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Childhood Obesity Programming in Schools: A Mixed Method Program Evaluation of the Cope Healthy Lifestyles Teen Intervention

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CHILDHOOD OBESITY PROGRAMMING IN SCHOOLS: A MIXED METHOD PROGRAM EVALUATION OF THE COPE HEALTHY LIFESTYLES TEEN INTERVENTION

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To my family, friends and mentors, thank you for guiding and supporting me on this journey.

This work is dedicated to my parents, Ben and Sharon Viellieu.

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INTRODUCTION

Overview

"Without proper prevention and treatment of childhood obesity, the current generation could become the first in American history to live shorter lives than their parents".

These words were spoken by former president Bill Clinton, co-leader of the Alliance for a Healthier Generation. Indeed, medical research is showing that it is possible some children will live shorter and less healthy lives than their parents given the increasing prevalence of childhood obesity (Olshansky et al., 2005). Childhood obesity is one of the leading national health concerns in the United States. Despite decades of research and an increased focus over the last 20 years, the implementation of effective prevention and intervention programming targeting the childhood obesity epidemic is an on-going challenge (U.S. Department of Health and Human Services, 2012). In order to impact the childhood obesity epidemic and reduce the associated costs – both individual and societal – it is imperative to continue to create, modify, and evaluate intervention and prevention programming.

Statement of the Problem

Over the last three decades, the prevalence of obesity has tripled among children and adolescents aged 6 through 19 (Ogden et al., 2006). Approximately 17% (12.5 million) of children and adolescents aged 6 through 19 are obese (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010). Furthermore, despite an increased national focus as well as increased prevention and

intervention efforts, the prevalence rate of childhood obesity remained constant at 17% between 2003 and 2012 (Ogden, Carroll, Kit, & Flegal, 2014). More specifically, the national Youth Risk Behavior Surveillance System (2016) found in 2015 that 16% of high school students are overweight and 13.9% of high school students are obese. For females in high school, the findings were 16.6% were overweight and 10.8% were obese. In other words, more than one out of four adolescent girls in the study were overweight or obese. Additionally, research suggests obesity rates are higher amongst minority and low-income youth. Utilizing data collected from the National Health and Nutrition Examination Surveys from 1970 to 2002, Anderson and Butcher (2006) found that while obesity rates have increased across all children in the United States, obesity rates increased more for children living in low-income households and increased the most for African-American children.

Childhood obesity is associated with an increased risk of a variety of serious physical health conditions including high blood pressure and high cholesterol (Cote et al., 2013), impaired glucose intolerance, insulin resistance, and type 2 diabetes (Whitlock, Williams, Gold, Smith, & Shipman, 2005), sleep apnea (Narang & Mathew, 2012), joint problems (Han, Lawlor, & Kimm, 2010) and musculoskeletal discomfort (Taylor et al., 2006).

In addition to the physical health consequences, childhood obesity also significantly impacts a child's psychosocial health. Children who are overweight and obese have higher rates of depression (Morrison, Shin, Tarnopolsky & Taylor, 2015) anxiety and bullying (Bell et al., 2011). Additionally, childhood obesity is associated not only with a higher prevalence but also a higher number of comorbid conditions related to physical health, psychosocial health and school problems such as days absent and grade repetition (Halfon, Kandyce, & Slusser, 2013).

Although childhood obesity is a major problem, there are many ways in which to address the issue. Research has shown several factors play a role in maintaining a healthy weight and lifestyle for children. Examples of these factors include safe spaces for physical activity, access to a variety of nutritious food (Sallis & Glanz, 2006), regular exercise (Ekeland, Heian, & Hagan, 2005), and monitored television viewing (Gable, Chung, & Krull, 2007).

Study Purpose

The purpose of this study was to implement and evaluate a group intervention aimed at preventing and reducing obesity among female adolescents in a high school. The researcher implemented and evaluated an intervention program – Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) Program. The COPE Healthy Lifestyles TEEN program is a manualized educational and cognitive-behavioral skills building program guided by cognitive behavior theory. The program focuses on teaching life-long cognitive-behavioral skills. Each session focuses on a different aspect of healthy living. Specific topics include: (1) healthy lifestyles, (2) self-esteem and positive thinking, (3) overcoming barriers, (4) stress and coping, (5) dealing with emotions, (6) personality and effective communication, (7) activity, (8) heart rate and stretching, (9) nutrition, (10) reading labels, (11) portion sizes, (12) social eating, (13) snacks and eating out, (14) healthy choices, and (15) integrating knowledge and skills (Melnick, Jacobson, Kelly, O'Haver, Small, & Mays, 2009).

Research Questions

The creation of the research questions was guided by the purpose of the study. The research questions then guided the research design, data collection process, and eventual data analysis and interpretation. The research questions for the current study include:

1. What changes in Body Mass index occur in female adolescents as a result of participation in the COPE Healthy Lifestyles TEEN Program?
2. What changes in knowledge relating to nutrition and physical activity occur in female adolescents as a result of the COPE Healthy Lifestyles TEEN Program?
3. What changes in behaviors occur in female adolescents as a result of the COPE Healthy Lifestyles TEEN Program?
4. What changes in self-concept occur in female adolescents as a result of the COPE Healthy Lifestyles TEEN Program?
5. According to program participants, which components of the program facilitate change in BMI, knowledge base, behavior, and self-concept? How do these program components facilitate change?

Significance of the Study

While prevention and intervention programs targeting childhood obesity have increased over the past two decades, many programs are designed to be implemented with children in preschool or elementary school. There are fewer programs targeting the adolescent age group and research on intervention programs that do target adolescents have typically focused on one outcome such as obesity or mental health, rather than multiple outcomes (Kropski, Keckley & Jensen, 2008).

Given the lack of obesity programs designed for and implemented at the high school age level, providing information on programs such as COPE Healthy Lifestyles TEEN is imperative in the prevention and intervention of childhood obesity within the adolescent population. Additionally, this study is creating a female-only group in the implementation of the COPE Healthy Lifestyles TEEN program. Previous research studies on the program have involved

mixed-gender groups. This program is targeting a diverse population in regards to race and socioeconomic status. The student body at the high school in which the program was implemented is racially diverse: African American (27%), Asian (14%), Hispanic (21%), Caucasian (31%) and Other (7%). Thirty-one percent of the student body qualifies for free or reduced lunch. As previously discussed, while the overweight population has either leveled off or decreased in regards to Caucasian students, the rates for many minority groups continue to rise (Centers for Disease Control, 2012). Therefore, it is important to continue to implement programming within setting with diverse populations. Additionally, the COPE Healthy Lifestyles TEEN program simultaneously addresses mental health and physical health, whereas the majority of programs related to childhood obesity focus on nutrition and physical activity (Wang et al., 2013).

Theoretical Framework

The researcher is taking an evidence-based, culturally-aware view of this project. The ethnicity, gender, and age of the targeted population were considered when selecting the program and designing the implementation of the intervention. The COPE Healthy Lifestyles TEEN program was selected based on current research and knowledge within the obesity prevention field.

The researcher recognizes that mental and physical health are intertwined and that each needs to be addressed in order to make significant changes in weight-related attitudes and habits. The researcher selected the COPE Healthy Lifestyles TEEN program because of the theoretical framework on which it is based. The program utilizes the tenets of Cognitive Behavior Therapy (CBT) which suggests that an individual's thoughts, feelings and behaviors are interrelated and that modifying one of the three facets impacts the other two (Beck, Rush, Shaw, & Emery,

1979). The COPE Healthy Lifestyles TEEN program is designed to facilitate cognitive-behavioral skill building (CBSB) which assists adolescents with cognitive changes which can strengthen their healthy lifestyle beliefs in order to facilitate healthy lifestyle choices and behaviors skills (Melnick, Jacobson, Kelly, O'Haver, Small, & Mays, 2009). As a result, the COPE Healthy Lifestyles TEEN program includes common components of CBT including cognitive restructuring, behavioral activation and homework assignments.

Summary of Methodology

The current study employs a mixed-methods design. The study is constructed from the mixed method substantive theory stance in that the theory supporting the COPE Healthy Lifestyles TEEN program is the driving force for the methodology. Consistent with the theory, the measures are designed to collect data relating to participants' thoughts, feelings and behaviors. The intervention occurred over twelve sessions with one session each week. The intervention was implemented within a suburban high school setting located outside of Washington D.C. Recruitment of participants was completed by the researcher in an email sent to the school counselors, school psychologist and school social worker. The school psychologist and school social worker then contacted the guardians of recommended students to describe the program and notify the guardians that they would be sending home the parental consent form. After the signed parental consent forms were received, the researcher met with potential participants to describe the program and review the student assent form with each participant.

Given the dual role of the researcher, as both the implementer and evaluator of the program, two measures were taken to ensure implementation fidelity. First, the researcher completed an implementation fidelity checklist after each weekly session. Second, an independent observer attended three sessions during implementation and completed an

implementation fidelity checklist. Both quantitative and qualitative measures were used to collect data in an effort to address the research questions. Quantitative measures were used to collect data on participants' knowledge, behaviors, beliefs, and attitudes relating to healthy lifestyles. Additionally, quantitative measures were used to collect data on participants' self-concept, physical activity, and body-mass index. Qualitative measures were used to collect data on implementation fidelity and the participants' perspective on the intervention and impact of the program.

CHAPTER 2

REVIEW OF THE LITERATURE

Childhood obesity is one of the leading national health concerns in the United States (U.S. Department of Health and Human Services, 2012). Despite decades of research and an increased focus over the last 20 years, the implementation of effective prevention and intervention programming targeting the childhood obesity epidemic is an on-going challenge. In order to impact the childhood obesity epidemic and reduce the associated costs – both individual and societal – it is imperative to continue to create, modify, and evaluate intervention and prevention programming.

Key Factors in the Childhood Obesity Epidemic

Key factors influencing the obesity epidemic in the United States include changes in dietary patterns and food consumption, a decrease in physical activity levels and an increase in sedentary activities such as television viewing. Demographic variables such as race, gender and socioeconomic status are also associated with varying levels of childhood obesity.

Changes in Dietary Patterns

In terms of food consumption, energy dense, low fiber, high fat dietary patterns are associated with an increased risk for body fat in children (Johnson, Mander, Jones, Emmett, & Jebb, 2008). In addition to unhealthy foods, sugar-based drinks, such as soda, are the largest source of added sugar in children's diet and a significant contributor to the caloric intake of children in the U.S. (Reedy & Krebs-Smith, 2010). A meta-analysis examining the relationship

between soda, nutrition, and health outcomes found that soft drink intake is related to increased energy intake and body weight (Vartanian, Schwartz, & Brownell, 2007). Additionally, soft drink consumption is associated with a lower intake of healthier forms of nutrition, such as milk.

Decreased Physical Activity

In addition to changes in dietary patterns, another key factor in the childhood obesity epidemic is a decrease in physical activity. The benefits of physical activity are well-established and include a reduced risk of obesity and increased socio-emotional health. Additionally, a lack of physical activity has been linked to increased rates of obesity (Centers for Disease Control, 2008). Therefore, it is imperative for all children to engage in regular physical activity. The 2015-2020 Physical Activity Guidelines for Americans (U.S. Department of Health and Human Services, 2015) recommend that children aged 6-17 years should engage in 60 minutes or more of physical activity every day. The guidelines further specify that the physical activity for children should include a variety of types of activities including aerobic, muscle strengthening and bone strengthening. However, according to the 2008 report on the Physical Activity Guidelines for Americans, only 18% of high school students met this guideline in 2007 (U.S. Department of Health and Human Services, 2008).

Sedentary activities such as entertainment media may promote unhealthy weight in children by replacing time that could be spent involved in physical activity as well as encouraging increased intake of calories as a result of food advertising (Gordon-Larsen, Adair, & Popkin, 2002). For example, children aged 8-18 years spent an average of 7.5 hours a day using entertainment media, including television, computers, video games, cell phones and movies (Rideout, Foehr, & Roberts, 2010).

Demographic Variables

Race and ethnicity.

In recent years, the overweight population has either leveled-off or decreased in regards to Caucasian children; however, that is not the case for many youth within minority groups, whose obesity rates continue to rise. In 2009-2010, the prevalence of obesity was significantly higher among Mexican-American and African American adolescents than their non-Hispanic Caucasian counterparts. In 2009-2010, the prevalence of obesity among boys aged 12-19 years was 17.5% for Caucasians, 22.6% for African-Americans and 28.9% for Mexican-Americans (Centers for Disease Control, 2012). The obesity trend was similar for girls. The prevalence of obesity among girls aged 12-19 in 2009-2010 was 14.7% for Non-Hispanic Caucasian girls, 24.8% for African American girls and 18.6% for Mexican-American girls. There is a change between the genders in terms of race in that, for boys, Mexican-Americans had the highest prevalence of obesity whereas, for girls, African-Americans had the highest prevalence of obesity (Centers for Disease Control, 2012).

Gender.

Gender has been found to be a factor in obesity rates as well. Of particular interest to this literature review is the differences in participation in physical activity between male and female adolescents. A significantly higher percentage of adolescent males participate in vigorous physical activity compared to their female counterparts. Across all racial and ethnic groups, participation levels in physical activity for males are between 20 to 25 percentage points higher than for females (Child Trends, 2012). There are factors that make adolescent females less likely to participate in physical activity. A study by Slater and Tiggemann (2011) found that adolescent girls participated in organized sports at a lower rate than boys, and experienced a higher rate of

teasing than boys when participating in organized sports or engaging in other physical activity such as working out at a gym. Both the males and females in the study reported being teased by same-sex peers but, in addition, girls were also teased by their opposite-sex peers. Boys and girls who experienced teasing reported higher levels of body image concern than their peers who were not teased. The results suggest that teasing and body image concerns may contribute to adolescent girls' reduced rates of participation in sports and other activities. Jensen and Steele (2009) found similar results in their study. Preadolescent girls who reported high levels of weight criticism during physical activity and high levels of body dissatisfaction participated in fewer physical activities than girls with lower levels. Vu, Murrie, Gonzalez, and Jobe (2006) corroborate this conclusion. When the researchers asked adolescent girls about their perceived barriers to being active, the most common barrier was negative reactions from boys such as teasing and taunting; more than half of the girls in the study mentioned that boys hindered their ability to be active. Given these findings, it may be beneficial to provide adolescent females with a supportive single-sex environment for engaging in physical activity.

Socioeconomic status.

Another factor that may impact childhood obesity is socio-economic status. A national study of more than 40,000 children found that, in 2007, children from lower-income households had more than two times higher odds of being obese than children from higher income households (Singh, Siahpush, & Kogan, 2010). Economic insecurity can also influence a family's food purchases, encouraging the buying of cheaper, more energy-dense foods (Drewnowski & Darmon, 2005). Using data from the National Health and Nutrition Examination Survey, Ogden, Lamb, Carroll and Flegal (2010) found that children who reside in a home where

the head of household has less than a high school degree are more likely to be obese compared to their counterparts living in a more highly educated household.

Consequences of Childhood Obesity

Being overweight or obese negatively impacts multiple domains within a child's life including physical health, psychosocial health and academic achievement. The childhood obesity epidemic also has broader societal consequences.

Consequences for the Individual Child

Physical health.

Children who are obese experience serious short-term and long-term health consequences. Obese children are more likely to have high blood pressure and high cholesterol, both of which are risk factors for cardiovascular disease. In one study, 70% of obese children had at least one cardiovascular risk factor, and 39% had two or more (Freedman, Mei, Srinivisan, Berenson, & Dietz, 2007). Obese children are also at an increased risk for impaired glucose tolerance, insulin resistance, and type 2 diabetes (Whitlock, Williams, Gold, Smith, & Shipman, 2005). It is estimated that one in three children born in 2000 in the United States will develop diabetes in their lifetime (Venkat, Boyle, Thompson, Sorensen, & Williamson, 2003). Obese children also have increased risk of sleep apnea (Han, Lawlor, & Kimm, 2010), a condition that has been associated with bedwetting, attention deficit hyperactivity disorder, behavior problems, poor academic performance and cardiopulmonary disease (Chan, Edman, & Kotali, 2004). Obese children are at increased risk for joint problems (Han, Lawlor, & Kimm, 2010) and orthopedic complications such as musculoskeletal discomfort and fractures (Taylor, et al., 2006). In the long-term, an obese teenager has up to an 80% chance of becoming an obese adult (Guo & Chumlea, 1999). Adult obesity is also associated with an increased risk of a number of serious

health conditions including coronary heart disease, type 2 diabetes, cancers, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea and respiratory problems, osteoarthritis and gynecological problems (National Institutes of Health, 1998).

Psychosocial health.

In addition to the physical health consequences, childhood obesity also significantly impacts a child's psychosocial health. Body dissatisfaction is higher in children who are overweight or obese than their normal weight peers (Ricciardelli & McCabe, 2001). Weight-related body dissatisfaction has been linked to impairment in emotional well-being (such as self-esteem and depressive mood) in both adolescent males and females (Mond, Van Den Berg, Boutelle, Hannan & Neumark-Sztainer, 2011). Research has documented the relationship between body image disturbance and negative outcomes such as eating disorders and depression (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). For example, overweight children report significantly lower feelings of self-esteem than their normal-weight peers (Pierce & Wardle, 1997). These lower feelings of self-esteem persist over long periods of time. A study by Strauss (2000) found that being overweight predicted lower self-esteem four years into the future among boys and Hispanic and Caucasian girls. The study further found that lowered self-esteem was associated with increased rates of sadness, loneliness, nervousness and an increased likelihood of unhealthy behaviors in the future, such as drinking alcohol and smoking cigarettes.

The body dissatisfaction associated with weight is particularly significant for females (Wardle & Cooke, 2005). Overweight female adolescents are more likely to express body dissatisfaction and, therefore, often present with lower psychological functioning. Neumarck-Sztainer, Paxton, Hannan, Haines, and Story (2006) found that adolescents with lower body satisfaction were more likely to engage in unhealthy behaviors such as fasting, skipping meals,

and vomiting compared to their peers with higher body satisfaction. Although some researchers have suggested body dissatisfaction may motivate overweight individuals to engage in weight loss behaviors, the Neumark-Sztainer et al. study showed that girls with lower body satisfaction actually had lower levels of physical activity as well as more unhealthy weight control behaviors at a five year follow-up.

Van den Berg and Neumark-Sztainer (2007) found that higher body satisfaction can actually be a protective factor for overweight girls. In her study, overweight adolescent females with higher body satisfaction levels had a smaller increase in BMI over the five year study period compared to overweight girls with lower body satisfaction.

Certain core cognitions related to body dissatisfaction, negative affect and low self-esteem, place individuals more at risk for the developmental of weight control issues (Fairburn, Cooper & Shafran, 2003). Therefore, a program based in cognitive behavioral theory which focuses on strategies such as cognitive restructuring, could be a valuable component of interventions for overweight adolescent females. The intervention used in this study, the COPE Healthy Lifestyles Teen program, is designed to target an individual's negative thoughts while providing the motivation and skills to engage in healthier lifestyle behaviors.

Being overweight or obese also negatively impacts peer relations. Overweight adolescents often suffer socially because of their physical appearance, as overweight teens aged 13-18 years may be less likely to be selected by their peers as a friend and may be less likely to have a strong peer network than their normal-weight counterparts (Strauss & Pollack, 2003).

Academic achievement.

In addition to the physical and psychosocial health consequences, childhood obesity also impacts a child's scholastic achievement. A study by Shore, Sachs, Lidiker, Brett, Wright and

Libonati (2008) found significant differences regarding the academic performance between overweight and non-overweight students. Overweight students earned lower grades and performed lower on physical fitness tests. Overweight students' GPA was 0.4 letter grade lower than that of their non-overweight peers. Overweight students had more detentions, weaker school attendance, tardiness and less participation in school athletics. The scholastic consequences of the childhood obesity epidemic provide particular motivation for schools to be concerned about the epidemic and actively implementing programs to prevent and intervene.

Societal Consequences

While the consequences of the childhood obesity epidemic at the individual level are significant, there are also larger societal costs. Trasande and Chatterjee (2009) analyzed data from the 2002–2005 Medical Expenditure Panel Survey for children aged 6-19. They focused on expenditures related to prescription drugs, emergency room use and outpatient visits. Their analysis found that childhood obesity was associated with increased annual costs of $14.1 billion. A study by Finkelstein, Graham and Malhotra (2014) suggests the incremental lifetime medical cost of a ten-year-old obese child is $19,000 compared to a same aged normal weight peer who maintains normal weight throughout adulthood.

As previously stated, overweight children are more likely to become overweight adults (Dietz, 1998). Medical spending on adults for conditions related to obesity has increased significantly over the past few decades. In 1998, medical spending on adults attributed to obesity was approximately $40 billion; by 2008, spending was estimated to increase to $147 billion (Finkelstein, Trogdon, Cohen & Dietz, 2009). Medical costs associated with obesity can be direct or indirect. Direct costs include preventative, diagnostic and treatment services related to obesity. Indirect costs are related to morbidity and mortality, including work productivity. Work

productivity includes both absenteeism, when employees are out of work due to obesity related health issues, and presenteeism which refers to an employee who remains at work but whose productivity is negatively impacted by obesity. One study suggests the costs related to obesity in full-time employees total $73.1 billion dollars annually (Finkelstein, DiBonaventura, Burgess, & Hale, 2010).

Given the societal consequences associated with obesity and the fact that overweight children tend to become overweight adults, prevention and intervention efforts relating to the childhood obesity epidemic is an excellent way to prevent the onset, and associated costs, of obesity in both childhood and adulthood.

Implementing Childhood Obesity Programming in Schools

From a public health perspective, schools are ideal settings for implementing universal prevention and intervention programs targeting children's physical and mental health needs. There are many barriers to accessing health services within a community setting such as lack of health insurance, transportation, the ability of a parent to take off of work and a lack of awareness of services (Young, D'angelo, & Davis, 2001). Many of these barriers are eliminated when children receive physical and mental health services within schools. Approximately 20% of children in the United States have emotional or behavioral issues severe enough to require treatment (Roberts, Attkisson, & Rosenblatt, 1998). Unfortunately, only about 20% of children with mental disorders are identified and receive mental health services (U.S. Public Health Service, 2000). Approximately 70-80% of the children receiving these mental health services receive the services within their school setting, making schools the primary healthcare setting for those children (Burns, Costello, Angold, Tweed, Stangl et al., 1995). Statistically, children who are minorities are more likely to have health issues and less likely to have a consistent source of

healthcare. Therefore, increasing access to healthcare through school services can greatly benefit underserved populations within a larger community (Clauss-Ehlers, 2003).

Additionally, a child's physical and emotional well-being are interrelated to academic performance; therefore, it is in the schools' best interest, as well as the child's best interest, to ensure students receive adequate services to address any physical or emotional health problems. One efficient way to do this is to provide those services within schools.

Role of School Psychologists in Health-Related School Programming

Within the last two decades, the role of the school psychologist has gone through significant changes as leaders in the field have advocated for an expanded role of the school psychologist (Bradley-Johnson & Dean, 2000). Related to public-health programming in schools, one of the major recommendations from the Future of School Psychology 2002 Invitational Conference was to develop a more public health orientation for school psychology services (Garden, 2004). Nastasi (2004) suggests there are multiple reasons why school psychologists are ideal professionals to integrate public mental health services into schools. One of those reasons is that school psychologists have expertise in both mental health and education that uniquely qualifies them to be school-based mental health specialists. Additionally, their training in school collaboration and consultation allows psychologists to assume leadership roles in interdisciplinary reform and programming. Given these reasons, a natural role for the psychologist to assume within schools is to collaborate in the researching, planning and implementing of school-based health programming. This would include programs addressing obesity and the related mental health, social–emotional, behavioral and academic challenges associated with obesity. Consulting and collaborating with fellow school staff members such as social workers, counselors, and nurses, enables the psychologist to ensure that evidence-based

programming integrating mental and physical health would be available within the school setting.

Current School-Based Obesity Intervention Programs

A number of school-based interventions have been designed and implemented with children in preschool through high school. However, the majority of programs focus on elementary and middle school children; there are fewer intervention programs designed for adolescents. Additionally, the programs available for implementation with adolescents have had mixed results. Therefore, continued research on programming designed for the adolescent population is particularly important. Additionally, several researchers in the field of childhood obesity have identified the need for more theory-based intervention programming (Bagchi, 2010; Ickes, McMullen, Haider, & Sharma, 2014).

Systematic Reviews

Multiple systematic reviews on interventions for childhood obesity have been conducted and will be described in this literature review. The first systematic review (Flodmark, Marcus, & Britton, 2006) focused on intervention programs designed to prevent obesity in children and adolescents. Many of the 24 studies were conducted within school settings, but the school setting was not a mandatory inclusion criteria. Each of the studies included a control group and 12 month follow-up data point. The studies were included only if they utilized relevant outcome measures such as the percentage of overweight and/or obese subjects, and BMI or skinfold thickness. Of the 24 studies, eight suggested that the prevention program had a statistically significant positive effect on obesity. Sixteen of the studies reported neutral results, and none of the studies produced negative results. The authors also combined their own systematic literature review with the findings of five other systematic reviews on the topic which resulted in a larger

data set. The larger data set included 39 studies and 33,852 children. Fifteen of the 39 studies resulted in positive findings, 24 with neutral findings and none with negative findings. Therefore, 41% of the studies and 40% of the children included in the review showed a more positive weight outcome with the intervention than without the intervention. The intervention programs focused on the promotion of healthy dietary habits, increased physical activity or a combination of the two components. The authors were not able to identify which specific elements of the intervention programs resulted in more positive results. One of the strengths of the review was that many of the included studies took place in countries other than the United States, thereby increasing the generalizability of the findings.

In 2009, Gonzalez-Suarez, Worley, Grimmer Somers and Dones conducted a meta-analysis including 19 school-based intervention programs targeting childhood obesity published between 1995 and 2007. The outcome measures used within the studies included: BMI, percentage of body fat, waist girth, triceps skinfold, and waist-hip ratio. Children with BMIs within the normal, overweight and obese ranges were included because the meta-analysis was designed to investigate both the prevention and treatment of overweight and obesity. Studies were included in the meta-analysis if they were designed to take one or any combination of the following three approaches: increase physical activity, improve dietary behaviors, and modify poor exercise or dietary behaviors. The duration of the implementation of the programs varied from less than 6 months to longer than two years. The results of the meta-analysis found school-based intervention programs were effective in decreasing the prevalence of overweight and obesity in comparison to control groups. However, there was no evidence that the interventions were effective in reducing participants' BMI. The authors analyzed the effectiveness of the interventions using duration as a dependent variable. They found that interventions implemented

for more than one year led to a significant change in the weighted mean change in BMI, as compared with interventions that lasted less than six months. Additionally, programs that combined increased physical activity and classroom curriculum about proper nutrition and physical activity decreased the prevalence of childhood overweight and obesity significantly. However, the authors did not analyze separately those interventions that used only one of the components – increased physical activity or classroom curriculum. Based on their meta-analysis, the authors suggested school staff and policymakers consider implementing school-based interventions as long-term strategies for preventing and managing childhood obesity.

Khambalia, Dickinson, Hardy, Gill, and Baur (2012) conducted a synthesis of existing systematic reviews and meta-analyses of school-based behavioral interventions related to childhood obesity. The authors' objective was to systematically examine the methodology and conclusions of three meta-analyses and five systematic reviews published between January 1990 and October 2010 focusing on the effectiveness of school-based obesity programs. Five of the eight reviews were deemed high quality; one of those deemed high quality was the meta-analysis by Gonzalez-Suarez, Worley, Grimmer Somers and Dones (2009) described previously within this section. The systematic review by Flodmark, Marcus, & Britton, (2006) was not included in the synthesis because it was not limited to school-based interventions. The authors found limited evidence on which to base specific program recommendations; however, in general, long-term school-based interventions combining diet, physical activity and family components were associated with a significant reduction of weight in children. The authors acknowledged that no single intervention would be a good fit for all schools. They suggested future research should focus on identifying specific program characteristics predictive of successful outcomes.

Link Between Physical and Mental Wellness

As the systematic reviews discuss, although some school-based intervention programs can have a significant impact on childhood obesity, additional research needs to further investigate specific programs or program elements that have been found to be particularly effective. Given the research findings on the relationship between physical and mental health, addressing mental health within childhood obesity prevention and intervention programs may increase the effectiveness of programming. Prior research indicates adolescents' cognitive beliefs are related to their healthy lifestyle choices as well as mental health issues, such as level of depression and anxiety (Melnyk, Small, Morrison-Beedy, Strasser, Spath, et al., 2006).

Cognitive-Behavioral Therapy

As discussed within Chapter One, one evidence-based therapeutic framework that directly addresses cognitive beliefs is Cognitive Behavior Therapy (CBT). CBT suggests that an individual's thoughts, feelings and behaviors are interrelated and that modifying one of the three facets impacts the other two (Beck, Rush, Shaw, & Emery, 1979). According to CBT theory, an individual who has negative beliefs is more likely to experience negative emotions and display negative behaviors. CBT focuses on modifying negative automatic thought patterns to assuage emotional distress. Modifying the dysfunctional thought patterns when an antecedent occurs can improve emotions and behaviors.

Using the CBT theoretical framework, adolescents with stronger beliefs and increased confidence about their ability to engage in healthy lifestyle behaviors would perceive those behaviors as less difficult to perform, which would result in increased engagement in healthy choices and behaviors. Conversely, adolescents with higher levels of negative mood would report less healthy lifestyle beliefs, choices, and behaviors. Given this triangular relationship

between thinking, feeling and behavior, cognitive-behavioral skill building (CBSB) may assist adolescents with cognitive change thereby improving their healthy lifestyle beliefs in order to facilitate healthy lifestyle choices and behaviors. Previous research has shown incorporating CBSB into healthy lifestyle interventions has a positive impact on depression and anxiety in adolescents (Melnyk, Small, Morrison-Beedy, Strasser, Spath, et al., 2006).

Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, and Nutrition (TEEN) program

Given the school psychologist's competencies regarding social-emotional health and facilitating school-based programming, it is a natural role for the school psychologist to assist in the adoption and implementation of an intervention which focuses on both physical and mental health, such as the COPE Healthy Lifestyles TEEN program. The COPE Healthy Lifestyles TEEN program may be an effective way for school staff to address, prevent and intervene regarding the childhood obesity epidemic while also increasing the social-emotional skills of students. The program combines nutritional education, physical activity and cognitive-based skill building lessons.

Melnyk, Small, Strasser, Crean and Kelly (2007) studied the feasibility of implementing the COPE Healthy Lifestyles TEEN program with overweight adolescents. Two phases were conducted with 23 overweight teens. Phase I included a pre-experimental design with one group of 11 urban adolescents. Phase II was conducted with 12 suburban teenagers using a randomized controlled pilot study. Weight and BMI were obtained at baseline and upon completion of the fifteen week program. The intervention group received the COPE Healthy Lifestyles TEEN program that consisted of a fifteen 60-90 minute session each week. The sessions include: cognitive-behavioral skills building activities, role-playing and case-based examples to enhance

participants' behavioral skills learning. Twenty to thirty minutes of physical activity was included in each session. The parent component included four meetings during which parents were taught about the content of the program and how they could assist their children in reaching the healthy lifestyle goals. The results showed the teens who received the COPE Healthy Lifestyles TEEN intervention experienced a significantly greater reduction in weight and BMI compared to their counterparts in the control group. Attrition was a problem in this study which may have been due to the fact that the program was held after school. A major limitation of the study was the small convenience sample.

Another study was conducted using the COPE Healthy Lifestyles TEEN program with 19 Hispanic adolescents from an urban high school in a southwest inner city (Melnyk, Jacobson, et al., 2009). The participants were enrolled in two health classes and the two health classes were randomly assigned to be the intervention or control group. The study was designed to assess the efficacy of the COPE Healthy Lifestyles TEEN program but also added an emphasis on mental health outcomes. Participants completed pre and post-measures assessing depression, anxiety, anger, disruptive behavior and self-concept. The results of the study showed an increase in the intervention participants' healthy lifestyle choices and a decrease in depression and anxiety symptoms. The students in the control group did not show an improvement in depression and anxiety but had similar increases in the commitment to engage in healthy lifestyle behaviors.

CHAPTER 3

METHODOLOGY

This study was designed to evaluate the effectiveness of the COPE Healthy Lifestyles TEEN program within a suburban high school setting located outside of Washington D.C.

Participants

Recruitment

Approval for the study was received through Loyola University Chicago's Institutional Review Board. Approval for the study was also received through the participating school district's Office of Program Evaluation.

Recruitment of participants was completed by the researcher in an email sent to the school counselors, school psychologist and school social worker in January 2017. Recruitment was completed in March 2017. The school counselors were provided with information regarding the program and encouraged to refer any students they thought would benefit from the program to the school psychologist and school social worker. Weight was not a mandatory consideration for referral to the program because the COPE Healthy Lifestyles TEEN program can be used in prevention or intervention with participants. Twenty-seven students were referred by the school counselors, school psychologist and school social worker. The school psychologist and school social worker then contacted the guardians of recommended students to describe the program and notify them that they would be sending home the parental consent form (Appendix A). After the signed parental consent forms were received, the researcher met with the fourteen potential

participants to describe the program and review the student assent form with each participant. Fourteen students returned signed parental consent forms, met with the researcher and subsequently signed the written assent form (Appendix B). The program began on March 16, 2017. Throughout the program, there was an attrition rate of 21.4%; three participants did not complete the program – Participants 12, 13 and 14. Participant 12 left the school during the intervention period. Participant 13 attended the first session only and Participant 14 attended the first three sessions but then only one session (session 9) for the remainder of the program. Therefore, 11 participants completed the both the pretest and posttest measures for the study. One of the 11 participants chose not to complete any of the posttest measures with the exception of the BMI measure and Participant Exit Interview. This participant is identified as Participant 11. The program ran for a total of 12 sessions. The number of sessions attended by each participant is included in the table below.

Table 1. Participant Attendance

Participant	Number of Sessions Attended
Participant 1	10
Participant 2	10
Participant 3	9
Participant 4	10
Participant 5	12
Participant 6	11
Participant 7	11
Participant 8	11
Participant 9	11
Participant 10	11
Participant 11	11
Participant 12	4
Participant 13	1
Participant 14	4

Demographic Data

Of the 11 students who completed the COPE Healthy Lifestyles TEEN program, eight students identified as African American, one student as multi-racial, one student as Caucasian, and one student as Hispanic. All participants were female. At the beginning of the intervention, the age of the students ranged from 14-15 years of age; the mean age was 14.91 (SD=0.34). All of the participants were in the ninth grade. Six participants entered the program under the BMI category of Normal Weight. Four participants were classified as Overweight and one participant fell within the Obese category.

Table 2. COPE Healthy Lifestyles TEEN Participants Demographic Data

Characteristic	Count	Percentage
Gender (n=11)		
Female	N=11	100.0%
Male	N=0	0.0%
Race (n=11)		
African-American	N=8	72.7%
Caucasian	N=1	9.1%
Hispanic	N=1	9.1%
Multiracial	N=1	9.1%
Age (n=11)		
14 years	N=6	54.55%
15 years	N=5	45.45%
Baseline Weight Status (n=11)		
Underweight	N=0	0.0%
Normal Weight	N=6	54.55%
Overweight	N=4	36.36%
Obese	N=1	9.09%

Procedures

Facilitator Training

In order to implement the COPE Healthy Lifestyles TEEN program, the researcher was trained by an original team member who had helped to create the program and previously trained classroom teachers on the curriculum. The training took place over two days by phone; each day consisted of a two hour training. Prior to the training dates, the COPE Healthy Lifestyles TEEN

staff shared all program documents and materials with the researcher through a virtual Dropbox website. In preparation for the trainings, the researcher read and reviewed the program materials including items such as the manuals for both the program facilitator and the teen participants, the PowerPoint presentations for each of the 15 sessions, and evaluation measures. During the two training days, the COPE Healthy Lifestyles TEEN staff member reviewed each of the 15 weekly sessions, providing advice based on past implementation. The researcher asked any questions that arose while reviewing the materials independently.

Program Implementation

At the request of the school principal, the COPE Healthy Lifestyles TEEN program was held after school. Participants were expected to arrive to the COPE Healthy Lifestyles TEEN program classroom by 3:00pm. Many of the participants relied on the late bus for transportation to their homes. The late bus departed at 4:45pm. Therefore, the COPE Healthy Lifestyles TEEN weekly sessions were held on Thursdays from 3-4:30pm. Due to the extended timeframe of the weekly sessions, some of the 15 lessons were combined, resulting in the program lasting for 12 weeks. Sessions 7, 9 and 10 included two lessons combined into one. The specific lessons are listed in Table 3. Combining two lessons into one session was an option that was discussed with the COPE Healthy Lifestyles TEEN staff member during the Facilitator Training sessions; the staff member shared that is was not an uncommon practice to combine lessons. Each session included 60-70 minutes of education and cognitive behavior skill building (CBSB) and 20-30 minutes of physical activity. Each session focused on a different topic related to healthy lifestyle behaviors and cognitive skills including educational information on leading a healthy lifestyle and CBSB which includes practice and role playing. The program included homework assignments to capture the participants' goals and progress. The 20-30 minutes of physical

activity included activities such as dancing and walking. Pedometers were purchased by the researcher and distributed to participants during the first session of the program. The researcher reviewed the proper use of a pedometer to ensure participants used them effectively. The participants were asked to record their steps daily and turn in the completed log to the researcher at the beginning of each weekly session.

After parental consent and student assent were gathered, the pretest measures were administered individually to participants by a school staff member other than the researcher approximately one day prior to the first COPE Healthy Lifestyles TEEN session. The 12 COPE Healthy Lifestyles TEEN sessions were conducted each week by the researcher. The session and topics covered during that session are included in the table below. Sessions 7, 9 and 10 were the sessions in which two lessons were completed instead of one lesson. The intervention period lasted 13 weeks because the group did not meet during the week of the Spring Break holiday.

Table 3. Weekly Session Topics

Session	Topic
Session 1	Healthy Lifestyles
Session 2	Self-Esteem and Positive Thinking
Session 3	Overcoming Barriers
Session 4	Stress and Coping
Session 5	Dealing with Emotions
Session 6	Personality and Effective Communication
Session 7	Activity; Heart Rate and Stretching
Session 8	Nutrition
Session 9	Reading Food Labels; Portion Sizes
Session 10	Social Eating; Snacks and Eating Out
Session 11	Healthy Choices
Session 12	Integrating knowledge and skills

An outside observer, the school psychologist at the school in which the program was implemented, attended three of the weekly sessions to rate implementation fidelity and participant participation. She had planned to attend two additional sessions but unexpected

events caused her to miss two of the planned sessions. In order to prepare her for the observation, the school psychologist was provided with a copy of both the COPE Healthy Lifestyles TEEN facilitator manual and student manual as well as the Powerpoint slides being presented at each session. She was able to review the materials and ask questions of the researcher prior to the observations.

The posttest measures were administered to the participants immediately following the final weekly session. Individual interviews with participants were conducted within one day following the completion of the final weekly session.

Variables

Independent Variable

The independent variable was the COPE Healthy Lifestyles TEEN intervention program.

Dependent variables.

The dependent variables included participants' body mass index (BMI), healthy lifestyle behaviors and attitudes, self-concept, and knowledge related to nutrition and physical activity.

Body mass index is operationally defined as the calculation of a child's BMI score using height, weight, age and gender. The formula for BMI is [weight/(height x height)] x 703. The calculated BMI is then used to find the percentile on the appropriate gender BMI chart.

Healthy lifestyle behaviors are operationally defined as behaviors relating to weight loss such as methods of attempting to lose weight; eating habits such as vegetable, fruit and dairy consumption; and physical activity such as engagement in types of physical activity and length of engagement. Attitudes related to healthy lifestyles are operationally defined as the degree of difficulty a participant believes leading an active lifestyle to be and the participants' belief in their ability to maintain that type of lifestyle. Self-concept is operationally defined as

participants' opinions regarding their own physical appearance and attributes, intellectual and school status, happiness and satisfaction, freedom from anxiety, behavioral adjustment, and popularity. Knowledge is operationally defined as facts related to nutrition, healthy eating and physical activity.

Research Design

This study utilized a mixed-method quasi-experimental and evaluative research design. The design was constructed from the mixed method substantive theory stance in that the theory supporting the COPE Healthy Lifestyles TEEN program was the driving force for the methodology. The intent of this study was multi-dimensional. First the study was designed to determine the changes that occur as a result of the COPE Healthy Lifestyles TEEN program on participants' BMI, knowledge, behaviors, and self-concept. Secondly, the study investigated how the change occurred through participants' journals and interviews. The study utilized a mixed methods component design during methodology and a more integrative design in data analysis. The implemented methods were used in harmony for the inquiry purposes but also remained distinct from one another throughout the study. During data analysis, the design followed a more integrated approach in that the different methods employed were blended to analyze the data.

Instrumentation

All quantitative measures were administered to the participants both prior to the start of the program and immediately after the completion of the program. Pedometer logs and journals were intended to be completed continuously throughout the study. The Participant Exit Interview occurred after the completion of the program.

Body Mass Index

Body Mass Index (BMI) is a reliable indicator of body fat for most children and teens. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat, such as underwater weighing and dual energy x-ray absorptiometry (Mei, Grummer-Strawn, Pietrobelli, Goulding, Goran, & Dietz, 2002). For adults, BMI is calculated using weight and height. In children and teens aged 2-19, age and sex are also considered because the amount of body fat changes with age and differs with gender in children. Because the participants in this study were under the age of 20, BMI was computed using the standard measurements of height and weight as well as birth date, date of measurement, and gender of each participant (Centers for Disease Control and Prevention, 2011). After the BMI was calculated for participants, the BMI number was plotted on the CDC BMI-for-age growth charts (gender-specific) to obtain a percentile ranking. The percentile indicated the relative position of the participant's BMI number in relation to other children of the same sex and age. The weight status categories are included below.

Table 4. Body Mass Index Classification

Weight Status Category	Percentile Range
Underweight	Less than the 5th percentile
Healthy weight	5th percentile to less than the 85th percentile
Overweight	85th percentile to less than the 95th percentile
Obese	Equal to or greater than the 95th percentile

The CDC and American Academy of Pediatrics recommend the use of BMI to screen for overweight and obesity; however, the BMI is not a diagnostic tool. A child may fall into the overweight category based on his or her BMI but to determine whether excess fat is a problem, a health care provider would need to perform further assessments such as skinfold thickness, diet evaluation, physical activity, and family health history (Centers for Disease Control and Prevention, 2011).

Nutrition Knowledge Scale for Teens and Activity Knowledge Scale for Teens

To assess change in knowledge, participants completed the Nutrition Knowledge Scale for Teens and the Activity Knowledge Scale for Teens to assess their content knowledge of the intervention materials and topics. Both scales were developed by the creators of the COPE Healthy Lifestyles TEEN program. The Nutrition Knowledge Scale for Teens contains twenty items participants can answer with "yes", "no", or "I don't know". The Activity Knowledge Scale for Teens includes twelve items which can also be answered with "yes", "no", or "I don't know". To score each scale, a participant receives one point for a correct answer and zero points for an incorrect or "I don't know" response. These scales are included in Appendices C and D.

Youth Risk Behavior Surveillance System Items.

To assess behavior change, participants completed an anonymous survey designed to measure their behaviors related to their body weight (items 1-5), eating habits (items 6-13), and physical activity (items 14-19). This survey was composed of nineteen items from the Center for Disease Control 2013 Youth Risk Behavior Surveillance System (YRBSS) (Center for Disease Control, 2013). The scoring rubric for the nineteen items used in this study was created by the researcher and can be found in Appendix E. The YRBSS monitors six types of health-risk behaviors that contribute to the leading causes of death and disability among youth and adults. The 19-item survey in this study included items from two of those six types of health-risk behaviors – unhealthy dietary behaviors and inadequate physical activity. The YRBSS also monitors the prevalence of obesity and asthma. The YRBSS data are used to "measure progress toward achieving national health objectives for *Healthy People 2020* and other program and policy indicators; assess trends in priority health-risk behaviors among high school students; and evaluate the impact of broad school and community interventions at the national, state, and local

levels." Additionally, state, territorial, and local agencies and nongovernmental organizations use YRBSS data to "set and track progress toward meeting school health and health promotion program goals, support modification of school health curricula or other programs, support new legislation and policies that promote health, and seek funding and other support for new initiatives" (Centers for Disease Control and Prevention, 2012). The Center for Disease Control has conducted two test-retest reliability studies of the YRBSS questionnaire – in 1992 and 2000. The 1992 results showed no statistically significant differences between the prevalence estimates for the first and second time the questionnaire was administered. In the second study, the questionnaire was again administered two times approximately two weeks apart. Approximately 22% of the items had significantly different prevalence estimates for the first and second times the questionnaire was administered indicating the reliability of those items may be questionable. Based on these data, certain items have been revised or deleted from later versions of the survey. (Centers for Disease Control and Prevention, 2004). The 19 items from the YRBSS that will be used in this study are included in Appendix F.

Pedometer and Pedometer Log

In addition to the abbreviated YRBSS survey, behavior change was measured using the pedometer and pedometer log. Pedometers were issued to each participant to measure the participants' number of steps taken each day. At the end of each day, the participants were to record in their pedometer log how many steps they took according to their pedometer. The pedometer log can be found in Appendix G.

Although self-report measures can have limitations in terms of accuracy, the pedometer provided the participants with an objective, concrete number to record in the pedometer log. The researcher planned to collect the pedometer logs each week at the beginning of each session.

Piers-Harris Self-Concept Scale-II

In order to assess change in self-concept, participants completed the Piers-Harris Self-Concept Scale-II (Piers-Harris II) (Piers, Harris, & Herzberg, 2002). The Piers-Harris II is a 60-item self-report questionnaire designed to assess self-concept in children aged 7 to 18. The scale is composed of six subscales: physical appearance and attributes, intellectual and school status, happiness and satisfaction, freedom from anxiety, behavioral adjustment, and popularity. Scale items are descriptive statements written at a second grade reading level. Participants indicate whether each item applies to them by selecting 'yes' or 'no'. The Piers-Harris II provides a total score indicating the participant's level of self-concept while the six subscales allow for more detailed interpretation. Raw scores are converted into standardized t-scores and percentile ranks for both the total score and the six subtest scores. The measure includes two validity scales to assess for potential biases – the Inconsistent Responding Index (INC) and Response Bias Index (RBI). Although the second edition of the Piers-Harris includes a more representative sample of children than the first edition, minority groups are underrepresented in the sample. The authors of the measure have acknowledged that fact and encourage future research on the topic (Kelley, 2004).

Healthy Lifestyles Beliefs Scale

The Healthy Lifestyles Beliefs Scale (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009) will also be used to assess participant self-concept. The scale was designed by the creators of the COPE Healthy Lifestyles TEEN program and is designed to measure participants' beliefs about their ability to lead and maintain a healthy lifestyle. The scale is comprised of 16 items measured on a 5-point Likert scale ranging from 1- strongly disagree to 5- strongly agree. Face validity for the scale was established with 10 teens and content validity by eight adolescent

specialists. Construct validity was established using factor analysis with over 400 high school students. Cronbach alphas have typically been about .90 (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009). The Healthy Lifestyles Beliefs Scale can be found in Appendix H.

Healthy Lifestyles Perceived Difficulty Scale

To further assess changes in participant's self-concept, the participants were administered the Healthy Lifestyles Perceived Difficulty Scale (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009). The developers of the COPE Healthy Lifestyles TEEN program designed the scale which measures the participants' perceived difficulty of leading a healthy lifestyle. The measure includes 12 items on a 5-point Likert scale ranging from 1-very hard to do to 5-very easy to do. Construct validity was established using factor analysis with over 400 high school students. Cronbach alphas with prior samples have typically been above .85 (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009). The Healthy Lifestyles Perceived Difficulty Scale can be found in Appendix I.

Participant Exit Interviews

After completion of the program, individual interviews were conducted with the participants to collect information on their views of the program and any impact the program may have had on the participants. For this measure, a mixed methods development framework was employed. The exit interview included items designed to elicit both qualitative (open-ended items) and quantitative (closed items) responses from participants. The exit interview items were designed to answer the present study's fifth research question:

According to program participants, which components of the program facilitate change in BMI, knowledge base, behavior, and self-concept? How do these program components facilitate

change? Data from the interviews were also used during data analysis to inform the other four research questions.

While the first four research questions in this study are outcome driven, the fifth question is more consistent with a process type of program evaluation. The interviewer followed the list of interview items to evaluate the perceptions of the program participants' regarding the change mechanisms within the COPE Healthy Lifestyles TEEN program. The Participant Exit Interview can be found in Appendix J.

Implementation Fidelity

In order to collect information on program implementation, the researcher completed an implementation fidelity measure (Appendix K) after each weekly session. The implementation fidelity measure was designed by the COPE Healthy Lifestyle TEEN creators to be used by outside observers but was also used in this case for the researcher to self-monitor adherence to the program for each weekly session. The measure contains items regarding a number of aspects of the weekly lesson including preparation, learning objectives, instruction, adherence to lesson plan, active participation, practiced skills, student response to lesson, and classroom management. In addition to the researcher completing the form, an outside observer attended three sessions and completed the implementation fidelity measure. The outside observer was the school psychologist who worked at the high school in which the study was implemented.

Data Analysis

The present study employed data analysis which was integrated mixed-methods in nature. The researcher intentionally examined the interaction between the different sets of data throughout the study and, particularly, during the data analysis stage.

Quantitative Data Analysis

Quantitative measures were used to collect data on participants' change in BMI, knowledge, behavior and self-concept. The data analysis for the quantitative measures included the cleaning of data at which time the data sets were reviewed for valid responses and general soundness. Data that appeared to be invalid were set aside for further review. The raw data were then reduced to descriptive form. In this particular study, the descriptive statistics for each of the participants as well the group as a whole are reported. Visual inspection – a data analysis technique in which graphs of participant change over time are visually examined – was employed using the pretest and posttest group means for each measure.

Qualitative Data Analysis

A qualitative measure was used to collect data on participants' perspective regarding the intervention and impact through the Participant Exit Interviews. Implementation fidelity data were also collected in the qualitative data form.

The qualitative data were analyzed using a consensual qualitative research framework (Greene, 2007). The intent of using this particular framework was to increase the confidence that the conclusions reached by the two auditors reflected a more thorough understanding and consensus than could be achieved by one auditor working in isolation. In the present study, the two auditors were the researcher and the external auditor. The external auditor was a staff member within the school district who held a doctorate and had prior experience with qualitative data analysis. The external auditor was provided with all of the program materials including the facilitator manual and teen workbook to review for content and context during coding.

The first step in the qualitative data analysis was completed through open coding (Merriam, 2009) which consists of making notations next to potentially relevant information within the documents being analyzed. Because the researcher and external auditor were open to

interpreting any information from the documents, the coding was considered “open.”

To begin the coding process, the responses from all eleven participants were grouped together based on the interview question. The researcher and external auditor independently reviewed the qualitative responses and identified major themes. The researcher and external auditor shared their identified major themes and collaborated to create the finalized codebook. Both coders then independently reviewed the raw data again and coded using the finalized codebook. The researcher and external auditor compared the results of their final coding to determine any discrepancies. Discrepancies were discussed and resolved through consensus. One final review of the data was completed to identify descriptive quotes for various codes.

CHAPTER 4

RESULTS

Chapter Three provided a description of the methodology utilized in this study to collect and analyze data in order to answer the five research questions posited in Chapter One. The current chapter presents the results of the data analysis, organized according to the five research questions. Descriptive statistics are provided, at both the individual participant and group level, for the quantitative measures used to inform the first four research questions. Qualitative data collected through the Participant Exit Interviews are presented in the fifth research question. At the conclusion of the chapter, data regarding implementation fidelity are provided.

Research Question 1: What changes in Body Mass Index occur as a result of the COPE Healthy Lifestyles TEEN intervention?

The mean Body Mass Index (BMI) of the participants at baseline was 23.43 (SD=4.01). Five of the eleven participants had BMIs that fell within the range of greater than or equal to the 85th percentile indicating that they were overweight or obese.

The mean Body Mass Index at posttest was 23.51 (SD=4.13), indicating a slight increase in the mean BMI of the group. Similar to pretest, five students had BMIs that fell with the range of greater than or equal to the 85th percentile indicating that they were overweight or obese.

The BMI of six participants remained unchanged between pretest and posttest. One participants' BMI decreased between pretest and posttest. Four participants' BMI increased slightly between pretest and posttest. The increases in BMI ranged from 0.2 to 0.5. Participant 9

had the largest change in weight and, therefore, BMI. Her weight increased by three pounds between pretest and posttest resulting in an increase in BMI of 0.5.

Based on both the BMI of individual participants and the mean BMI of the group, changes in BMI were minimal between pretest and posttest.

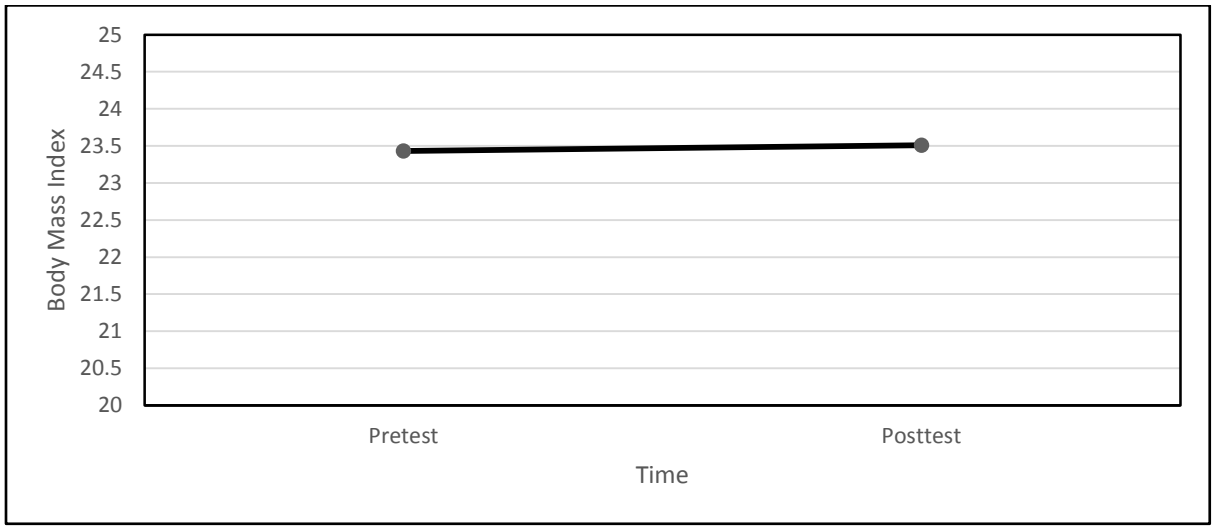
Table 5. Body Mass Index of Individual Participants at Pretest and Posttest

Participant Number	Pretest BMI	Posttest BMI	Change in BMI	Direction of change in BMI between pretest and posttest
Participant 1	23.2	23.2	0.0	No change
Participant 2	20.1	20.1	0.0	No change
Participant 3	19.4	19.4	0.0	No change
Participant 4	19.9	19.9	0.0	No change
Participant 5	28.1	28.3	+0.2	Increase in BMI
Participant 6	28	28.2	+0.2	Increase in BMI
Participant 7	26.6	26.6	0.0	No change
Participant 8	26.3	26.3	0.0	No change
Participant 9	26.5	27	+0.5	Increase in BMI
Participant 10	23.3	23.5	+0.2	Increase in BMI
Participant 11	16.3	16.1	-0.2	Decrease in BMI

Table 6. Group Mean and Standard Deviation of Body Mass Index at Pretest and Posttest

	Pretest	Posttest
Group Mean	23.43	23.51
Group Standard Deviation	4.01	4.13

Figure 1. Group Mean of Body Mass Index at Pretest and Posttest



Research Question 2: What changes in knowledge related to nutrition and physical activity occur as a result of the COPE Healthy Lifestyles TEEN intervention?

Participant knowledge change was measured by the Nutrition Knowledge Scale for Teens and the Activity Knowledge Scale for Teens.

Nutrition Knowledge Scale for Teens.

Ten participants completed the Nutrition Knowledge Scale for Teens at pretest and posttest. The Nutrition Knowledge Scale for Teens contains twenty items. The mean number of items answered correctly at pretest was 7.00 (SD=3.40). The mean number of items answered correctly at posttest was 12.90 (SD=4.53) indicating an overall increase in nutrition knowledge as a group between pretest and posttest. Additionally, all ten participants increased the number of items answered correctly between pretest and posttest as individuals.

Figure 2. Number of Correct Responses on Nutrition Knowledge Scale at Pretest and Posttest

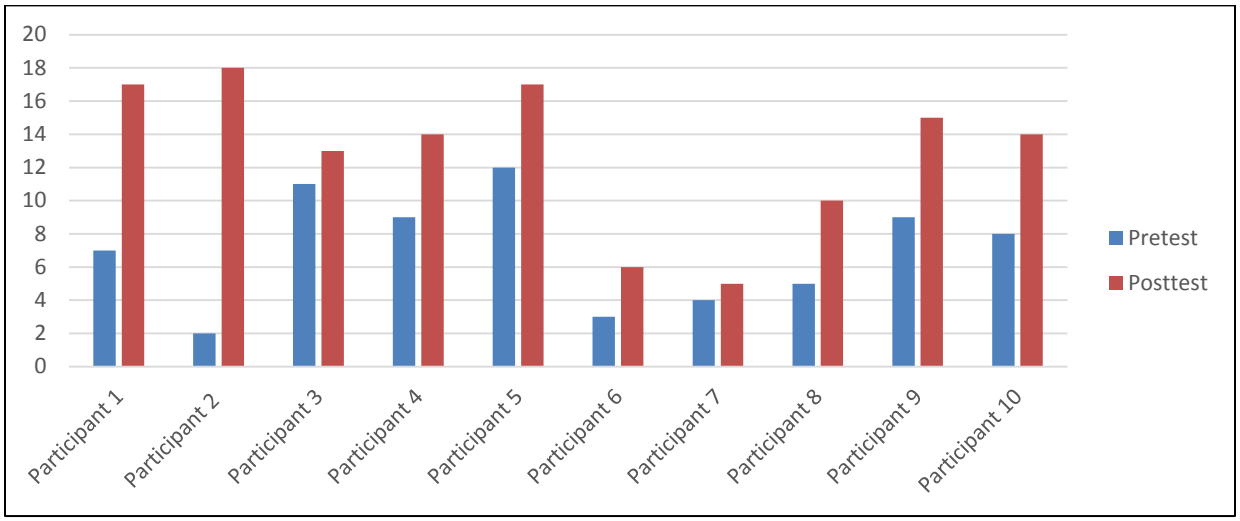
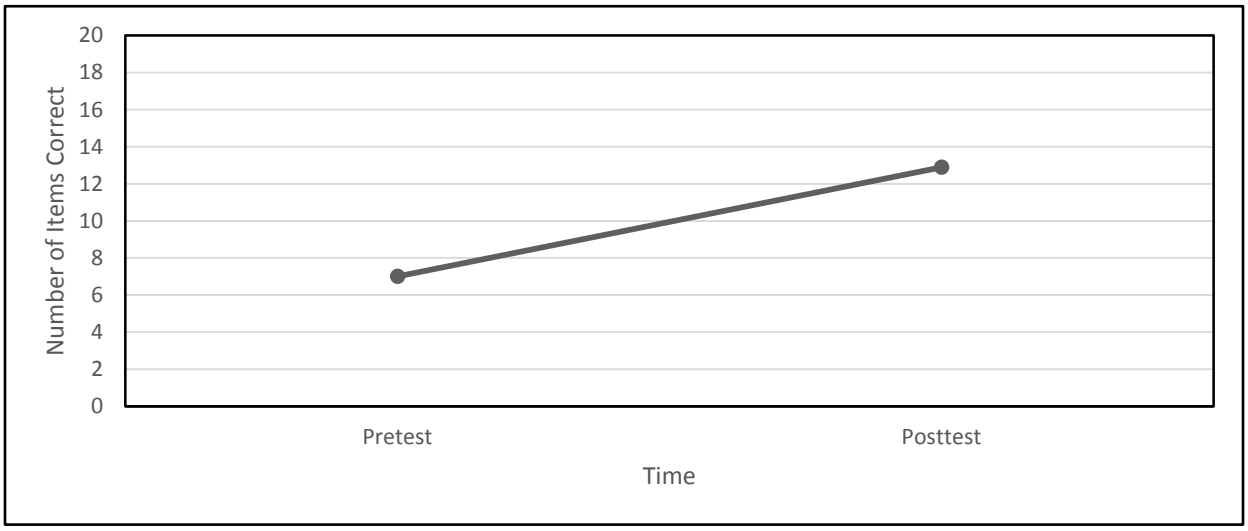


Table 7. Group Mean and Standard Deviation of Correct Responses on the Nutrition Knowledge Scale at Pretest and Posttest

	Pretest	Posttest
Group Mean	7.00	12.90
Group Standard Deviation	3.40	4.53

Figure 3. Group Mean for Number of Correct Responses on the Nutrition Knowledge Scale at Pretest and Posttest



Activity Knowledge Scale for Teens.

Ten participants completed the Activity Knowledge Scale for Teens at pretest and

posttest. The Activity Knowledge Scale for Teens contains twelve items. The mean number of items answered correctly at pretest was 5.70 (SD=3.50). The mean number of items answered correctly at posttest was 9.20 (SD=2.20) indicating an overall increase in physical activity knowledge as a group between pretest and posttest. At the individual level, eight participants increased the number of items answered correctly between pretest and posttest. One participant answered the same number of items correctly between pretest and posttest. One participant decreased the number of items she answered correctly by one between pretest and posttest.

Figure 4. Number of Correct Responses on Activity Knowledge Scale at Pretest and Posttest

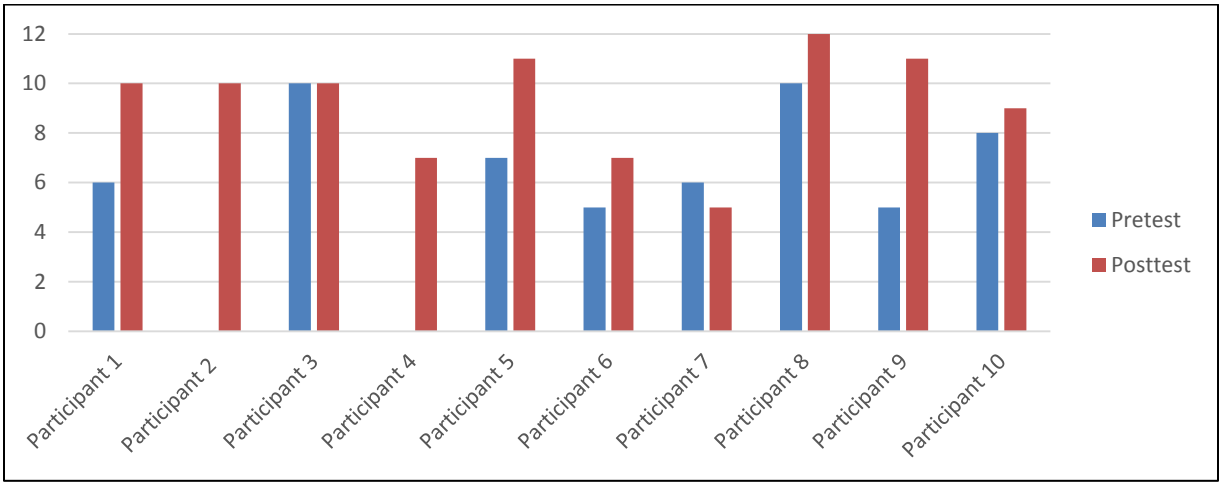
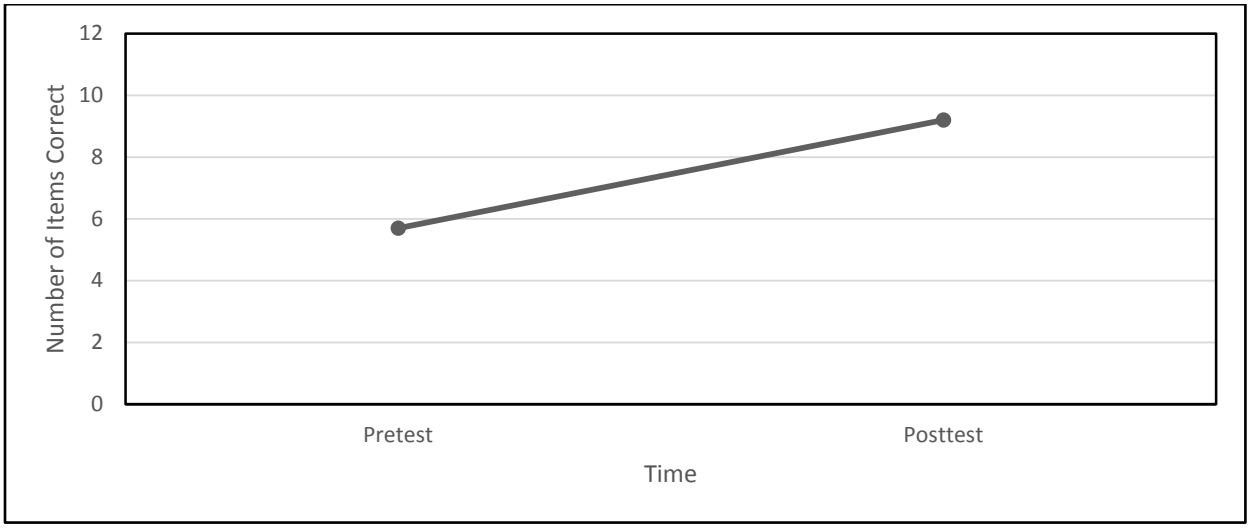


Table 8. Group Mean and Standard Deviation of Correct Responses on the Activity Knowledge Scale at Pretest and Posttest

	Pretest	Posttest
Group Mean	5.70	9.20
Group Standard Deviation	3.50	2.20

Figure 5. Group Mean for Number of Correct Responses on the Activity Knowledge Scale at Pretest and Posttest



Research Question 3: What changes in behavior occur as a result of the TEEN COPE intervention?

Participant behavior change was measured by the Youth Risk Behavior Surveillance System survey items and the pedometer logs.

Youth Risk Behavior Surveillance System Survey.

Ten participants completed the survey composed of 19 items from the Youth Risk Behavior Surveillance System (YRBSS) (Center for Disease Control, 2013). A complete list of the 19 items used in the YRBSS measure can be found in Appendix E.

Items 1 through 5.

The first item on the survey is “How do you describe your weight?” Participant responses to this item were compared to their actual BMI classification. For these purposes, “about the right weight” corresponds with the “Normal” BMI classification; “Slightly Overweight” corresponds with the “Overweight” BMI classification and “Very overweight” corresponds to the “Obese” BMI classification.

According to their corresponding BMI classification, three participants (2, 3, and 9) described their weight accurately in item one. Five participants (1, 4, 5, 6, and 8) described their weight in a lower category than indicated by their BMI. For example, Participant 6 described her weight with the option “About the right weight” while her BMI classification places her within the overweight classification. Conversely, two participants (7 and 10) overestimated their weight.

On the posttest, the number of participants who correctly described their weight in item 1 so that their answer was in agreement with their BMI classification increased to six participants (1, 2, 3, 6, 8 and 9). Two participants (4 and 5) continued to describe their weight in a lower category than indicated by their BMI. And two participants (7 and 10) continued to overestimate their weight.

The second item on the survey is “Which of the following are you trying to do about your weight?” At pretest, seven participants answered either “nothing” or “stay same” to item 2. Two participants answered that they were trying to lose weight and one participant reported she was trying to gain weight. Participants’ responses on the posttest differed from the pretest. Five participants answered “lose weight,” four participants answered “gain weight” and one participant answered “stay the same weight.”

Table 9. Participant Pretest BMI, BMI Classification YRBSS Item 1 and 2 Responses

Participant Number	BMI	BMI classification	Item 1 Response	Agreement between Item 1 Response and BMI	Item 2 Response
1	23.2	Normal	Slightly underweight	No	Nothing
2	20.1	Normal	Right Weight	Yes	Stay same
3	19.4	Normal	Right Weight	Yes	Nothing
4	19.9	Normal	Slightly Underweight	No	Gain
5	28.1	Obese	Right weight	No	Lose
6	28	Overweight	Right weight	No	Stay same
7	26.6	Overweight	Very overweight	No	Nothing
8	26.3	Overweight	Right weight	No	Stay same
9	26.5	Overweight	Slightly overweight	Yes	Nothing
10	23.3	Normal	Slightly overweight	No	Lose

Table 10. Participant Posttest BMI, BMI Classification YRBSS Item 1 and 2 Responses

Participant Number	BMI	BMI classification	Item 1 Response	Agreement between Item 1 Response and BMI	Item 2 Response
1	23.2	Normal	Right Weight	Yes	Gain
2	20.1	Normal	Right Weight	Yes	Gain
3	19.4	Normal	Right Weight	Yes	Gain
4	19.9	Normal	Slightly Underweight	No	Same
5	28.3	Obese	Right weight	No	Lose
6	28.2	Overweight	Slightly overweight	Yes	Lose
7	26.6	Overweight	Very overweight	No	Gain
8	26.3	Overweight	Slightly Overweight	Yes	Lose
9	27	Overweight	Slightly overweight	Yes	Lose
10	23.5	Normal	Slightly overweight	No	Lose

Items three, four, and five on the survey ask about unhealthy behaviors used to lose or maintain weight. Regarding item three, at the time of pretest, all participants responded “no” indicating they did not go without eating for 24 hours or more to lose weight or keep from gaining weight. On the posttest, three participants answered “yes” to this item. Fasting is not a behavior endorsed through the COPE Healthy Lifestyles TEEN program; skipping meals is discouraged in the program content.

At both pretest and posttest, all ten participants answered “no” to item four indicating they did not take diet pills, powders, or liquids without a doctor’s advice. Similarly, at pretest and posttest, all ten participants answered “no” to item five indicating they did not vomit or take laxatives to lose or maintain weight.

Items 6 through 13.

Items 6-13 ask participant about food they ate or drank during the previous week. Each response option was coded so that a higher score indicates healthier behaviors than a lower score. As a group, the mean decreased between pretest (M=16.10, SD=3.78) and posttest (M=14.30, SD=4.14) indicating a decrease in healthy eating behaviors at posttest. At the individual level, six participants decreased in score between pretest and posttest, while four participants increased in score.

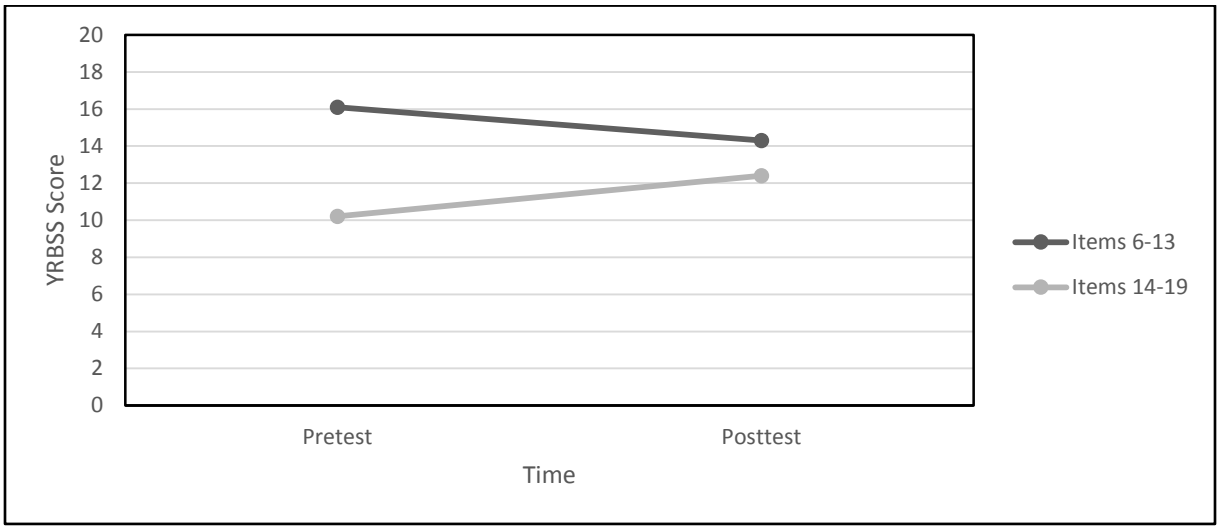
Items 14 through 19.

Items 14-19 ask about physical activity in which participants engaged during the previous week. Each response option was coded so that a higher score indicates healthier behaviors related to physical activity than a lower score. As a group, the mean increased between pretest (M=10.20, SD=4.78) and posttest (M=12.40, SD=4.40) indicating healthier behaviors relating to physical activity at posttest compared to pretest. At the individual level, five participants increased in score between pretest and posttest. Three participants maintained the same score between pretest and posttest and two participants’ scores decreased.

Table 11. Group Mean and Standard Deviation and Individual Participant Scores on YRBSS Items

	Item 6-13		Item 14-19	
	Pretest	Posttest	Pretest	Posttest
Participant 1	20	16	16	14
Participant 2	15	8	15	15
Participant 3	14	11	8	16
Participant 4	15	20	13	12
Participant 5	15	13	8	9
Participant 6	17	20	3	3
Participant 7	8	10	12	12
Participant 8	22	14	3	14
Participant 9	17	18	9	10
Participant 10	18	13	15	19
Group Mean	16.10	14.30	10.20	12.40
Group Standard Deviation	3.78	4.14	4.78	4.40

Figure 6. Group Mean on YRBSS Items at Pretest and Posttest



Pedometer and pedometer log.

Participants were provided with pedometers at the start of the intervention and asked to complete the weekly pedometer log. A prize was used to incentivize participants to record their daily steps and turn in their completed weekly logs. However, despite weekly reminders, the participants did not record their steps or turn in the pedometer logs. Several participants reported

to the researcher they forgot to wear their pedometers daily and, by the halfway point of the intervention period, several participants reported that they had misplaced the pedometer. Due to budget constraints, the researcher was not able to replace missing pedometers.

Research Question 4: What changes in self-concept occur as a result of the TEEN COPE intervention?

Participant self-concept changes were measured by the Piers-Harris Self-Concept scale – Second Edition (Piers, Harris, & Herzberg, 2002), Healthy Lifestyles Beliefs scale, and Healthy Lifestyles Perceived Difficulty scale (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009).

Piers-Harris Self-Concept Scale –Second Edition.

Ten participants completed the Piers-Harris Self-Concept Scale – Second Edition (Piers-Harris 2) (Piers, Harris, & Herzberg, 2002) at pretest and posttest. The scale provides a total score in the form of a t-score which is a measure of an individual's general self-concept. A higher t-score on the total score indicates a higher self-report of positive general self-appraisal while a lower t-score indicates a lower level of positive self-appraisal. On the Piers-Harris 2, the group mean t-score increased between pretest (M=40.50, SD=8.50) and posttest (M=43.70, SD=9.89) indicating that, as a group, the participants' overall positive general self-appraisal increased.

In regards to change within individual participants, the t-score of six participants increased between pretest and posttest. Two participants' t-score remained unchanged between pretest and posttest and two participants' t-score decreased between pretest and posttest.

Table 12. Group Mean and Standard Deviation of t-score on the Piers Harris Self Concept Scale Total Score at Pretest and Posttest

	Pretest	Posttest
Group Mean	40.50	43.70
Group Standard Deviation	8.50	9.89

Figure 7. Group Mean on the Piers Harris Self Concept Scale Total Score at Pretest and Posttest

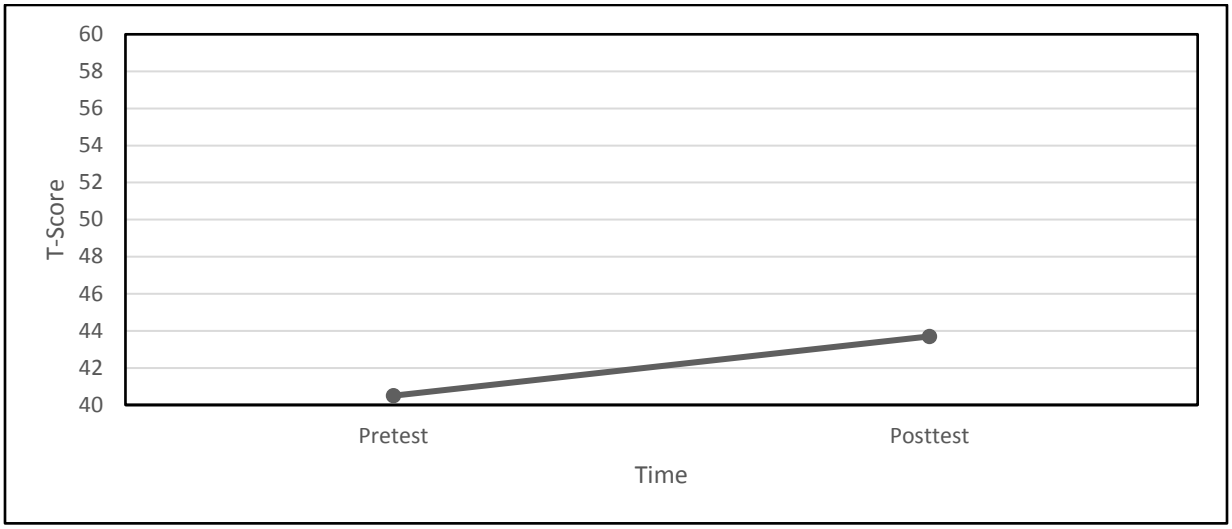


Table 13. Individual Participants' Piers Harris Self Concept Scale Scores at Pretest and Posttest

	Pretest			Posttest		
	Total Score (T-score)	Percentile	Description	Total Score (T-score)	Percentile	Description
Participant 1	41	18th	Average	49	46th	Average
Participant 2	49	46th	Average	53	62nd	Average
Participant 3	41	18th	Average	41	18th	Average
Participant 4	29	2nd	Very Low	33	4th	Low
Participant 5	48	42nd	Average	56	73rd	Average
Participant 6	26	<1st	Very Low	26	<1st	Very Low
Participant 7	38	12th	Low	46	34th	Average
Participant 8	53	62nd	Average	38	12th	Low
Participant 9	42	21st	Average	40	16th	Average
Participant 10	38	12th	Low	55	69th	Average

Healthy Lifestyles Beliefs scale.

Ten participants completed the Healthy Lifestyles Beliefs Scale (Melnyk, Jacobson,

Kelly, O'Haver, Small, & Mays, 2009). The Healthy Lifestyles Beliefs scale is comprised of sixteen items measured on a five point Likert scale ranging from 1-Strongly Disagree to 5-Strongly Agree. A higher overall score on the scale indicates a greater belief that the participant can live a healthy lifestyle. The group mean increased between pretest (M=54.40, SD= 11.70) and posttest (M=58.50, SD=15.06) indicating that as a group, the participants' belief they could actively live a healthy lifestyle improved between pretest and posttest.

In regards to individual participants, seven participants' overall score on the scale increased between pretest and posttest while three participants overall score decreased between pretest and posttest.

Table 14. Group Mean and Standard Deviation on the Healthy Lifestyles Belief Scale at Pretest and Posttest

	Pretest	Posttest
Group Mean	54.40	58.50
Group Standard Deviation	11.70	15.06

Figure 8. Group Mean on the Healthy Lifestyles Belief Scale at Pretest and Posttest

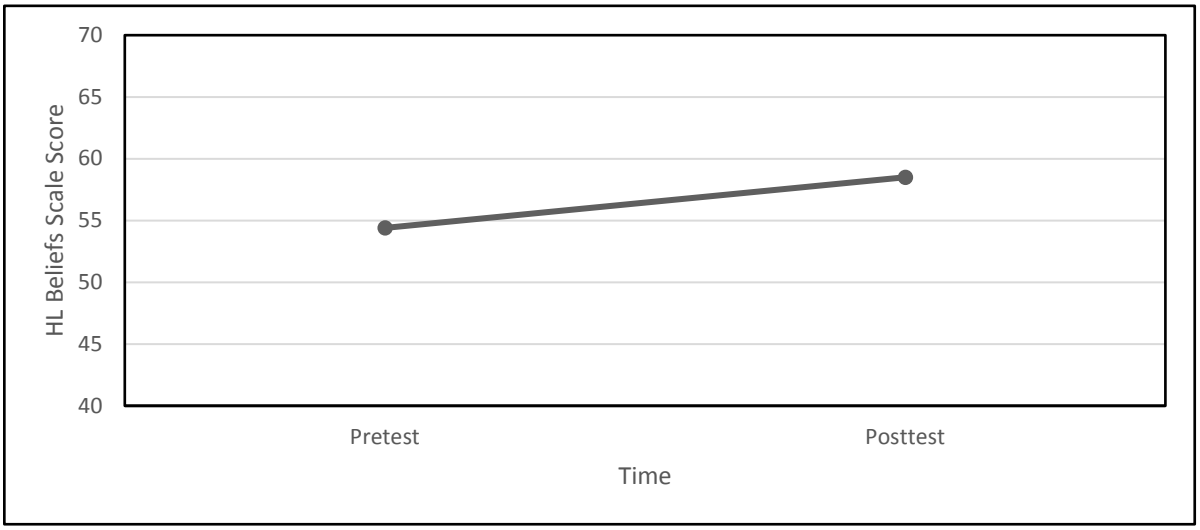


Table 15. Individual Participants' Total Score on Healthy Lifestyles Belief Scale at Pretest and Posttest

	Scale Total Score		Direction of Total Score from Pretest to Posttest
	Pretest	Posttest	
Participant 1	63	64	Increase
Participant 2	61	64	Increase
Participant 3	71	58	Decrease
Participant 4	45	29	Decrease
Participant 5	66	80	Increase
Participant 6	36	45	Increase
Participant 7	38	56	Increase
Participant 8	53	78	Increase
Participant 9	54	50	Decrease
Participant 10	57	61	Increase

Healthy Lifestyles Perceived Difficulty scale.

Ten participants completed the Healthy Lifestyles Perceived Difficulty Scale (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009). The Healthy Perceived Difficulty scale is comprised of twelve items. The items are measured on a five point Likert scale ranging from 1-Very Hard to Do to 5-Very Easy to Do. Therefore, a higher total score on the scale indicates the respondent views living a healthy lifestyle as easier than a respondent who has a lower total score on the scale.

Between pretest and posttest, the group mean increased from M=29.20 (SD= 10.21) to M=35.00 (SD=13.20). This direction of change indicates that, as a group, the participants perceived living a healthy lifestyle as less difficult at the time of posttest.

In regards to individual participants, six participants' overall score on the scale increased between pretest and posttest while four participants overall score decreased.

Table 16. Group Mean and Standard Deviation on the Healthy Lifestyles Perceived Difficulty scale at Pretest and Posttest

	Pretest	Posttest
Group Mean	29.20	35.00
Group Standard Deviation	10.21	13.20

Figure 9. Group Mean on the Healthy Lifestyles Belief Scale at Pretest and Posttest

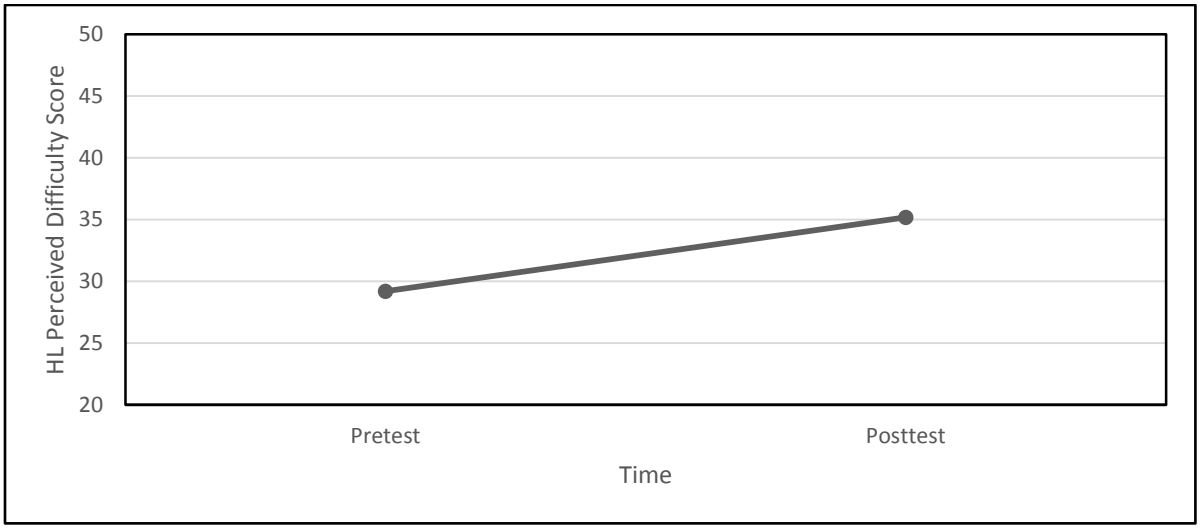


Table 17. Individual Participants' Total Score on Healthy Lifestyles Perceived Difficulty Scale at Pretest and Posttest

	Scale Total Score		Direction of Total Score from Pretest to Posttest
	Pretest	Posttest	
Participant 1	38	33	Decrease
Participant 2	35	34	Decrease
Participant 3	34	40	Increase
Participant 4	24	19	Decrease
Participant 5	44	59	Increase
Participant 6	17	20	Increase
Participant 7	25	19	Decrease
Participant 8	12	44	Increase
Participant 9	25	35	Increase
Participant 10	38	47	Increase

Research Question 5: According to program participants, which components of the program facilitate change in BMI, knowledge, behavior, and self-concept?

Participant Exit Interviews

The school psychologist at the high school in which the program was implemented interviewed each participant individually in a quiet office space. The participant interviews were then transcribed by the researcher and analyzed according to the consensual qualitative research framework previously described within Chapter Three.

Item 1. How did you decide to participate in the COPE Healthy Lifestyles TEEN program?

Five themes emerged in participants' responses to Item 1: Friends, Social Opportunity, Parents, Interest in Topics and School Staff. Five participants indicated that they decided to participate in the program because they knew of other people with whom they were already friends who were going to participate. Two participants decided to join because they saw the program as an opportunity to be meet and socialize with peers. Participant 10 saw the program as a way to meet new peers: "I felt like it would be better for me to get to know people that I haven't met before." Two participants indicated their parents said they had to participate in the program. Three participants indicated they were interested in the topics that would be discussed within the program. One participant indicated that she joined because she had been recommended by a school staff member.

Some participants offered more than one reason for joining the program. Participant 5 indicated that she decided to participate because of her friends as well as her interest in the program topics: "My friends were going to be in it. Also, I felt like I needed to be in this program because I had anger issues. My temper was terrible and I needed to learn how to control myself

in certain situations." Based on their responses to Item 1, 7 out of 11 participants decided to participate in the COPE Healthy Lifestyles TEEN program, in part, for the opportunity to socialize with their friends and peers.

Item 2. What did you like about the COPE Healthy Lifestyles TEEN program and Item 2a. What made you like (whatever aspect of the program the participant mentioned)?

During the coding process, Items 2 and 2a were combined and coded as one response. Therefore, they are treated as one response when reporting data in this section. Several themes emerged from Items 2 and 2a including Fellow Participants/Socializing, Group Leader, Social Emotional Health Topics and Physical Health Topics. The themes of Social Emotional Health and Physical Health Topics were coded as General or Specific depending on the participants' level of detail. If a response was coded with Specific, it was further coded into sub-themes. The sub-themes were named based on the subject or lesson with which the COPE Healthy Lifestyles TEEN information was associated. For example, Physical Health Topics had two sub-themes, Nutrition and Activity. Social Emotional Health Topics had the following sub-themes: Stress and Coping; and Self Esteem and Positive Thinking.

The theme of positive social interaction, with peers in the program and the group leader, was mentioned by several participants when describing what they liked about the program. Four participant responses were coded with the theme of Fellow Participants/Socializing. Participant 8 responded, "That I knew people in there. That I could relate to my friends." Additionally, three participants described a positive dynamic with the group leader as something they liked about the program. Participant 9's response included both themes relating to positive social interaction, Fellow Participants/Socializing and Group Leader: "I got to be with all my friends, and Ms. Viellieu because I like Ms. Viellieu."

Two participant responses were coded with the theme of Social Emotional Health Topics – General while four participant responses were coded with the theme of Social Emotional Health Topics – Specific. As previously discussed, within the Social Emotional Health Topics – Specific, there were two sub-themes: (1) Stress and Coping and (2) Self Esteem and Positive Thinking. Three participant responses were coded with the Stress and Coping sub-theme. Participant 10 shared, "I liked the muscle relaxation activity that we did." The Self-Esteem and Positive Thinking sub-theme was used for one participant, Participant 7. She shared, "I liked many things about this program. It taught me about healthy lifestyles, how to be positive in more situations and to just have fun in healthy ways."

Four participant responses were coded with the Physical Health Topics – General theme and two participant responses were coded with Physical Health Topics – Specific: Nutrition theme. Participant 11 shared, "That it was teaching me information about eating healthy and stuff like that. Now that I know how important it is to eat healthy, I probably will eat healthy."

Item 3. Which parts of the COPE Healthy Lifestyles TEEN Program were most helpful and Item 3a. How were (the part(s) mentioned) helpful?

The codes used for Items 3 and 3a are identical to the ones for items 2 and 2a – Fellow Participants/Socializing, Group Leader, Social Emotional Health Topics and Physical Health Topics. Again, Social Emotional Health and Physical Health Topics were coded as General or Specific depending on the participants' level of detail. The sub-themes remained consistent from the previous interview items. The Physical Health Topics had two sub-themes, Nutrition and Activity. Social Emotional also had two sub-themes: Stress and Coping and Self Esteem and Positive Thinking.

Two participant responses were coded with Fellow Participants/Socializing. Participant 7 answered, “When we played the healthy games, when we had discussions and talking to my peers in the group about how to be healthy. It gave me ideas and way to be healthy.”

Regarding Physical Health Topics, two participant responses were coded as General and five participant responses were coded as Specific. All five specific responses were coded with the Nutrition sub-theme. Participant 8 shared that her increased knowledge regarding nutrition was helpful: “Learning how unhealthy foods can really hurt you in the long run and it’s not really good for your body. Because I have eating problems, like I eat a lot of fatty foods.”

Regarding Social Emotional Health Topics, one participant response was coded as General and three were coded as Specific. Participant 2 identified the Stress and Coping information she learned in the program as helpful: “Learning about ways to deal with stress because sometimes things get stressful and you have to find better ways to deal with it.” Two participant responses indicated they found the Self-Esteem and Positive Thinking information helpful. Participant 5 shared, “I used to have a very negative mindset. I would have something bad to say all the time…And I used to think that arguing and telling someone I was going to smack them, I used to think that was okay and that would show people not to mess with me. But when I started taking a more positive turn in my life, I realized that it helps me more than being negative. It fixes problems faster than being negative.”

Item 4. Which parts of the COPE Healthy Lifestyles TEEN Program were not helpful?

In response to Item 4, four participants did not identify any aspect of the program as unhelpful. Participant 3 shared, “I think everything was helpful.”

As previously described, Fellow Participants/Socializing was mentioned by multiple participants as a helpful aspect of the program and something they liked about the program. However, there were aspects of the group dynamics that participants found unhelpful. Specifically, one participant mentioned arguing amongst group members and another participant described some of the participants as “extremely loud.”

Two participants identified a specific sub-theme within the Social Emotional Health Topics, as not helpful – Stress and Coping. Participant 5 shared, “I don’t really stress so it didn’t really apply to me.”

Two participants identified the sub-theme of Nutrition within the Physical Health Topics as not helpful. Participant 7 stated, “When we talked about foods to eat, I didn’t find that helpful because I have a lifestyle and that’s hard to change. I mean, I can always change, it’s not that hard, but I didn’t find it that helpful.”

Item 5a. How have you used what you learned in the COPE Healthy Lifestyles TEEN program at home?

With regard to Physical Health Topics, four participants described ways in which they had used the nutrition knowledge they gained through the program within the home setting to change their behavior. For example, Participant 9 stated, “When I’m cooking, I use less salt. And I use coconut oil instead of vegetable oil.”

In regards to Social Emotional Health Topics, two participants mentioned Stress and Coping and one mentioned Self-Esteem and Positive Thinking. Participant 10 shared that she uses the relaxation techniques taught and practiced during the program, such as guided imagery and progressive muscle relaxation, to fall asleep at night.

Two participants mentioned that changes in their behavior had resulted in improved social interactions at home. Participant 2 stated, “When me and my sister are arguing, sometimes I don’t give her a reaction so we don’t have to keep going back and forth. I just ignore it.” Participant 5 shared, “I’m more kind towards my siblings and I am more open to them. And, with my mom, we used to argue back and forth. But, after this group, it’s gotten better. I haven’t argued with my mom for a while.”

Item 5b. How have you used what you learned in the TEEN COPE program at school?

With regard to Physical Health Topics, two participants described ways in which they had used the nutrition knowledge they gained through the program within the school setting. Participant 7 said that she tries “to eat better in the cafeteria and eat more fruits.”

Five participants shared that they use knowledge from the Social Emotional Health Topics at school. One participant shared that she uses relaxation techniques to calm herself when she becomes frustrated with teachers. Another participant shared that she argues less. Participant 5 provided a specific example of her changed behavior: “Recently, there was an altercation. It wasn’t physical or anything, it was verbal. But it was going to get physical this morning. Instead of provoking the situation, I walked away.”

Item 6. What would you change about the COPE Healthy Lifestyles TEEN program to make it better for future students?

Item 6a. What would you want to add?

Item 6b. What would you want to take out?

Three participants stated that they would not change anything about the program in response to Item 6, even when further prompted with Items 6a and 6b.

On Items 6 and 6a, participants suggested adding additional content to the program and made suggestions regarding content delivery. Regarding content delivery, Participant 7 suggested the program provide more details regarding existing topics and add more topics to the program: “One thing I would change is to have more topics to discuss. And, we should go more in-depth about the topics we’re learning about.” Some participants mentioned specific topics on which they would like to have additional information: confidence, mental health awareness and effective communication. Participant 11 suggested that the curriculum consist of more games. Participant 10 suggested the program “have more sessions and more students from different grades.”

With regard to Item 6b, nine participants stated that they would not want to take anything out of the program. The remaining two participants, Participant 4 and Participant 9, offered specific items they would remove from the program. Participant 9 responded that she would take out having to complete the pretest and posttest measures. Participant 4 would take out the information related to nutrition: “I know food is really important but we’re not really going to listen to the food stuff because we’re going to eat what we want to eat.”

Item 7. Would you recommend the COPE Healthy Lifestyles TEEN program to a friend?

Ten out of the eleven participants answered that, yes, they would recommend the program to a friend. The eleventh participant answered, “maybe a friend with health problems.”

Item 8. Is there anything else you would like to add about your COPE Healthy Lifestyles TEEN program experience?

Two themes emerged in response to Item 8: Enjoyment and Learn New Information. Five participant responses were coded with Enjoyment. Two participant responses were coded with

Learn New Information. Participant 3's response was coded with both Enjoyment and Learn New Information. She shared, "It's fun and there's really great girls to do stuff with and a lot of new stuff to learn." Five participants indicated that they did not have any additional information to add at the end of the interview and, therefore, did not have a response for Item 8.

Implementation Fidelity

In order to collect information on program implementation, the researcher completed the implementation fidelity measure (Appendix K) after each session. Additionally, an outside observer attended three of the twelve program sessions and completed the same implementation fidelity measure. The outside observer had planned to attend two additional sessions but could not attend those sessions due to outside circumstances.

The researcher found maintaining program implementation fidelity was not difficult when the program elements were under her control. The COPE Healthy Lifestyles TEEN facilitator manual was straightforward and user-friendly. However, there was one area in which program fidelity was dependent on participants independently completing homework outside of the weekly session. This aspect of the program is discussed in more detail below. The implementation fidelity measure contains eight sections: Preparation, Learning Objectives, Instruction, Adherence to Lesson Plan, Active Participation, Practiced Skills, Student Response to Lesson and Classroom Management.

With regard to Preparation, Learning Objectives, Instruction, Active Participation, Student Response to Lesson and Classroom Management, the researcher implemented the program with fidelity. Under the Adherence to Lesson Plan section, there are four sub-headings: Instruction, Role Play/Case Scenario, Homework and Physical Activity. Each week, the researcher assigned the homework as indicated in the lesson plan and discussed homework

instructions; however, participants did not consistently complete homework assignments throughout the intervention. If applicable and appropriate, the researcher would have the participants complete the homework individually within the group setting prior to the homework discussion. Due to the extended period of time the group met each week, completing the homework within the group setting did not prevent the researcher from covering all of the session content. Similarly, there is an item under Practiced Skills which reads “students completed homework.” The researcher consistently marked this item with “no.” Aside from homework completion, implementation fidelity was strong based on the researcher’s weekly self-rating.

The implementation fidelity measure completed by the outside observer did not indicate any concerns regarding the fidelity of program delivery. For each of the eight sections of the implementation fidelity measure, the observer selected an option from a Likert scale indicating to what degree the group leader implemented the program with fidelity. The ratings for each of the sessions observed by the outside observer are included in Table 18. Based on the ratings, the program was delivered with fidelity. In order to calculate percent adherence for each of the three observed sessions, first the total number of potential points were calculated. The highest point on the likert scale was 5 for each section. There are eight sections on the implementation fidelity measure; however, the Adherence section is comprised of four sub-subsections. Therefore, there were a total of 11 sections on which the observer could rate fidelity and the total potential points were 55 for each session. The total potential points were then divided by the total actual points in order to calculate percent adherence for each of the three observed sessions. The percent adherence for each of the three sessions is included in Table 18.

Table 18. Implementation Fidelity Results Reported by Outside Observer

Measure Item	Observation 1	Observation 2	Observation 3
1. Preparation: Was the teacher prepared to teach the lesson?	5 – Well Prepared	5 – Well Prepared	5 – Well Prepared
2. Learning Objectives: Were the learning objectives clear to the students?	5 – Very Clear	5 – Very Clear	5 – Very Clear
3. Instruction: How appropriately was the material interpreted and presented by the teacher?	5 – Completely	5 – Completely	5 – Completely
4. Adherence to Lesson Plan: Did the teacher faithfully follow the lesson plans in the curriculum?	n/a	n/a	n/a
a. Instruction	5 – Completely	4 – Mostly	4 – Mostly
b. Role Play/Case Scenario Discussion	5 – Completely	5 – Completely	4 – Mostly
c. Homework	5 – Completely	5 – Completely	5 – Completely
d. Physical Activity	5 – Completely	5 – Completely	5 – Completely
5. Active Participation: How actively did the students participate in the lesson?	5 – Actively	5 – Actively	5 – Actively
6. Practiced Skills: How many students practiced the skills and/or messages of the lesson?	4 – Most students	4 – Most students	5 – All students
7. Student Response to Lesson: How did the student respond to the lesson?	5 – Very Favorably	4 – Favorably	4 – Favorably
8. Classroom Management: Did the classroom management style of the teacher provide an environment that was conducive to learning?	4 – Good	5 – Excellent	5 – Excellent
Percent Adherence	96.4%	94.5%	94.5%

CHAPTER 5

DISCUSSION

Overview

This chapter presents the implications of the results presented in Chapter 4. First, the five specific research questions and corresponding results are reviewed with regard to potential explanations of the data and implications in relation to existing literature. Next, the limitations of the study are described. Lastly, suggestions for future implementation of similar programs within the school setting and further research on similar topics are discussed.

The purpose of this study was to implement and evaluate a group intervention – Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) Program – aimed at preventing or reducing obesity among female adolescents within a high school setting. Outcome measures related to body mass index, knowledge, behavior, and self-concept were examined to determine the effectiveness of the COPE Healthy Lifestyles TEEN program.

Research Question 1: What changes in Body Mass Index occur as a result of the COPE Healthy Lifestyles TEEN intervention?

Changes in the Body Mass Index (BMI) of the study participants as a result of the COPE Healthy Lifestyles TEEN intervention was not supported by the results. The mean BMI of the participants was 23.43 (SD=4.01) at pretest and 23.51 (SD=4.13) at posttest. The BMIs for six of the ten participants remained unchanged between pretest and posttest. Participant 9 had the

largest change in weight and, therefore, BMI. Her weight increased by three pounds between pretest and posttest resulting in an increase in BMI by 0.2. Overall, the change in BMI at both the group and individual level between pretest and posttest was minimal. This finding is inconsistent with prior research in which adolescents who took part in the COPE Healthy Lifestyles TEEN program had a significantly lower BMI between baseline and a 12-month follow-up than adolescents who had taken part in a different program (Melnyk et al., 2015). However, it is important to note the time span over which the BMI was measured. In the current study, the COPE Healthy Lifestyles TEEN program was implemented over 13 weeks. In order to change their BMI, participants would need to change their behavior. However, behavior change is dependent on change in knowledge. If the participants acquired knowledge from the program and changed their behavior according to that knowledge, those outcomes may have resulted in a change in weight and corresponding BMI. However, given the sequence of events required to significantly alter a participant's BMI, it is more likely that BMI would be impacted over an extended period of time. As discussed in Chapter 2, a meta-analysis completed by Gonzalez-Suarez, Worley, Grimmer Somers and Dones (2009) found that school-based interventions implemented for more than one year led to a significant change in the weighted mean change in BMI, as compared with interventions that lasted less than six months.

Another factor to consider is the BMI of the participants at baseline. Because the COPE Healthy Lifestyles TEEN program can be used as a prevention or intervention program, participants for the present study were not selected based on their weight or BMI. Therefore, five of the eleven participants came into the program with a BMI falling within the Normal classification range. Four out of those five participants maintained exactly the same BMI between pretest and posttest. The fifth participant was Participant 10 who increased her BMI by

0.2 and still fell within the Normal classification range. One participant, Participant 11, entered the study with a BMI falling within the Underweight classification range and her BMI actually decreased between pretest and posttest. Given that they entered the program with a BMI within the Healthy or Underweight range, a decrease in BMI may not have been necessary, expected, or desirable for six out of eleven participants.

Another factor to consider is participant motivation. Self-Determination Theory distinguishes between two basic types of motivation, intrinsic and extrinsic, which differ with regard to the underlying reasons an individual completes an action (Deci & Ryan, 1985). Intrinsic motivation refers to an individual performing a behavior because it is inherently interesting or enjoyable and meets an innate psychological need for competence and autonomy. Extrinsic motivation refers to an individual engaging in a behavior because it leads to a separable outcome. Intrinsic motivation is particularly important when considering the learning process and applying new information to alter behavior. For example, Pintrich (1999) found that students who believe their coursework is interesting, important and useful are more likely to put forth effort and engage in self-regulated learning strategies. Furthermore, students with higher intrinsic motivation relating to academics demonstrate higher academic achievement (Gottfried, 1990). Item 2 on the Youth Risk Behavior Surveillance System (YRBSS) measure used in the present study reads “Which of the following are you trying to do about your weight?” In response to item 2, seven out of ten participants answered “I am not trying to do anything about my weight” or “Stay the same weight” at pretest indicating that those seven participants came into the program not actively trying to change their weight. In other words, those seven participants were not intrinsically motivated to make a change regarding their BMI. Only two participants at pretest answered “Lose weight” in response to Item 2. One of those participants fell within the

Normal BMI classification range and the second fell within the Obese classification range. Data gathered during the Participant Exit Interviews corroborate participant motivation and intention at pretest. Several participants decided to participate in the program because their friends were going to be participating and/or for the opportunity to socialize. Fewer participants stated that they decided to participate due to a motivation to improve their health.

While BMI remained relatively unchanged between pretest and posttest, participant motivation related to maintaining or achieving a healthy weight did appear to change between pretest and posttest. Only two participants at pretest answered "Lose weight" in response to item 2 on the YRBSS. However, at posttest, five participants answered "Lose weight" in response to item 2 indicating a change in their intent regarding weight loss between pretest and posttest. If a participant's weight had increased significantly between pretest and posttest, that factor might explain why she would indicate "Lose weight" in response to item 2 at posttest. However, all of the participants' weight changed minimally during the intervention period; therefore, the change in motivation is likely due to another factor, the COPE Healthy Lifestyles TEEN program.

Research Question 2: What changes in knowledge related to nutrition and physical activity occur as a result of the COPE Healthy Lifestyles TEEN intervention?

Based on the study results, increased knowledge related to both nutrition and physical activity did occur as a result of the COPE Healthy Lifestyles TEEN program. Participant knowledge change was measured by the Nutrition Knowledge Scale for Teens and the Activity Knowledge Scale for Teens. Qualitative data gathered through the Participant Exit Interviews also suggest participants experienced increased knowledge regarding nutrition and physical activity as a result of the COPE Healthy Lifestyles TEEN program. This increase in knowledge is consistent with existing research related to adolescent knowledge and school-based nutrition

programming in both the United States and abroad (Contento, Manning & Shannon, 1992; Wang, Stewart, Chang, & Shi, Y, 2015; In-Iw, Saetae, & Manaboriboon, 2012). Even relatively brief nutrition programs involving 10-15 hours of instruction over a 3-15 week period resulted in increased nutrition knowledge, diet-related skills and self-efficacy (Contento, Manning & Shannon, 1992).

Regarding nutritional knowledge, the group's mean number of items answered correctly on the Nutrition Knowledge Scale for Teens increased from 7.00 (SD=3.40) at pretest to 12.90 (SD=4.53) at posttest. Additionally, all ten participants, as individuals, increased the number of items answered correctly between pretest and posttest.

Regarding knowledge related to physical activity, the group's mean number of items answered correctly increased from 5.70 (SD=3.50) at pretest to 9.20 (SD=2.20) at posttest. Eight participants increased the number of items they answered correctly between pretest and posttest. One participant answered the same number of items correctly between pretest and posttest and one participant decreased the number of items she answered correctly by one between pretest and posttest.

Based on data from the current study, the COPE Healthy Lifestyles TEEN program is effective in increasing participant knowledge. Increased knowledge is an important outcome because current research suggests nutrition education, and the accompanying increased knowledge, can impact attitudes and behaviors. A meta-analysis completed by Silveira, Taddie, Guerra and Nobre (2013) suggests that school-based nutrition education interventions can be effective in reducing children's BMI. Additionally, nutrition knowledge has been linked to improvement in participants' attitudes towards fruits and vegetables (Prelip et al., 2011) and an increase in participants' consumption of those foods (McKenna, 2010).

The research suggesting increased knowledge can lead to changes in attitudes and behaviors is particularly relevant given the theoretical orientation of the COPE Healthy Lifestyles TEEN program – Cognitive Behavioral Therapy (CBT). As discussed previously, CBT suggests that an individual's thoughts, feelings and behaviors are interrelated and that modifying one of the three facets impacts the other two. According to research, participants' increased knowledge alters the facets by positively impacting attitudes and behaviors, making it an important outcome within the context of the CBT theoretical framework as applied to the COPE Healthy Lifestyles TEEN program and the current study.

Research Question 3: What changes in behavior occur as a result of the TEEN COPE intervention?

Participant behavior change was measured by the Youth Risk Behavior Surveillance System (YRBSS) survey items and the pedometer logs. As discussed in Chapter 4, despite incentives and reminders, participants did not complete the pedometer logs and, therefore, quantitative data regarding changes in behavior were limited to the YRBSS survey items. This research question was also informed through the Participant Exit Interviews.

The YRBSS survey items ask about behaviors related specifically to nutrition and physical activity. The Participant Exit Interviews provided additional data regarding changes in behavior that occurred during the course of the intervention period that were related to nutrition or physical activity. Additionally, the Participant Exit Interviews provided data on changes in participant behavior which extended beyond nutrition and physical activity.

There are multiple theories related to behavior change to consider in the context of the third and fourth research questions. The Theory of Planned Behavior (Azjen, 1991), posits that three factors shape intentions regarding a behavior – attitudes toward the behavior, subjective

norms with respect to the behavior and perceived control over the behavior. Attitude towards the behavior refers to whether the person has a favorable or unfavorable viewpoint of the target behavior. Subjective norms refers to whether the individual perceives there to be social pressure to engage in the behavior. Degree of perceived behavioral control refers to the perceived ease or difficulty of performing the behavior. The importance of each of the three factors may vary depending on the situation. While the theory of planned behavior places emphasis on intention as a main predictor of behavior, the theory acknowledges that an individual may not have adequate behavioral control in order to manifest the intention in the form of behavior change. People often do not behave in accordance with their intentions; therefore, it is necessary to consider what other factors, besides intention, may impact the relationship between intention and behavior. The Health Action Process Approach (HAPA) suggests that there is a distinction between pre-intentional motivation processes that lead to an individual's intention and the post-intentional processes that lead to the actual health behavior. HAPA identifies two post-intentional factors – perceived self-efficacy and strategic planning – as mediators between an individual's intention and behavior (Schwarzer, 2008).

Behavior Change Related to Nutrition

Based on study results, changes in behavior related to nutrition did not occur as a result of the COPE Healthy Lifestyles TEEN program when considering group data. When considering individual participant data, four participants reported increased healthier eating behaviors at posttest. Because caloric intake is a primary factor relating to weight loss, the lack of changes in behavior relating to nutrition helps to explain why there was not a change in participant BMI between pretest and posttest.

While participant knowledge relating to nutrition increased, the behavioral data related to

nutrition illustrate that increased knowledge does not necessarily lead to immediate behavior change. Participants must be motivated to apply the knowledge that they acquire in order to alter behavior. As discussed previously, several participants joined the program for social reasons rather than a desire to change unhealthy habits; this information regarding participant intention could help to explain the lack of change in behavior. As posited by the Theory of Planned Behavior, the strength of the three factors relating to intention formation differs across situations. Based on the data from the self-concept measures, two of the three factors – attitudes towards the behavior and perceived control over the behavior – changed between pretest and posttest. At posttest, participants perceived living a healthy lifestyle as less difficult and increased their belief that they could live a healthy lifestyle. However, data was not collected regarding the third factor of subjective norms – whether participants perceived there to be social pressure to engage in healthy lifestyle behaviors. This is an especially important factor to consider because of the age of the participants in the current study. Research suggests that during adolescence, conformity to parent opinion decreases but the power of peer influence increases and peer conformity peaks around age 13 (Berndt, 1979; Maxwell, 2002; Steinberg & Monahan, 2007). Therefore, the subjective norms factor may account for a larger portion of an adolescent participant's intention formation than the other two factors identified by the Theory of Planned Behavior.

As discussed within Chapter 4, some participants did appear to change their intention towards healthy lifestyle behaviors between pretest and posttest. However, the change of intention is only part of behavioral change. Regarding the mediating variables suggested by Health Action Process Approach, perceived self-efficacy did appear to change within participants between pretest and posttest as indicated by the self-concept measures relating to perceived difficulty and beliefs regarding healthy lifestyle behaviors. However, the second

mediating variable, strategic planning, was mostly addressed within the program through the homework assignments which the participants completed inconsistently. Lastly, even if a participant was successful in forming an intention and the mediating variables were not a barrier, research suggests only small to medium behavior changes may occur. A meta-analysis completed by Sheeran et al. (2016) examined over 200 experimental tests of behavioral change interventions and found that changes in attitudes, norms and self-efficacy led to medium-sized changes in intention and small to medium sized changes in health behavior.

Behavior Change related to Physical Activity

Based on the group data, study results suggest positive changes in behavior related to physical activity did occur as a result of the COPE Healthy Lifestyles TEEN program. YRBSS items 14-19 ask about physical activity in which participants engaged during the previous week. As with items 6-13, a higher score on items 14-19 indicated healthier behaviors than a lower score. As a group, the mean increased between pretest (M=10.20, SD=4.78) and posttest (M=12.40, SD=4.40) indicating healthier behaviors relating to physical activity at posttest compared to pretest. At the individual level, five participants increased in score between pretest and posttest. Three participants maintained the same score between pretest and posttest. Two participants' scores decreased. The increase in behavior related to physical activity is consistent with prior research on interventions targeting increasing physical activity. A meta-analysis indicated multi-component interventions and interventions that include school, family or community involvement may make important differences in physical activity levels, specifically with an adolescent population (Van Sluijs, McMinn, & Griffin, 2007).

Other Types of Behavior Change

Based on data from the Participant Exit Interviews, improved social interactions was a behavioral outcome of the COPE Healthy Lifestyles TEEN program. Participants reported this change in both the home and school settings. Within the home environment, Participant 2 provided the following example: “When me and my sister are arguing, sometimes I don’t give her a reaction so we don’t have to keep going back and forth. I just ignore it.” Participant 5 described her changed behavior at school: “Recently, there was an altercation. It wasn’t physical or anything, it was verbal. But it was going to get physical this morning. Instead of provoking the situation, I walked away.”

While improved social interactions was not an outcome on which the present study formally focused, decades of research suggests social relationships are integral to both physical and mental health. Social relationships have even been linked to mortality. Perhaps the most extreme example of the impact of social relationships on health is the study by House, Landis and Umberson (1988) which found that individuals with the lowest level of involvement in social relationships had a higher rate of mortality than those with greater involvement. Smaller social networks, fewer close relationships and lower perceived adequacy of social support have long been linked to depressive symptoms (Barnett & Gotlib, 1988). Research has shown that mental health and physical health are intertwined. An example that is particularly relevant to the present study is research suggesting adolescents with major depressive disorder are at an increased risk for becoming overweight (McElroy et al., 2004). The association between increased weight and mental health issues extends into adulthood. Women who have a BMI of 30 or above displayed a 50% increase in the lifetime prevalence of depressive disorders compared to non-obese women (Becker et al., 2001). Furthermore, the relationship between mental health and obesity is

particularly true for women (Heo et al., 2006). Mental illness, and specifically depressive disorders, have been associated with an increased prevalence of chronic diseases such as asthma, arthritis, cardiovascular disease and diabetes. The association between depression and chronic disease has a reciprocal relationship in that depressive disorders can precipitate chronic disease and/or depression can be exacerbated by the presence of chronic disease (Chapman, Perry and Strine, 2005). Therefore, increasing protective factors, such as positive social relationships, can have long-lasting effects on participants' physical health and mental health.

Research Question 4: What changes in self-concept occur as a result of the COPE Healthy Lifestyles TEEN program?

Results from all three measures used to assess self-concept in this study suggest that self-concept increased amongst participants between pretest and posttest. On the Piers-Harris 2 (Piers, Harris, & Herzberg, 2002), the group mean T-score increased between pretest (M=40.50, SD=8.50) and posttest (M=43.70, SD=9.89) indicating that, as a group, the participants' overall positive general self-appraisal increased. On the Healthy Lifestyles Beliefs scale (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009), the group mean increased between pretest (M=54.40, SD= 11.70) and posttest (M=58.50, SD=15.06) indicating that as a group, the participants' belief that they could actively live a healthy lifestyle improved between pretest and posttest. On the Healthy Lifestyles Perceived Difficulty Scale (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009), between pretest and posttest, the group mean increased from M=29.20 (SD= 10.21) to M=35.00 (SD=13.20) indicating that the participants perceived living a healthy lifestyle as less difficult at the time of posttest.

The change in participant self-concept is important in regards to the theoretical model on which the COPE Healthy Lifestyles TEEN program is based – cognitive behavior theory. Self-

concept informs an individual's thoughts and feelings, which, according to cognitive behavior theory leads to changed behaviors. The COPE Healthy Lifestyles TEEN program is designed to facilitate cognitive-behavioral skill building (CBSB) which assists adolescents with cognitive changes which can strengthen their healthy lifestyle beliefs in order to facilitate healthy lifestyle choices and behaviors skills (Melnyk, Jacobson, Kelly, O'Haver, Small, & Mays, 2009). Data from the present study suggest the program was effective in facilitating cognitive changes and strengthening participants' healthy lifestyle beliefs. Improved self-concept is an important outcome in regards to physical health; studies have found that factors such as self-esteem are associated with overall health, physical activity and healthy eating (Hargreaves et al., 2013). However, it is important to acknowledge the other factors that impact behaviors related to health including those that have already been discussed within this chapter. Research suggests the influence of family, peers and the local community are equally important for outcomes, particularly related to smoking, drug use and healthy weight (Hargreaves et al., 2013). This research could further explain why, despite increased self-concept, self-efficacy and knowledge, participant behaviors relating to nutrition did not change between pretest and posttest.

Research Question 5: According to program participants, which components of the program facilitate change in BMI, knowledge, behavior, and self-concept?

Positive social interaction, with both their peers and the group leader, was a recurrent theme with regard to participants' descriptions of what they liked and found helpful about the program. These positive relationships are indicative of the group's cohesiveness. Group cohesiveness is an aggregate of member leader, member-member, and member-group relationships (Burlingame, Fuhriman, & Johnson, 2001). Research suggests group cohesiveness is positively related to group processes as well as group outcomes (MacKenzie, K.R., 1998;

Marziali, Munroe-Blum, & McCleary, 1997). The current study focused on providing the program participants with a small group setting in which they were able to actively participate and form positive relationships with the group leader and other group members.

As previously discussed within this chapter, improved social interaction was also a behavioral outcome described by the participants. Given the link between social relationships, physical health and mental health, this is a noteworthy outcome. As discussed in Chapter 2, girls are more likely to be teased when participating in physical activities, particularly by boys. The opportunity for the participants to be active within a single-gender setting was an important aspect of the current study. Based on the implementation fidelity checklists, the girls in the group were active participants in the weekly sessions and participants did not mention teasing in any of the Participant Exit Interviews. Given these findings, it may be beneficial to provide adolescent females with a supportive single-sex environment for engaging in physical activity.

Regarding specific topics, within the physical health category, participants discussed increased nutritional knowledge leading to healthier eating behaviors at a higher frequency than lessons related to physical activity. Social-emotional health was mentioned frequently by participants in both specific and general terms. Regarding specific lessons, two topics - Stress and Coping; Self-Esteem and Positive Thinking – were mentioned by multiple participants as topics that they found helpful in regards to changing their behavior.

When asked how they would change the program, participants specified additional topics they want included in the curriculum: confidence, mental health awareness and effective communication. These subjects are all covered in the curriculum; therefore, the participants' responses likely indicate that they would add more information on those topics to the existing lessons.

Limitations

There were multiple limitations to this study. Regarding sampling, this study was not a randomized control trial and no comparison group was used. School personnel nominated participants based on a description of the COPE Healthy Lifestyles TEEN program. The small, non-random sample of participants limits the study's external validity in that the findings may be less generalizable to a larger, more diverse set of participants.

The study employed self-report measures which rely on the participants completing the measures accurately and truthfully. As with all self-report measures, data can be impacted by multiple factors, such as the social desirability bias in which a participant may be inclined to choose a response in order to appear more attractive to herself or others.

Regarding program fidelity, data demonstrated the program was completed with fidelity across a number of different categories. However, the portion of the program that relied on program participants completing the pedometer logs and homework outside of the weekly program sessions, was not successful.

Implications for Future Research

The purpose of the present study was to determine the effectiveness of the COPE Healthy Lifestyles TEEN program with adolescent female students in a suburban high school setting. Prior research on the program was completed within a mixed-gender classroom setting. The results of this evaluation indicate the program was effective in changing participants' knowledge, self-concept and aspects of behavior related to physical activity and prosocial interactions. Future research could include longitudinal follow-up data on these types of outcomes. Given the importance of implementing this type of programming within the school setting, future research involving this program and similar programs could focus on scholastic outcomes such as

discipline referrals, unexcused and excused absences and grades to create a direct link between the programs and school functioning. Future research could also further assess the impact of implementing this type of program in a single-gender setting with a randomized control trial. Future research could also focus on adding technological components to the program to increase participant adherence to aspects of the program such as homework completion and the pedometer logs.

Implications for Future Practice

The COPE Healthy Lifestyles TEEN program is a manualized program designed to be implemented by a range of school personnel. While past studies on the program have typically used the curriculum within the classroom setting as a Tier 1 intervention, the current study used the program within a smaller single-gender group. Practitioners who use the program in the future could continue to use it as a classroom-based curriculum or use it, as this researcher did, within a small-group, particularly for students who may be less likely to actively participate within the larger classroom setting.

Conclusion

This study was designed to evaluate the effectiveness of the COPE Healthy Lifestyles TEEN program with adolescent females within a suburban high school setting. The program assessed changes in Body Mass Index, knowledge and behaviors relating to nutrition and physical activity and self-concept. The study also focused on participants' perspectives on program components and how those components facilitate change. The results of this study indicate the program increased knowledge relating to nutrition and physical activity; behaviors relating to physical activity; and self-concept. Given the on-going nature of the childhood obesity epidemic worldwide and the relationship between mental health and physical health, prevention

and intervention programs that focus on these topics should continue to be a research priority. The impact both physical and mental health have on scholastic achievement should make these issues a priority for school staff. Additionally, the accessibility of students makes implementing programs within the school setting an effective way to significantly impact student outcomes.

APPENDIX A

PARENTAL CONSENT FORM

Parental Consent to Participate in Research

Project Title: Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) Program
Researcher: Lindsay Viellieu
Faculty Sponsor: Dr. Gina Coffee

Introduction:
Your child is being asked to take part in a research study being conducted by Lindsay Viellieu for a dissertation under the supervision of Dr. Gina Coffee in the Department of Education at Loyola University of Chicago.

Your child is being asked to participate because she is a female student in the ninth grade in Hayfield Secondary School and was recommended for the program by a member of the Hayfield Secondary School guidance staff.

Please read this form carefully and ask any questions you may have before deciding whether you consent to have your child participate in the study.

Purpose:
The purpose of this study is investigate the effectiveness of a program entitled Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) Program. The program is designed to encourage and enhance healthy lifestyle behaviors in teens through knowledge and skill building. The program emphasizes the connections between physical health and social-emotional health.

Procedures:
If you agree to allow your child to be in the study, she will be asked to participate in a weekly twelve session small-group program led by the researcher, Lindsay Viellieu. Prior to beginning the twelve-week program and upon completion of the twelve-week program, your child will be asked to complete surveys regarding her knowledge about nutrition and physical activity, her behavior related to nutrition and physical activity, her own self-concept, and her beliefs regarding nutrition and physical activity. Each of the weekly sessions will be approximately one hour. The sessions will take place within the school building, after school on Thursdays. Your student will be able to take the late bus home if needed. Each session will include approximately 30 minutes of education and cognitive behavior skills building and approximately 15-20 minutes of physical activity. The fifteen topics included within the COPE TEEN Program are: (1) healthy lifestyles, (2) self-esteem and positive thinking, (3) overcoming barriers, (4) stress and coping, (5) dealing with emotions, (6) personality and effective communication, (7) activity, (8) heart rate and stretching, (9) nutrition, (10) reading food labels, (11) portion sizes, (12) social eating, (13) snacks and eating out, (14) healthy choices, and (15) integrating knowledge and skills. The physical activity will include activities such as walking and dancing. Upon completion of the twelve-week session, your child will be asked to participate in a brief (approximately 15-20 minute) interview during which she will be asked questions about her participation within the program. This interview will take place within the school building.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

Anticipated benefits to participants: The program design is based on the theory that cognitive-behavioral skills building (CBSB) can assist adolescents with cognitive changes which can strengthen their healthy lifestyle beliefs in order to facilitate healthy lifestyle choices and behaviors. The program focuses on teaching life-long cognitive-behavioral skills and health-related knowledge.

Confidentiality:
For all data sources, participants will be identified by number and no other identifying information will be collected. All paperwork related to data sources will be locked in a secure filing cabinet. All audio-files will be uploaded and saved on password-protected computers. Only individuals listed in this proposal will have access to these files. All consent forms will be stored separately and securely from all other data. All data will be kept a minimum of 3 years. The only persons who will have access to the interview audio recordings are the researcher and the sponsor identified in this application. The interviews will be transcribed into written form and then the audiofiles will be deleted.

Voluntary Participation:
Participation in this study is voluntary. If you do not want your child to participate in this student, your child does not have to participate. Even if you decide your child can participate in this study, your child is free not to answer any question or to withdraw from participation at any time without penalty.

Contacts and Questions:
If you have questions about this research project, please feel free to contact Lindsay Viellieu by phone (703-930-4428) or email (lindsay.viellieu@gmail.com). You can also feel free to contact the faculty sponsor Gina Coffee by email at (gcoffee@luc.edu).

If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

Statement of Consent:
Your signature below indicates that you have read the information provided above, have had an opportunity to ask questions, and agree to participate in this research study. You will be given a copy of this form to keep for your records.

_____ _____
Parent's Signature Date

_____ _____
Researcher's Signature Date

APPENDIX B

STUDENT ASSENT FORM

ASSENT TO PARTICIPATE IN RESEARCH
(Student Form)
Script for Oral and Written Assent

Project Title: Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) Program
Researcher: Lindsay Viellieu
Faculty Sponsor: Dr. Gina Coffee

Recently, your parents agreed to allow you to take part in our study with Loyola University Chicago. We will tell you about the study, and, with your permission, we would like you to be involved.

What is the name of the study?
The name of the study is "Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) Program."

Why me?
Your teacher/counselor/other school staff member and parents thought you might be willing to take part in our study.

What is it for?
We are trying to learn more about a 15-week program for teenagers. The program is called Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) Program. The program is designed to encourage healthy lifestyle behaviors by teaching specific skills related to topics like coping with stress, setting goals, solving problems, eating healthy foods and engaging in physical activity. The program emphasizes the connections between physical health and social-emotional health.

What will I have to do?
If you choose to participate in the study, you will be asked to participate in a weekly fifteen session small-group program led by the researcher, Lindsay Viellieu. Before you begin the program and when you finish the program, you will be asked to answer questions about things you know about nutrition and physical activity, your behavior related to nutrition and physical activity, how you feel about yourself, and what you believe about nutrition and physical activity. All of your answers will be kept anonymous meaning that no one will know how you answered the questions. You will not be asked to put your name on anything. Instead, you will just use a number and no one will know your number except for you.

Each of the weekly sessions will be approximately 45 minutes to one hour. The sessions will take place within the school building. Each session will include approximately 30 minutes of education and cognitive behavior skills building and approximately 15-20 minutes of physical activity. The fifteen topics included within the COPE TEEN Program are: (1) healthy lifestyles, (2) self-esteem and positive thinking, (3) overcoming barriers, (4) stress and coping, (5) dealing with emotions, (6) personality and effective communication, (7) activity, (8) heart rate and

stretching, (9) nutrition, (10) reading food labels, (11) portion sizes, (12) social eating, (13) snacks and eating out, (14) healthy choices, and (15) integrating knowledge and skills. The physical activity will include activities such as walking and dancing.

Upon completion of the fifteen-week session, you will be asked to participate in a brief (approximately 15-20 minute) interview during which you will be asked questions about your participation within the program. This interview will take place within the school building. The individual interview will be audio-recorded; however, no one other than the researcher and her Loyola University Chicago faculty sponsor will have access to the audiofile. The interviews will be transcribed into written form and then the audiofiles will be deleted.

How long will it take?
The program will be once a week for fifteen weeks. Each session will be about 45 minutes to one hour.

Did my parent say it was ok?
Your parents have given permission for you to participate in this study.

How will this help me and other students?
We hope this study will teach you skills you can use in the future to help you make healthy choices.

What if I want to stop? Will I get in trouble?
You can decide to stop participating in this study at any time, and you will not get in trouble.

Will other people know what I am doing?
You will be participating in the study with a small group of other female students in the ninth and tenth grade. The other people that are in the small group will know that you are participating. Everything discussed in the weekly group sessions will be kept confidential. We will not tell anybody, like your classmates, about your participation in this study. It is possible your classmates will know you are participating in this study, but we will not tell them. We will only give information about what you do to your parents if they need to know.

What do I do now?
If you would like to participate, we would like you to tell us and sign the bottom of this form. If you have any questions about this study, we would be happy to answer them at any time. Thank you for thinking about participating in our research study.

_____ _____

Student's Signature **Date**

_____ _____

Researcher's Signature **Date**

APPENDIX C

NUTRITION KNOWLEDGE SCALE FOR TEENS

Nutrition Knowledge Scale for Teens

	Directions: Please answer the following questions to the best of your ability. Please fill in the circle for your response. *(Mark one answer for each item.)*	**Yes**	**No**	**Don't Know**
1.	People need to drink 2 large glasses of milk per day (8 ounce glass).	1 O	0 O	2 O
2.	It is a good idea to have fruit juice at every meal.	1 O	0 O	2 O
3.	Whole milk is healthier than skim milk.	1 O	0 O	2 O
4.	Ice cream is healthier for you than low fat frozen yogurt	1 O	0 O	2 O
5.	Pretzels are higher in fat than potato chips.	1 O	0 O	2 O
6.	French fries are a good vegetable choice.	1 O	0 O	2 O
7.	It is better to broil foods than to fry them.	1 O	0 O	2 O
8.	Eating chicken with skin on it is healthier than eating chicken without skin.	1 O	0 O	2 O
9.	A fruit rollup is a good fruit choice.	1 O	0 O	2 O
10.	It is a good thing to add salt to food.	1 O	0 O	2 O
11.	Consuming a lot of fruit juice can lead to cavities in your teeth.	1 O	0 O	2 O
12.	White bread has as much fiber in it as wheat bread.	1 O	0 O	2 O
13.	Pop is just as good of a drink choice as carbonated bottled water.	1 O	0 O	2 O
14.	The amount of salty food someone eats can cause high blood pressure.	1 O	0 O	2 O
15.	Fruit Loops are just as healthy as Raisin Bran cereal.	1 O	0 O	2 O
16.	Canned soups have a healthy amount of salt in them.	1 O	0 O	2 O
17.	Dried soups (for example, Ramen noodles) are a healthy choice for lunch or snack.	1 O	0 O	2 O
18.	Packaged peanut butter crackers are a better snack than yogurt.	1 O	0 O	2 O
19.	One serving size of meat should be the size of a deck of cards.	1 O	0 O	2 O
20.	People eat more when they are bored than when they are busy.	1 O	0 O	2 O

APPENDIX D

ACTIVITY KNOWLEDGE SCALE FOR TEENS

Activity Knowledge Scale for Teens

Directions: Please answer the following questions to the best of your ability. Please fill in the circle for your response. *(Mark one answer for each item.)*	**Yes**	**No**	**Don't Know**
1. Exercise helps to reduce stress.	1 O	0 O	2 O
2. People who are very active are healthier than people who are not.	1 O	0 O	2 O
3. Being active can give you more energy.	1 O	0 O	2 O
4. Being active can lower your blood pressure.	1 O	0 O	2 O
5. Exercise can help to prevent diabetes.	1 O	0 O	2 O
6. Regular exercise can make you feel happy.	1 O	0 O	2 O
7. Running is better for you than walking.	1 O	0 O	2 O
8. Dancing is exercise.	1 O	0 O	2 O
9. Being out of breath and dizzy when you exercise is a sign of a good workout.	1 O	0 O	2 O
10. People who exercise 3 or more times each week burn more calories every day than people who do <u>not.</u>	1 O	0 O	2 O
11. Children whose parents exercise tend to be more active than children whose parents do <u>not</u> exercise.	1 O	0 O	2 O
12. It is good to stretch out and do some slow activities before exercise.	1 O	0 O	2 O

APPENDIX E

YOUTH RISK BEHAVIOR SURVEILLANCE SYSTEM ITEMS

The next five questions ask about body weight.

1. How do you describe your weight?

   A. Very underweight
   B. Slightly underweight
   C. About the right weight
   D. Slightly overweight
   E. Very overweight

2. Which of the following are you trying to do about your weight?

   A. Lose weight
   B. Gain weight
   C. Stay the same weight
   D. I am not trying to do anything about my weight

3. During the past 30 days, did you go without eating for 24 hours or more (also called fasting) to lose weight or to keep from gaining weight?

   A. Yes
   B. No

4. During the past 30 days, did you take any diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight? (Do not count meal replacement products such as Slim Fast.)

   A. Yes
   B. No

5. During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?

   A. Yes
   B. No

The next 9 questions ask about food you ate or drank during the past 7 days. Think about all the meals and snacks you had from the time you got up until you went to bed. Be sure to include food you ate at home, at school, at restaurants, or anywhere else.

6. During the past 7 days, how many times did you drink 100% fruit juices such as orange juice, apple juice, or grape juice? (Do not count punch, Kool-Aid, sports drinks, or other fruit-flavored drinks.)

A. I did not drink 100% fruit juice during the past 7 days
B. 1 to 3 times during the past 7 days
C. 4 to 6 times during the past 7 days
D. 1 time per day
E. 2 times per day
F. 3 times per day
G. 4 or more times per day

7. During the past 7 days, how many times did you eat fruit? (Do not count fruit juice.)

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

8. During the past 7 days, how many times did you eat green salad?

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

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

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

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

A. I did not eat other vegetables during the past 7 days
B. 1 to 3 times during the past 7 days
C. 4 to 6 times during the past 7 days
D. 1 time per day

E. 2 times per day
F. 3 times per day
G. 4 or more times per day

11. During the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? (Do not count diet soda or diet pop.)

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

12. During the past 7 days, how many glasses of milk did you drink? (Count the milk you drank in a glass or cup, from a carton, or with cereal. Count the half pint of milk served at school as equal to one glass).

A. I did not drink milk during the past 7 days
B. 1 to 3 glasses during the past 7 days
C. 4 to 6 glasses during the past 7 days
D. 1 glass per day
E. 2 glasses per day
F. 3 glasses per day
G. 4 or more glasses per day

13. During the past 7 days, on how many days did you eat breakfast?

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

The next 6 questions ask about physical activity.

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

A. 0 days
B. 1 day

C. 2 days
D. 3 days
E. 4 days
F. 5 days
G. 6 days
H. 7 days

15. On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?

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

16. On an average school day, how many hours do you watch TV?

A. I do not watch TV on an average school day
B. Less than 1 hour per day
C. 1 hour per day
D. 2 hours per day
E. 3 hours per day
F. 4 hours per day
G. 5 or more hours per day

17. On an average school day, how many hours do you play video or computer games or use a computer for something that is not school work? (Count time spent on things such as Xbox, PlayStation, an iPod, an iPad or other tablet, a smartphone, YouTube, Facebook or other social networking tools, and the Internet.)

A. I do not play video or computer games or use a computer for something that is not school work
B. Less than 1 hour per day
C. 1 hour per day
D. 2 hours per day
E. 3 hours per day
F. 4 hours per day
G. 5 or more hours per day

18. In an average week when you are in school, on how many days do you go to physical education (PE) classes?

A. 0 days
B. 1 day
C. 2 days
D. 3 days
E. 4 days
F. 5 days

19. During the past 12 months, on how many sports teams did you play? (Count any teams run by your school or community groups.)

A. 0 teams
B. 1 team
C. 2 teams
D. 3 or more teams

APPENDIX F

YOUTH RISK BEHAVIOR SURVEILLANCE SYSTEM SCORING RUBRIC

	Item Number						
Response Option	**6**	**7**	**8**	**9**	**10**	**11**	**12**
A	0	0	0	0	0	6	0
B	1	1	1	1	1	5	1
C	2	2	2	2	2	4	2
D	3	3	3	3	3	3	3
E	4	4	4	4	4	2	4
F	5	5	5	5	5	1	5
G	6	6	6	6	6	0	6
H	n/a	n/a	n/a	n/a	n/a	n/a	n/a

	Item Number						
Response Option	**13**	**14**	**15**	**16**	**17**	**18**	**19**
A	0	0	0	6	6	0	0
B	1	1	1	5	5	1	1
C	2	2	2	4	4	2	2
D	3	3	3	3	3	3	3
E	4	4	4	2	2	4	
F	5	5	5	1	1	5	
G	6	6	6	0	0		
H	7	7	7				

APPENDIX G

STUDENT PEDOMETER LOG

NAME: _____ Date:_____

Pedometer Log Recording Week#1

Record Your Daily Steps for 7 days

Sun	Mon	Tues	Wed	Thu	Fri	Sat	Total Steps

APPENDIX H

HEALTHY LIFESTYLES BELIEF SCALE

Below are 16 statements that relate to your overall health and well-being. There are no right or wrong answers to the following statements. Please circle the number that best describes your agreement or disagreement with each statement.

		Strongly Disagree	Disagree	Don't Care	Agree	Strongly Agree
1	I am sure that I will do what is best to lead a healthy life.	1	2	3	4	5
2	I believe that exercise and being active will help me to feel better about myself.	1	2	3	4	5
3	I am certain that I will make healthy food choices.	1	2	3	4	5
4	I know how to deal with things in a healthy way that bother me.	1	2	3	4	5
5	I believe that I can reach the goals that I set for myself.	1	2	3	4	5
6	I am sure that I can handle my problems well.	1	2	3	4	5
7	I believe that I can be more active.	1	2	3	4	5
8	I am sure that I will do what is best to keep myself healthy.	1	2	3	4	5
9	I am sure that I can spend less time watching TV.	1	2	3	4	5
10	I know that I can make healthy snack choices regularly.	1	2	3	4	5
11	I can deal with pressure from other people in positive ways.	1	2	3	4	5
12	I know what to do when things bother or upset me.	1	2	3	4	5
13	I believe that my parents and family will help me to reach my goals.	1	2	3	4	5
14	I am sure that I will feel better about myself if I exercise regularly.	1	2	3	4	5
15	I believe that being active is fun.	1	2	3	4	5
16	I am able to talk to my parents/family about things that bother or upset me.	1	2	3	4	5

APPENDIX I

HEALTHY LIFESTYLES PERCEIVED DIFFICULTY SCALE

Perceived Difficulty Scale for Teens

	Directions: Please answer the following questions. How hard or easy is it to do the following things?	Very hard to do	Fairly hard to do	Neither hard nor easy to do	Fairly easy to do	Very easy to do
1	Eat healthy.	1	2	3	4	5
2	Not eat unhealthy foods that I like.	1	2	3	4	5
3	Exercise regularly.	1	2	3	4	5
4	Exercise instead of watching TV, relaxing, or using the computer.	1	2	3	4	5
5	Buy healthy foods to eat.	1	2	3	4	5
6	Find a safe place to exercise.	1	2	3	4	5
7	Have exercise equipment at home (for example, jump rope, weights, sneakers).	1	2	3	4	5
8	Take the time to buy healthy foods.	1	2	3	4	5
9	Take the time to help plan and prepare healthy meals.	1	2	3	4	5
10	Take the time to exercise regularly.	1	2	3	4	5
11	Take the time to plan an exercise schedule.	1	2	3	4	5
12	Cope/Deal with stress.	1	2	3	4	5

APPENDIX J

PARTICIPANT EXIT INTERVIEW SCRIPT

Participant Exit Interview Script

How did you decide to participate in the TEEN COPE program?

What did you like about the TEEN COPE Program?
- a. What made you like (whatever aspect(s) of program the student mentions)?

Which parts of the TEEN COPE program were most helpful?
- a. How were they helpful?

Which parts of the TEEN COPE program were not helpful?

How have you used what you learned in the TEEN COPE Program…
- a. At home?
- b. At school?

What would you change about the TEEN COPE Program to make it better for future students?
- a. What would you want to add? (topics, activities, lessons, experiences?)
- b. What would you take out? (topics, activities, lessons, experiences?)

Would you recommend the TEEN COPE program to a friend?

Is there anything else you would like to share about your experience in the TEEN COPE Program?

APPENDIX K

IMPLEMENTATION FIDELITY MEASURE

Observation/Implementation Fidelity Form

Completed by: _____ Date: _____

1. Preparation:
Was the teacher prepared to teach the lesson? (circle one) Well Prepared 5 Prepared 4 Somewhat Prepared 3 Poorly Prepared 2 Totally Unprepared 1
Check appropriate box for each item: a. Teacher manual present □ Yes □ No □ Not applicable b. PowerPoint displayed □ Yes □ No □ Not applicable c. Necessary materials (for role play, physical activity, etc.) □ Yes □ No □ Not applicable d. Evidence that materials were reviewed prior to lesson □ Yes □ No □ Not applicable
Notes:

2. Learning Objectives:
Were the learning objectives clear to the students? (circle one) Very Clear 5 Clear 4 Somewhat Clear 3 Not Very Clear 2 Not Clear at all 1
Check appropriate box for each item: a. Learning objectives were not mentioned by the teacher □ Yes □ No □ Not applicable b. Learning objectives were referenced but not explained by the teacher □ Yes □ No □ Not applicable c. Learning objectives were handed out to students □ Yes □ No □ Not applicable d. Learning objectives were read/spoken to the students by the teacher □ Yes □ No □ Not applicable e. Learning objectives were discussed with the students by the teacher □ Yes □ No □ Not applicable
Notes:

3. Instruction:

How appropriately was the material interpreted and presented by the teacher? (circle one)

Completely	Mostly	Somewhat appropriately	Not very appropriately	Not at all
5	4	3	2	1

Check appropriate box for each item:

a. Teacher addressed all learning objectives □ Yes □ No □ Not applicable
b. Teacher stayed on task (refrained from irrelevant or length discussions)
□ Yes □ No □ Not applicable
c. Teacher summarized important points and related the discussion to previous and future topics/concepts
□ Yes □ No □ Not applicable
d. Teacher adequately addressed questions that were raised during class
□ Yes □ No □ Not applicable
e. Examples were presented to clarify points □ Yes □ No □ Not applicable
f. Ideas were related to familiar concepts □ Yes □ No □ Not applicable

Notes:

4. Adherence to Lesson Plan:

Did the teachers faithfully follow the lesson plans in the curriculum?
Rate each segment:

Instruction: *(circle one)*

Completely	Mostly	Somewhat	Not very faithfully	Not at all
5	4	3	2	1

Check appropriate box for each item:

a. Taught required topic for the week (COPE schools only) □ Yes □ No □ Not applicable
b. Followed learning objectives □ Yes □ No □ Not applicable
c. Discussed all PowerPoint slides □ Yes □ No □ Not applicable
d. Key points of the lesson were emphasized □ Yes □ No □ Not applicable
e. Taught lesson in correct order □ Yes □ No □ Not applicable
f. Utilized examples in teacher's manual □ Yes □ No □ Not applicable

Notes:

4. Adherence to Lesson Plan: (continued)
Did the teachers faithfully follow the lesson plans in the curriculum?
Rate each segment:

Role Play/Case Scenario Discussion: *(circle one)*

Completely	Mostly	Somewhat	Not very faithfully	Not at all
5	4	3	2	1

Check appropriate box for each item:

a. Completed role play/case scenario discussion	□ Yes	□ No	□ Not applicable
b. Followed script for role play/case scenario	□ Yes	□ No	□ Not applicable
c. Encouraged discussion of role play/case scenario	□ Yes	□ No	□ Not applicable

Notes:

Homework: *(circle one)*

Completely	Mostly	Somewhat	Not very faithfully	Not at all
5	4	3	2	1

Check appropriate box for each item:

a. Assigned homework as indicated in lesson plan	□ Yes	□ No	□ Not applicable
b. Provided homework instructions	□ Yes	□ No	□ Not applicable
c. Collected homework as indicated in lesson plan	□ Yes	□ No	□ Not applicable
d. Encouraged students to complete homework	□ Yes	□ No	□ Not applicable
e. Discussed completed homework and answered questions	□ Yes	□ No	□ Not applicable

Notes:

Physical Activity: *(circle one)*

Completely	Mostly	Somewhat	Not very faithfully	Not at all
5	4	3	2	1

Check appropriate box for each item:

a. Facilitated 20 minutes of physical activity	□ Yes	□ No	□ Not applicable
b. Required participation of all students	□ Yes	□ No	□ Not applicable
c. Utilized physical activity wheel	□ Yes	□ No	□ Not applicable

Notes:

5. Active Participation

How actively did the students participate in the lesson? (circle one)

Actively	Somewhat Actively	Mixed	Passively	Didn't Participate
5	4	3	2	1

Check appropriate box for each item:

a.	Students maintained eye contact with teacher and/or PowerPoint presentation	□ Yes	□ No	□ Not applicable
b.	Students raised hands	□ Yes	□ No	□ Not applicable
c.	Students asked questions	□ Yes	□ No	□ Not applicable
d.	Students responded to teacher inquiries	□ Yes	□ No	□ Not applicable
e.	Students expressed opinions and personal experiences	□ Yes	□ No	□ Not applicable

Notes:

6. Practiced Skills

How many students practiced the skills and/or messages of the lesson? (circle one)

All students	Most students	Some students	Very few students	No students
5	4	3	2	1

Check appropriate box for each item:

a.	Students participated in skill building activity	□ Yes	□ No	□ Not applicable
b.	Students completed homework	□ Yes	□ No	□ Not applicable

Notes:

7. Student Response to Lesson

How did the students respond to the lesson? (circle one)

Very Favorably	Favorably	Somewhat Favorably	Unfavorably	Very Unfavorably
5	4	3	2	1

Check appropriate box for each item:

a.	Students moaned, groaned, or sighed	□ Yes	□ No	□ Not applicable
b.	Students smiled or nodded	□ Yes	□ No	□ Not applicable
c.	Students made positive comments about lesson	□ Yes	□ No	□ Not applicable
d.	Students made negative comments about lesson	□ Yes	□ No	□ Not applicable

Notes:

8. Classroom Management

Did the classroom management style of the teacher provide an environment that was conducive to learning? (circle one)

Excellent	Good	Average	Below Average	Poor
5	4	3	2	1

Check appropriate box for each item:

a. Sufficient time was allowed for students to respond to question posed
□ Yes □ No □ Not applicable

b. Observed and responded to student cues (e.g. boredom or confusion)
□ Yes □ No □ Not applicable

c. Appropriately managed classroom behaviors, such as tardiness or disruptive behaviors
□ Yes □ No □ Not applicable

d. Started and ended class on time
□ Yes □ No □ Not applicable

Notes:

Additional notes:

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