youth advocacy may lead to growth in numerous ways. Combining these areas with obesity prevention may also help reduce obesity among adolescents as well, since several programs with these components have been successful thus far. Future research should also focus on certain sub-populations that may be more at risk, as well as in different geographic areas of the United States.

Study Objectives

This study aims to explore the impacts of Youth Can! Improve their Communities on youth in Knoxville, Tennessee. The objectives of this study are to determine if there are changes in youth's nutrition knowledge, community engagement, and self-efficacy after participating in Youth Can! Improve their Communities.

Research Question

The research question for this study is: Does participation in a nutrition education and youth advocacy program, with positive youth development and peer leadership components, change participants' knowledge of nutrition, community engagement, and self-efficacy?

CHAPTER 2: YOUTH CAN! IMPROVE THEIR COMMUNITIES

Introduction

Overweight and obesity affected almost one-third of children ages 10 to 17 in the United States during 2016 ("Study of Children Ages 10 to 17," 2016). Tennessee, specifically, had the highest overweight and obesity rate in this age group at 37.7%, compared to the national average of 31.2% ("Study of Children Ages 10 to 17," 2016). Obesity especially affects individuals that are of racial and ethnic minorities ("Obesity Rates & Trends Overview," 2017). In 2012, the overweight and obesity rates for children ages 2 to 19 of Black and Latino descent, 32.5% and 38.9% respectively, were higher than their White counterparts at 28.5% ("Racial and Ethnic Disparities in Obesity," 2012). There are several negative consequences associated with obesity. Children who are obese may be more likely to have health complications such as cardiovascular disease and its antecedent risk factors, hyperlipidemia, high blood pressure, impaired glucose metabolism, and insulin resistance. Other health problems associated with childhood obesity are asthma, type 2 diabetes, sleep apnea, osteoarthritis, non-alcoholic hepatic steatosis, cholelithiasis, and gastroesophageal reflux ("Childhood Obesity Causes & Consequences," 2016). Children with obesity are more likely to suffer from psychological and social problems, low self-esteem, lower quality of life, and obesity in adulthood along with more severe comorbid disease risk factors ("Childhood Obesity Causes & Consequences," 2016). Overall, obesity is affecting many children in the United States, especially Black and Latino youth, potentially leading to several health complications that may persist throughout their childhood and adulthood ("Childhood Obesity Causes & Consequences," 2016; "Obesity Rates & Trends Overview," 2017; "Racial and Ethnic Disparities in Obesity," 2012)

According to the Centers for Disease Control and Prevention, strategies to prevent obesity include state and local programs, community efforts, and healthy living at the individual level ("Strategies to Prevent Obesity," 2015). All of these strategies are necessary since addressing obesity is complex and several simultaneous approaches are needed to reduce obesity rates ("Strategies to Prevent Obesity," 2015). Community members and professionals must collaborate to create healthier environments to aid in the reduction of obesity ("Strategies to Prevent Obesity," 2015). For example, state and local programs may be used as resources for evidence-based practices at all levels to prevent obesity, and community efforts should be supportive of healthy eating and active living. All of which may be incorporated into environments such as childcare, hospitals, youth centers, schools and/or the individual level, at home. ("Strategies to Prevent Obesity," 2015).

In conjunction with nutrition and/or health education, positive youth development, peer leadership, and youth advocacy training have been used successfully as tools for obesity prevention (Barr-Anderson et al., 2012; Charbonneau et al., 2014; Frerichs et al., 2012; Linton et al., 2014; Madsen et al., 2011; Millstein & Sallis, 2011; Neumark-Sztainer et al., 2009; Ullrich-French & McDonough, 2013; Uyeda et al., 2009). Positive youth development is an approach that focuses on the competence, confidence, connection, character, and care of youth (Bowers et al., 2010). Peer leadership is an approach in which youth practice and teach information, previously learned, to their peers (Barr-Anderson et al., 2012; Neumark-Sztainer et al., 2009; Ochieng, 2003; Uyeda et al., 2009). Finally, youth advocacy focuses on giving youth the ability to voice their opinions and work with community partners to better their communities (Berg, Coman, Schensul, 2009; Calhoun, 2014; Charbonneau, 2014; Linton, Edwards, Woodruff, Millstein, Moder, 2014; Ramey, 2013; Ribisl et al., 2004).

Each of these concepts has been used to empower and educate youth to improve themselves and others around them (Barr-Anderson et al., 2012; Charbonneau et al., 2014; Linton et al., 2014; Millstein & Sallis, 2011; Neumark-Sztainer et al., 2009; Ochieng, 2003; Ramey, 2013; Uyeda et al., 2009). Positive youth development and youth advocacy have been used for prevention methods in several instances, ranging from tobacco to obesity prevention (Calhoun, 2014; Glanz et al., 2007; Interagency Working Group on Youth Programs, 2016; Madsen et al., 2011; Ribisl et al., 2004; Schreier et al., 2013; Ullrich-French & McDonough, 2013). Research has shown that these three concepts have had positive impacts on youth in several different geographic regions in the United States, as well as with varying races and ethnicities. (Barr-Anderson et al., 2012; Charbonneau et al., 2014; Frerichs et al., 2012; Glanz et al., 2007; Linton et al., 2014; Madsen et al., 2011; Neumark-Sztainer et al., 2009; Ramey, 2013; Uyeda et al., 2009). Research suggests that with the use of these approaches, youth gain knowledge and a better understanding of topics, as well as confidence and perceived ability to change their surroundings (Curtin University, 2010; Hildebrand et al., 2012; Jenkinson et al., 2012; Ochieng, 2003; Turner, 1999). Therefore, positive youth development, peer leadership, and youth advocacy were all used as the basis of the Youth Can! Improve their Communities program.

Youth Can! Improve their Communities was an 8-week pilot program held during a summer camp for middle-school aged youth. The intention of the program was to teach youth about nutrition and advocacy in the community by using Youth Can! curriculum and components of the Mikva Challenge and Michigan Model for Health (George & Sellers, 2016; Jones, Spence, Hardin, Miller, & Schoch, 2011; Mikva Challenge, 2016; "Project Soapbox," 2017). These three curricula were previously used with youth (George & Sellers, 2016; Jones et al., 2011; "Project

Soapbox," 2017), and were combined into a pilot program to be offered in the summer months to primarily Black or African American youth in a summer camp setting. The goal of the program was to improve nutrition knowledge, community engagement, and self-efficacy among participants. The objective of this research study was to conduct a pilot test of Youth Can! Improve their Communities.

The Youth Can! curriculum included five overarching units: Team Building, Taking Pride, Healthy Eating, Research for Change, and Communicating with my Community (Jones et al., 2011). This curriculum contained lesson plans that encouraged teamwork and team building, as well as the identification of and communication with leaders in the community. The curriculum also aimed to help youth develop pride in self, as well as their local community by practicing community assessment and becoming advocates for change in their community. The Youth Can! curriculum aimed to educate youth on healthy eating and teach them about different marketing techniques of various foods, particularly “junk food.” The curriculum was used to help youth understand how to assess their community and become advocates to make changes. Youth Can! was piloted with two intervention schools and three control schools in a quasi-experimental study (n=104). After implementation of the curriculum, Jones and colleagues determined that Youth Can! offered promising strategies that may lead to other important interventions with youth, adults, and community members (Jones et al., 2011). This curriculum served as the basis for Youth Can! Improve their Communities.

Project Soapbox, based on the Mikva Challenge, was used for this intervention and was designed to empower youth of all ages and “give them a voice”. The Mikva Challenge encouraged youth to become active in their communities and to learn and become more informed about their neighborhoods and communities surrounding them. The Mikva Challenge also

involved youth in decision-making to improve their communities and futures (Mikva Challenge, 2016). Project Soapbox is generally used to guide youth as they prepare for a public speaking competition that is facilitated by the Mikva Challenge (“Project Soapbox,” 2017). Project Soapbox allows youth to learn how to effectively speak about issues that are impacting themselves and their communities. (“Project Soapbox,” 2017) Lessons from Project Soapbox allowed youth in Youth Can! Improve their Communities to practice public speaking skills by delivering messages about what was learned throughout the program to their community members, adult leaders, and their peers. This process prepared the youth for future advocating and persuasion of leaders in their community (“Project Soapbox,” 2017).

A module entitled, *A Winning Team: Healthy Eating and Physical Activity*, from the Michigan Model for Health was incorporated into the original Youth Can! curriculum and used to tailor the Healthy Eating unit to older youth for Youth Can! Improve their Communities. There were 10 different lessons, focusing on nutrition and physical activity in this module, intended for middle-school aged children (George & Sellers, 2016). Youth Can! Improve their Communities curriculum only utilized the information related to nutrition to add to the Healthy Eating unit of the Youth Can! curriculum.

Methodology

Youth Can! Improve their Communities was a pilot, quasi-experimental study that used a one-group, pretest-posttest design (Gliner, Morgan, & Leech, 2009), and occurred in conjunction with the Summer Kids in Play (SKIP) program of the Young Women’s Christian Association (YWCA). SKIP was held during the summer of 2017 in Knoxville, Tennessee. The YWCA’s SKIP program was conducted from June 1 to July 31, 2017 over eight weeks. This program was

marketed to families as a safe and affordable summer camp for children ages 5 to 14 years. SKIP allowed children to engage in various activities, such as reading challenges, cooking, and this Youth Can! Improve their Communities program. The summer camp was provided at low cost to families to foster cultural and social development and prepare students for their next grade level ("Summer Kids in Play," 2016).

Lessons from Youth Can!, Project Soapbox, and the Michigan Model for Health curricula were incorporated into each lesson plan to pilot Youth Can! Improve their Communities. Youth Can! Improve their Communities lesson plans included didactic learning, such as nutrition education and MyPlate, and more engaging experiences, such as communicating with and advocating to leaders in their community. The lessons allowed youth to learn more about choosing foods for a healthier diet, as well as how to communicate with leaders and peers to voice their opinions. More information regarding lesson plans used in Youth Can! Improve their Communities can be seen in Appendix A.

Convenience sampling was used to recruit individuals, who were either in or rising to middle school during the 2017-2018 school year. The research team worked with the director of the YWCA Phyllis Wheatley Center to recruit youth for the intervention. The Principal Investigator attended the parent meeting to inform youth and parents of Youth Can! Improve their Communities, and the director of the YWCA enrolled all eligible youth (n=18) in the SKIP program to attend Youth Can! Improve their Communities. Although all 18 youth were able to participate in the Youth Can! Improve their Communities program, only 7 youth participated in the study as research participants by responding to the pretest and posttest, provided written child assent, informed parental consent, and were able to communicate in English. All data were collected electronically using Qualtrics Research Core (Qualtrics, Inc.); participants (n=7) used

mini iPads to respond to survey questions for both pretest and posttest. Human subject research was approved by the Institutional Review Board at the University of Tennessee, Knoxville prior to data collection.

Other youth (n=8) who communicated in English and were of appropriate age were able to attend Youth Can! Improve their Communities sessions, but did not participate in the pre- and post-assessments. In addition, older, high-school-aged youth (n=3) attended lessons as well. The older youth acted as peer leaders through their participation in Youth Can! Improve their Communities and demonstrated positive behaviors that youth mimicked when presenting a speech to peers at the end of the program. However, these leaders did not complete pre- and post-surveys. With these youth included, there was a maximum of 18 participants at each session.

Youth Can! Improve their Communities lessons were delivered by two trained research assistants in the Department of Nutrition. This program occurred twice per week, with one hour per lesson at the SKIP program from June 1 to July 31, 2017. Therefore, maximum attendance was eight weeks or 16 hours. There was not enough data collected to report dosage. The research assistants asked each participant to sign in each time they participated in Youth Can! Improve their Communities to keep track of attendance.

Measures

Nutrition knowledge.

Nutrition knowledge was ascertained from youth using questions from *A Winning Team: Healthy Eating and Physical Activity Module of the Michigan Model for Health*. This module has been used in other interventions assessing nutrition knowledge among middle school-aged

children (Fahlman, Dake, McCaughtry, & Martin, 2008; McCaughtry, Fahlman, Martin, & Shen, 2011). The survey questions used included six multiple-choice questions about serving sizes, food groups, and healthy options (George & Sellers, 2016). Each correct answer received “1,” and all incorrect answers received a “0,” allowing for a summative score that ranged from 0 to 6 for the nutrition knowledge section of the survey. An increase in mean nutrition knowledge scores indicated increased knowledge.

Community engagement.

Community engagement was measured using 11 questions from the *Community-Based Activism* survey and the *Community Activism Student Survey*. The *Community-Based Activism* survey measured the frequency of youth’s involvement in their community. This survey asked questions about how often youth participated in certain activities, by allowing youth to respond with the following options: “never”, “rarely”, “sometimes”, “often”, and “always,” (Price, Williams, Simpson, Jastrzab, & Markovitz, 2011). The *Community Activism Student Survey* came from the Mikva Challenge. A portion of this survey assessed youth about their likelihood to participate in activities to make a difference in their community (Price et al., 2011). Available responses include “Never”, “Rarely”, “Sometimes”, “Often”, and “Always” or “Strongly Agree”, “Agree”, “Unsure”, “Disagree”, and “Strongly Disagree”. Responses were scored from 1 (“Never” or “Strongly Disagree”) to 5 (“Always” or “Strongly Agree”).

Because the questions were derived from two different surveys, community engagement questions were measured as two categories: community engagement activities (6 items) and community engagement beliefs (4 items). Two of the community engagement activities questions were as follows: “Worked with other people in your neighborhood to fix something,”

and “Attended any club or organization meeting.” An example of the community engagement beliefs questions is: “I believe I can make a difference in my community.”

Self-efficacy.

Self-efficacy was measured using the *Community Activism Student Survey*. Twelve questions (Appendix A) assessed youth’s perceived ability to address problems in their community, including assessment, planning, research, and distribution of findings (C. Price et al., 2011). Evaluation of self-efficacy was also based on youth subscales from Millstein and colleagues, which included statements about self-efficacy regarding participation in health and advocacy behaviors (Millstein, Woodruff, Linton, Edwards, & Sallis, 2016). Questions from both measures were combined to one scale. Available responses were listed as: “I Definitely Can’t”, “I Probably Can’t”, “Unsure”, “I Probably Can”, and “I Definitely Can’t”. This section was scored as follows: 1 (“I Definitely Can’t”) to 5 (“I Definitely Can”); therefore, a higher mean score indicated increased self-efficacy.

Analysis

Reliability testing was conducted to determine the reliability or consistency of each scale used in Youth Can! Improve their Communities. Descriptive statistics were calculated for demographics, nutrition knowledge, community engagement, and self-efficacy. Paired samples *t*-tests were used to compare pretest and posttest scores for each scale, and determine statistical significance. Only data from participants who answered both pretest and posttest (n=7) were analyzed to assess differences between pre- and posttest scores. There was negligible missing data; therefore, the only participants removed from analysis were those without matching pretest and posttest data.

Results

Demographics

As seen in Table 1, most participants reported their race as Black or African American (71%). Over half of the participants reported their ethnicity as Not Hispanic (57%). The mean age for Youth Can! Improve their Communities was approximately 10 years old. More than half of the participants were female (57%). Each participant received two \$5 gift cards, totaling \$10 dollars upon completion of the program.

Reliability Testing

During analysis, one question was discarded to improve reliability in the community engagement beliefs questions, which originally had a Cronbach's Alpha score of -0.342. This question was negatively worded, and all others were positively worded, which may have contributed to the initial low Cronbach's Alpha score. After removal, Cronbach's alpha for community engagement beliefs was 0.660. Cronbach's alpha for community engagement beliefs was 0.661, and 0.831 for self-efficacy.

Measures

As seen in Table 2, participants' nutrition knowledge significantly increased from pre- to post-test ($t = 3.422$, $df = 6$, $p = 0.014$). There were no significant differences between pre- to post-test for community engagement activities ($t = -0.081$, $df = 6$, $p = 0.938$), community engagement beliefs ($t = 0.395$, $df = 6$, $p = 0.706$), and self-efficacy ($t = -0.142$, $df = 6$, $p = 0.891$).

Table 1 Demographics of Youth Can! Improve their Communities Participants, Summer 2017

Demographics (n=7)	
Characteristic	Percent
Age (in years)*	
9	29%
10	43%
12	29%
Gender	
Female	57%
Male	43%
Race	
Black or African American	71%
White	29%
Ethnicity	
Hispanic	14%
Not Hispanic	57%
Prefer not to answer	29%
*Mean Age (in years)	10.29 +/-1.25

Table 2 Paired Samples t-Test for Youth Can! Improve their Communities, Summer 2017

Paired Samples t-Test (n=7)					
Scales	Pretest Mean	Posttest Mean	Std. Deviation	t	Sig.
Nutrition Knowledge	1.143	3.714	1.988	3.422	0.014
Community Engagement Activities	2.357	2.333	0.778	-0.081	0.938
Community Engagement Beliefs	3.804	3.875	0.477	0.395	0.706
Self-Efficacy	3.369	3.321	0.884	-0.142	0.891

Discussion

Youth Can! Improve their Communities did significantly nutrition among youth. This increase nutrition knowledge may have been due to participation in Youth Can! Improve their Communities, and if so, would be consistent with other studies that used the nutrition curriculum from the Michigan Model for Health. One study highlighted the use of this curriculum, stating that it may be useful for introducing and expanding nutrition education (Hammerschmidt, Tackett, Golzynski, & Golzynski, 2011). Another study using the Michigan Model for Health curriculum was implemented with a much larger sample size of middle school students in a metropolitan setting (n=783), and led to a significant increase in nutrition knowledge. Therefore, the nutrition education in Youth Can! Improve their Communities may be helpful to increase nutrition knowledge among youth similar to the population in this survey.

Fahlman and colleagues (2008) also suggested that this curriculum may promote positive dietary behavior changes for this age group (Fahlman et al, 2008). In a study that followed over 1,900 fourth and fifth graders assessing pre- and post-changes in knowledge, skills, and behaviors of nutrition, physical fitness, and safety, researchers found an increase in nutrition knowledge. Fahlman and colleagues (2008) also found that the youth in the intervention group were also more likely to perform healthy behaviors, such as eating more fruits and vegetables and less junk food, and were more confident or their ability to consume a healthy diet (Fahlman et al, 2008). Upon evaluation of the curriculum for the Michigan Model for Health, O'Neill and colleagues determined this curriculum is beneficial for positively impacting nutrition knowledge, attitudes, and behaviors in this age group (O'Neill, Clark, & Jones, 2016). Therefore, the nutrition education in Youth Can! Improve their Communities may be helpful to increase nutrition knowledge among youth similar to the population in this survey. Although some studies

showed changes in behavior (Fahlman et al., 2008 & O'Neill et al., 2016), behavior change was not measured for Youth Can Improve their Communities.

Youth Can! Improve their Communities did not significantly increase community engagement activities, community engagement beliefs, or self-efficacy as expected. The community engagement activities scale may not have been reliable since most of the activities on this scale could not be completed by middle school-aged youth without an adult, such as a parent or guardian. The community engagement scales may need to be tailored to a younger audience to accurately measure activities and beliefs regarding community engagement. To assess community engagement activities, different survey questions with more developmentally appropriate questions may need to be administered.

Additionally, there was no change in reported community engagement activities after implementation of Youth Can! Improve their Communities. As mentioned, many of the questions asked described activities that may be more suitable for older youth, such as high school students. It may be difficult for youth this age to complete activities, such as join organizations and attend public meetings. However, it has been shown that involving youth in decision making may be appropriate and beneficial to bring community attention to childhood obesity and health promotion (Frerichs et al., 2012). Youth organizing has been related to impacts at the community-level, changes in policy, and implementation of new programs (Christens & Dolan, 2011); therefore, it may be important to find ways to increase community engagement activities in youth. Some studies have shown more youth engagement after programming, which led to changes in the community as well, such as the Youth ALIVE! program that provided youth more opportunities to engage and improve safety in their environments (Calhoun, 2014). Several interventions have led to more youth community

engagement; however, these programs were often more in-depth and completed over a longer period of time (Calhoun, 2014; Ramey, 2013; Ribisl et al., 2004).

There was no significant change in community engagement beliefs either. However, in other studies that focused on youth engagement, youth reported being able to use their own experiences and find ways to gather information to become more engaged in their communities (Calhoun, 2014). As with community engagement activities, beliefs regarding community engagement were typically seen in studies that provided more intense community engagement training over a longer period of time (Calhoun, 2014; Ramey, 2013; Ribisl et al., 2004).

Many of the lessons in Youth Can! Improve their Communities taught youth how to become more engaged in their communities. Participants were taught about how to communicate with leaders, and how, as youth, their thoughts were important. Previous research states that engagement is beneficial for youth, especially when able to assist in making and acting on decisions in their community (Zeldin, 2004). Participants in Youth Can! Improve their Communities had the opportunity to do research to find leaders in their community, then invite these leaders to speak with them about their roles in the community, and finally invite them to return to the youth center to listen to their speeches. Participants had the opportunity to ask questions of the leaders and provide their opinions regarding current and future programs. Participants in Youth Can! Improve their Communities were also given a safe space to work with peers and share with adults, which research suggests is more likely to lead to maintained engagement (Zeldin, 2004). Engaging youth in community decisions allows for information that is more likely to benefit their lives and empower youth participants (Powers & Tiffany, 2006). Although Youth Can! Improve their Communities curriculum provided numerous examples of

how youth could become involved in community decisions, because of time, it did not allow youth to advocate for change and observe any subsequent changes.

Self-efficacy did not significantly change. This lack of change and improvement in self-efficacy does not align with other presented research. There is evidence to suggest that positive youth development should build confidence and improve self-efficacy (Interagency Working Group on Youth Programs, 2016; R. E. Kreipe, 2006; Schreier et al., 2013; Ullrich-French & McDonough, 2013), which is not consistent with the results from Youth Can! Improve their Communities. Other programs with increased self-efficacy had different components that were not in this program. For example, programs with more in-depth training helped youth feel more confident and prepared, as well as develop skills youth advocacy (Jenkinson et al., 2012; Ribisl et al., 2004). Therefore, these strategies, i.e. longer time-period, more in-depth training, and experiences that demonstrate the results of youth advocacy, should be incorporated into Youth Can! Improve their Communities to aid in the improvement of self-efficacy of participants.

Limitations

There are several limitations to this study. However, Youth Can! Improve their Communities was piloted to determine the feasibility for this population. The limitations listed will guide changes that can be made to improve this program in future implementations.

One major limitation of this study was the lack of control group. Since there was no control group, no comparison was available. There may have been other programs or external factors occurring in the summer camp or community that affected nutrition knowledge of youth. Nutrition knowledge may have increased due to nutrition education delivered elsewhere.

The small sample size of Youth Can! Improve their Communities was another major limitation. Due to the lack of returned consent and assent forms, data from only seven participants were included in the analysis. This small sample size may have been indicative of the lack of detection of statistically significant changes in participant responses from pre- to post-test.

Other limitations include the lack of internal and external validity. The lack of a control group lessens internal validity, as there was no way to assess confounding factors. External validity was not high because the sample size was very small, and the majority of the participants were Black or African American. Therefore, the results from this study cannot be used to generalize among all youth in this age group.

Recommendations

In order to deliver a more successful program several limitations can be addressed to better Youth Can! Improve their Communities. A future study should include a control group, so that comparisons may be made to control for external and/or confounding factors, thus impacting internal validity. Adding a control group may allow for better data analysis and a clearer understanding of how Youth Can! Improve their Communities impacts participants. A larger sample size would allow for more robust interpretation of the statistical analyses. Recruiting a larger sample may allow for a greater ability to detect statistically significant differences among participants from pre- to post-test. When recruiting a larger sample, it may be beneficial to recruit a more diverse sample as well. Analyzing data for a more diverse group of youth will help increase the generalizability or external validity of Youth Can! Improve their Communities.

Another recommendation to improve Youth Can! Improve their Communities and data analysis is to find and use scales that are more suitable for this population. For example, both community engagement activities and community engagement belief scales should be tailored so that answers are more reflective of youth activities and abilities for this age group. It may also be helpful to implement Youth Can! Improve their Communities for either a longer duration or more sessions per week and to include activities that allow youth to see the results of their advocacy, even if these results are small changes. Thus, it may be beneficial to have more sessions per week to provide more in-depth training and provide more time for delivery of lessons in Youth Can! Improve their Communities.

Because nutrition knowledge significantly increased in participants of Youth Can! Improve their Communities and other programs that used this curriculum, the Michigan Model for Health curriculum should continue to be used in this intervention. In addition, Project Soapbox should remain in Youth Can! Improve their Communities. Participants were tasked with creating a speech about topics they learned during Youth Can! Improve their Communities. Participants created and practiced their speeches during the sessions and revised and practiced more on their own time; youth delivered their speeches at the end of the program. Although there was no measurement of writing and delivering speeches specifically, participants in Youth Can! Improve their Communities demonstrated this competency to their peers, community leaders, family members, and youth center staff.

Conclusion

In conclusion, more research is needed for Youth Can! Improve their Communities. This pilot program provided information that may be used to improve this program and others that

contain similar content. There were several lessons learned after piloting this program, but there were also successes that should be taken into consideration. This program may be beneficial for middle-school aged youth, but a more diverse and larger sample, along with a control group and improved scales, are needed to more accurately assess changes after intervention. Youth Can! Improve their Communities is a promising program that may increase nutrition knowledge, community engagement, and self-efficacy among participants after suggested changes. Therefore, research presented from other successful programs should be added and incorporated into future pilot programs to help youth improve their communities.

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APPENDICES

Appendix A. Week-by-Week Schedule for Lesson Plans

^M Project Soapbox

^N Michigan Model for Health

^T Youth Can! Curriculum

Youth Can! Improve Their Communities

Unit 1: Team Building				
		<i>Activities</i>	<i>Teaching Objectives</i>	<i>Learning Objectives</i>
Week 1	Lesson 1: Being Part of a Team^T	Cooperation Ball Game Expectations of working together in Youth Can! team	Demonstrate the importance of trust for working in teams Facilitate youth identification of group norms and expectations	Understand the importance of trust and working teams Articulate the expectations of their team for good teamwork
	Lesson 2: Saving Starfish^T	Making the World a Better Place Make Waves	Describe the importance of doing small good deeds. Encourage youth to use a team to make a positive difference	Identify a small good deed they have performed in the past Commit to making one positive difference per week in their own or others' lives
Week 2	Lesson 3: But I'm Just a Kid^T	Narrate Story Gather ideas and thoughts from the youth	Encourage youth to recognize the heroes around them and within themselves	Identify three reasons why Dusty is a hero Recognize the way it makes them feel to help others

		Have youth describe how to show appreciation Have youth think about ways they can be heroes		Show appreciation to those who help others Imagine themselves as heroes
	Lesson 4: Who are my Community Leaders? ^T	Identifying community leaders Inviting community leaders to a panel discussion	Facilitate the identification of community leaders Introduce youth to the concept of community leadership	Name two methods of identifying community leaders Identify 5-10 leaders in the community Invite community leaders to a panel discussion
	Lesson 1: Introduction to Project Soapbox ^M	What is a soapbox? What makes a great speech?	Introduce youth to public speaking and aspects of speech writing	Define soapbox Practice public speaking Determine qualities of good and bad speeches
Unit 2: Taking Pride				
		<i>Activities</i>	<i>Teaching Objectives</i>	<i>Learning Objectives</i>
Week 3	Lesson 1: Youth Can! Cookbook ^T	Sharing food stories Who are the people who always feed you well?	Introduce the concept of food as a marker of regional identity Celebrate the richness of local food traditions	Compare and contrast familial foodways with team members Understand the cultural significance of food in the region

	Lesson 2: Growing Good Food for the Sake of the Earth^T	What foods are grown here? Growing organic foods Where can I find local foods?	Communicate the role of caring for the local environment in eating healthy foods Provide examples of how youth can promote growing food locally	Describe the importance of locally grown foods Describe organic farming List places they can get locally grown foods
	Lesson 5: Who Cares?^T	Panel discussion	Encourage youth to interact with their community leaders Provide youth with a broader understanding of the types of activities in which community leaders participate	Verbally communicate with at least one community leader List at least 2 activities in which community leaders participate List at least 4 different ways that community leaders help youth in their county/city
	Lesson 2: Structuring a Speech^M	Structuring a soapbox speech Preparing a rough draft	Develop skills in speech writing and delivery	Write a rough draft of a speech Practice speech with peers Identify and explain problems and calls to action in speeches
Unit 3: Healthy Eating				
		<i>Activities</i>	<i>Teaching Objectives</i>	<i>Learning Objectives</i>

Week 4	Lesson 1: Jimmy Neutron and the Kid Food Culture^T	What are “kid” foods? What are “adult” foods? How cartoons and youth programming portrays the kid food culture	Facilitate an understanding of media messages about children’s food preferences Encourage youth to develop a critique of media messages about children	Identify “kid foods” and “adult foods” Analyze how the popular media portrays children and the foods they eat
	Lesson 1: Figuring Out the Nutrition and Physical Activity Rumor Mill^N	Why is It Important to Eat Healthy?	Communicate the importance and health impacts of healthy eating	Summarize the benefits of healthy eating and the potential consequences of not doing so
	Lesson 2: Learning More From MyPlate^N	What’s Inside MyPlate	Encourage youth to use MyPlate to achieve a healthy diet	Describe the federal dietary guidelines for teenagers needed to achieve health benefits
	Lesson 6: Power Calories^N	Food Label Using Food Labels to Make Healthy Food Choices	Encourage youth to use nutrition facts labels and compare products to make healthier choices	Use nutrition information on food labels to compare products and select foods for specific dietary goals
	Lesson 7: Packages Can Trick Us^N	Food Advertising Understanding Food Package Terms Healthy Choice...or Not?	Facilitate an understanding of food packaging and advertising	Determine the accuracy of health claims on food packages and advertisements on order to choose foods that have the most nutritional value
	Lesson 8: Can Fast Food Be Healthy?^N	How Does this Meal Measure Up? Websites for Nutrition Facts on Fast Foods	Develop skills to use fast food websites to help youth gain an understanding of how to find nutrition facts and compare products	Describe how to access nutrition information about foods offered in one’s community

	Lesson 10: Persuasion and Refusal^N	Be Persuasive Persuade Your Friends	Describe strategies that may be used by youth to persuade peers to consume a healthy diet	Demonstrate the ability to persuade peers to eat healthy
Unit 4: Research for Change				
		<i>Activities</i>	<i>Teaching Objectives</i>	<i>Learning Objectives</i>
Week 5	Lesson 1: What do you Deduce, Sherlock?^T	Developing a Hypothesis Detective Work Graphing our results Persuading Your Community Leaders	Facilitate the use of research to document gaps in the school food environment Develop critical thinking skills of youth by encouraging the evaluation of the school food environment.	Use the scientific method to document school food issues Critically evaluate the school food environment
	Lesson 3: Spicing Up a Speech^M	Attention grabber/closers Using rhetorical devices	Describe the aspects of a speech that make them memorable	Write an attention grabber and a closer Listen to speeches and evaluate rhetorical devices Apply one or more rhetorical devices in their own speech writing
Unit 5: Communicating with my Community				

		<i>Activities</i>	<i>Teaching Objectives</i>	<i>Learning Objectives</i>
Week 6	Lesson 1: The Youth Can! Newspaper^T	What information to share with parents and teachers Putting the newspaper together	Provide the structure and function parts of the newsletter Facilitate the development of the newsletter Assist in distribution of the newsletter	Communicate persuasive information to other people through writing Produce a newsletter Distribute the newsletter to community leaders
Week 7	Lesson 2: Being an Advocate^T	Defining and discussing the words Advocate, Power, and Youth Empowerment Working up the power ladder	Define the words advocate, power, and youth empowerment Encourage youth to realize they can bring about change in the community Demonstrate examples of how youth advocates have made differences in their communities Encourage youth to realize times they have tried to make their voice heard	Define the words advocate, power, and youth empowerment Know of positive examples of children who made a difference in their community Understand when advocacy is the best communication strategy
	Lesson 4: Delivering a Great Speech^M	Persuasive ABCs Peer feedback	Provide youth an opportunity to give and receive constructive feedback on speech delivery	Assess themselves using the Presentation Rubric Read through Presentation Guidelines

				Practice their speeches Give and receive feedback
Week 8	Lesson 4: Communicating our Plan^T	What Do We Want? Asking Skills Exercise Communicating the Plan to Our Leaders Role Playing	Assist youth prepare their presentation of their plan to community leaders Facilitate the development of communication and negotiation skills	Plan the actions they want to take in their school Decide who they need to ask to implement their plan and by when it should be done Identify communication and negotiation skills that will help them get what they are asking for
	Lesson 5: Celebrating our Success^T	Taking a Look Back Appreciation Exercise	Encourage youth to be proud of the work they have done Give youth the opportunity to acknowledge each other's contributions Celebrate the successes of the team	Recognize the work of their teammates Develop self-esteem about their role in making positive change

Appendix B. Pretest/Posttest

Youth Can! Improve their Communities Survey

Demographics

Age _____

Gender

- ☐ Male
- ☐ Female
- ☐ Prefer not to answer

Race

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ Other
- ☐ Prefer not to answer

Ethnicity

- ☐ Hispanic
- ☐ Not Hispanic
- ☐ Prefer not to answer

Community Engagement

1. In the last 12 months, how often have you done the following activities? Would you say never, rarely, sometimes, often, or always? Mark the appropriate box for each item.

	Never	Rarely	Sometimes	Often	Always
Worked with other people in your neighborhood to fix something					
Attended any public meeting where there was a discussion of efforts in the community					
Attended any club or organization meeting					

2. Please answer how often you do the following. Would you say never, rarely, sometimes, often, or always? Mark the appropriate box for each item.

	Never	Rarely	Sometimes	Often	Always
Participate in community events such as community meetings, celebrations, or activities					
Join organizations that support issues that are important to you					
Write or email newspapers or organizations to voice my views on an issue					

3. How much do you agree or disagree with each statement? Mark the appropriate box for each item.

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
I believe I can make a difference in my community.					
It is my responsibility to be involved in community issues.					
People like me cannot influence what government does.					
I can make things better by working with others in my community.					
I believe young people can make a difference on issues that are important to them.					

Self-Efficacy

1. Imagine if you found out about a problem in your community and you wanted to do something about it (for example: violence in your school, high rates of teen pregnancy, or

not enough after-school opportunities in the community). What do you think you would be able to do? Mark the appropriate box for each item.

	I Definitely Can't	I Probably Can't	Unsure	I Probably Can	I Definitely Can
Analyze the issue to figure out what is causing the problem?					
Create an action plan to address the issue?					
Get other people to care about the problem?					
Organize and run a meeting about the issue?					
Express your views in front of a group of people?					
Find and examine research related to the issue?					
Identify individuals or groups who could help you with the problem?					
Work with administrators in your school to solve the problem?					
Contact an elected official about the problem?					

2. Mark the appropriate box for each item.

	I Definitely Can't	I Probably Can't	Unsure	I Probably Can	I Definitely Can
I am sure that I can tell my friends to eat healthy.					
I am sure that I can tell my friends to be physically active.					

I am confident that I can work to make my school or community a better place for being physically active and eating healthy.					
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Nutrition Knowledge

1. One ounce of bread is as large as:
 - a. a baseball.
 - b. a CD in the plastic case.
 - c. two 9-volt batteries.
 - d. a deck of cards.
2. Which type of milk is the lowest in calories (energy for your body)?
 - a. Whole milk
 - b. 2% milk
 - c. 1% milk
 - d. Fat-free milk
3. How much of the grains you eat should be whole grain?
 - a. None
 - b. At least one-fourth
 - c. At least one-half
 - d. All
4. A serving size of one cup is about the size of a:
 - a. football
 - b. baseball
 - c. golf ball
 - d. basketball
5. What is TRUE about items on fast food menus?
 - a. The portion size is never larger than the amount recommended by the U.S. government.
 - b. Many are high in fat or sugar.
 - c. Many are low in sodium.
 - d. All of the above.
6. You want less sugar in your diet. Which of the following would be the BEST way for you to do this?
 - a. Listen carefully to TV ads about food and drinks.
 - b. Taste foods to see if they are sweet.
 - c. Stay away from foods that taste sweet.
 - d. Read the food label of foods you would like to eat.

Appendix C. Parental Consent Form and Written Assent Form

Child Assent Form

Youth Can! Improve their Communities Assent Form

We are asking you to be in a research study because we are trying to learn more about your experience in the Youth Can! Improve their Communities program. We want to know if the program helped you learn about nutrition, working with your community and how you feel about using what you learned after the program ends.

If you (and your parent or guardian) agree to be in this study, we will use the materials you create as part of the program activities for the research study. This includes things like the questionnaires that you answer during the Youth Can! Improve their Communities program, photographs of the community that you may take, and action plans you create. We do not expect that being in this study will help you, but we do not think you will experience any problems if you choose to let us use your program materials.

We will also ask your parents if it is okay for you to be in this study. But even if your parents say “yes”, you can still decide not to be in the study. You don’t have to participate and no one will be upset if you change your mind later and decide to stop later. Even if you don’t want to be in the study, you can still be in the Youth Can! Improve their Communities program and all your regular activities at the YWCA.

You can ask us any questions about the study. If you think of a question later, you can ask me the next time you see me or call me at 865-974-6265.

If you let us use your program materials, you will receive two \$5.00 gift card during the last week of the program. If you don’t want to answer all of the questions or if there are specific questions you don’t want to answer, you’ll still get the gift card.

Signing your name at the bottom means that you agree to be in the study.

You will receive a copy of this form.

The research study has been explained to me. I agree to be in this study. I had a chance to ask questions. If I have more questions, I can ask the researcher.

Your printed name

Signature

Date

IRB NUMBER: UTK IRB-17-03709-XP
IRB APPROVAL DATE: 06/23/2017
IRB EXPIRATION DATE: 06/29/2018

YCIC Consent Form: Participants

INFORMATION SHEET & PARENTAL CONSENT FORM FOR Youth Can! Improve their Communities Participants

Your child is invited to participate in an evaluation research study being conducted by the Department of Nutrition at the University of Tennessee in conjunction with the YWCA's Summer Kids in Play (SKIP) program. The purpose of this study is to evaluate a nutrition education and positive youth development curriculum designed to develop children's knowledge about nutrition and healthy eating and environments, increase their community engagement, and increase their self-efficacy to advocate for healthier communities. Your child has been participating in the Youth Can! Improve their Communities (YCIC) program and we would like to request your consent to use the materials they create as part of their program activities for the research study. This includes things like questionnaires they complete, any photographs of the community taken by your child, and action plans they create and present to community leaders.

What will your child be asked to do? If your child is enrolled in the YCIC program, they do not need to do anything further. All the materials are created or completed as part of your child's regular YCIC program activities

Benefits to Participation. There are no real benefits to your child allowing use of these materials for the research. However, they may enjoy providing information for a research study.

Risks to Participation. The risks associated with the participation in the research are minimal and no more than those encountered in daily life. If your child does not want to allow use of their program materials, their decision will not impact their participation in the YCIC program or their relationship with YWCA in any way.

Compensation. If you consent and your child agrees to participate, he/she will receive two \$5.00 Target gift cards for participating during the last week of the program.

Confidentiality. Study records will be kept confidential. Information will be stored securely and will be made available only to persons conducting the study. No reference will be made in oral or written reports which could link individual children to the study. If photographs are taken during the program, researchers will not use any that can identify children for research publications or presentations, faces of anyone in the photos will be blurred.

Voluntary Participation. Your child's participation in this study is voluntary; he/she may decide not to participate, or can withdraw from the study at any time without impacting their participation in the YCIC program or their relationship with YWCA in any way.

Contact Information. If you have questions at any time about the study or the procedures or your child experiences adverse effects as a result of participating in this study, you may contact

the faculty researcher, Dr. Marsha Spence at 865-974-6265. If you have questions about your child's right as a participant, contact the Office of Research Compliance Officer at 865-9747697.

Your signature below indicates that you have read, understand the information on the previous pages, and that you **consent for your child's program materials to be used for research purposes.**

You will receive a copy of this form for your records.

Your printed name

Signature

Date

Your child's first and last name

IRB NUMBER: UTK IRB-17-03709-XP

IRB APPROVAL DATE: 06/23/2017

IRB EXPIRATION DATE: 06/29/2018

VITA

Alexandra N. Alford was born on November 12, 1993. Alexandra attended the University of Maryland Eastern Shore, and graduated in May 2015 with a B.S. in Human Ecology with a concentration in Dietetics and minor in Chemistry. She became interested in public health nutrition and began a dual Master's degree program at the University of Tennessee, Knoxville, in Nutrition, concentration Public Health Nutrition, and Public Health, concentration Community Health Education. Alexandra's degrees will be conferred in May 2018.