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South Carolina School Nurses' Knowledge, Opinions, Perceptions, and Practice Measures Regarding Childhood Obesity

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by

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Abstract

Childhood obesity has become a significant national health issue due to rising incidences and associated chronic medical conditions. School nurses across the United States of America are in prime positions to address childhood obesity as they have access to large numbers of children and adolescents in school settings. A review of current literature demonstrated that school nurses were overall knowledgeable concerning childhood obesity, but encountered numerous barriers in enacting weight-related assessments and treatment programs. The purpose of this research study was to determine the knowledge, opinions, perceptions, and practice measures of South Carolina school nurses regarding childhood obesity. The "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire was sent electronically to school nurses in South Carolina. Results from the questionnaire indicated that school nurses in South Carolina understood the causes and negative health effects of childhood obesity. Despite this awareness, the school nurses were not actively conducting weight status screenings or developing weight management programs for students.

Keywords: childhood obesity, school nurses

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CHAPTER I

Introduction

Brief Background

Childhood obesity has developed into a serious medical issue with negative effects on overall health and wellness. According to the Centers for Disease Control and Prevention (CDC), approximately 17% of American children and adolescents between the ages of two through nineteen are obese (CDC, 2011). In regards to the state of South Carolina, 12.8% of children and 16.7% of adolescents are considered obese (CDC, 2012). Weight status is determined by analyzing individuals' height and weight in order to calculate their body mass index (BMI). Obesity is defined when the BMI-for-age percentile is equal to or greater than the 95th percentile for people of the same age and gender (CDC, 2011).

Multiple elements contribute to childhood obesity. Obesity is the result of an energy imbalance that occurs from consuming an increased number of calories and participating in decreased physical activity (CDC, 2011). Many children and adolescents are consuming large portion sizes of meals and beverages that are high in sugar content while leading more sedentary lifestyles of watching television and playing video games. Genetics, metabolism, and social factors, such as socioeconomic status and culture, also influence the development of childhood obesity (Benjamin, 2011). There are numerous health risks associated with childhood obesity, including asthma, diabetes, hypertension, and adult obesity. As a result, the lifetime medical costs of obese children are estimated to increase by $19,000 per child when compared to the medical costs of children who maintain healthy weights (Finkelstein, Graham, & Malhotra, 2014).

According to Mehrley and Leibold (2011), from the National Association of School Nurses, "school nurses have the knowledge and expertise to promote the prevention of overweight and obesity and address the needs of overweight and obese youth in schools" (p. 1). School nurses are vital to the issue of childhood obesity as they have access to large numbers of children and adolescents in school settings. School nurses may conduct weight status screenings to identify obese students, refer obese students to health care providers for further evaluation and treatment, and participate in the development of weight loss and maintenance programs. In addition, school nurses may educate the school community regarding healthy lifestyle choices (Mehrley & Leibold, 2011).

Research Problem

School nurses are in prime positions to recognize and provide treatment in response to the growing prevalence of childhood obesity. School nurses must have adequate knowledge regarding the causes and health risks of childhood obesity. They also need to utilize effective actions in their practice to assess and treat childhood obesity, such as weight status screenings and referrals to weight management programs. Research to explore school nurses' knowledge and practice behaviors related to childhood obesity is important to determine whether or not school nurses have an active role in addressing this issue.

Research Purpose

The purpose of this research study is to assess South Carolina school nurses' knowledge, opinions, perceptions, and practice measures regarding childhood obesity.

Research Questions

- What knowledge, opinions, and perceptions do South Carolina school nurses have regarding childhood obesity?
- What practice measures do South Carolina school nurses employ in addressing childhood obesity?

Conceptual/Theoretical Framework

Pender's Health Promotion Model, displayed in Figure 1, is the theoretical framework for this research study. Nola Pender first developed the Health Promotion Model during the 1970s and 1980s and later revised the model during the 1990s (McEwen & Wills, 2011). The Health Promotion Model focuses on health-promoting behaviors and the factors that influence these behaviors. Pender believes that the ultimate goal of nursing is to aid others in providing care for themselves (Sakraida, 2010). Pender's Health Promotion Model is useful as the theoretical framework for research that examines health-promoting actions to improve the health of populations. The major concepts of the Health Promotion Model are individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes (McEwen & Wills, 2011).

Individual characteristics and experiences encompass prior related behavior and biological, psychological, and sociocultural personal factors (McEwen & Wills, 2011). These variables are determinants as to whether or not an individual will partake in health-promoting behaviors. Behavior-specific cognitions and affect involve perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related affect, and interpersonal and situational influences. These factors serve as motivators for health-

promoting behaviors and may be influenced by nursing care (Stark, Chase, & DeYoung, 2010). Behavioral outcomes include commitment to a plan of action, immediate competing demands and preferences, and health-promoting behavior. These influences affect activities that contribute to health-promoting behaviors (McEwen & Wills, 2011).

For this study, the Health Promotion Model will be utilized to research South Carolina school nurses' knowledge, opinions, perceptions, and practice measures regarding childhood obesity. Individual characteristics and experiences will explore South Carolina school nurses' demographic and personal information. Behavior-specific cognitions and affect will examine what the school nurses view as benefits and barriers to action, and also how competent the school nurses feel about addressing childhood obesity. Behavioral outcomes will demonstrate if the school nurses make commitments to plans of action to identify obese students, refer obese students to weight management programs, and promote healthy behaviors.

Based on Pender's Health Promotion Model, two theoretical assumptions are applicable to this research study. The first theoretical assumption is that South Carolina school nurses will be knowledgeable about the causes and health risks of childhood obesity. The second theoretical assumption is the school nurses will use BMI screenings on a regular basis to identify obese students and refer these students to weight management programs. Data from the study will demonstrate whether or not these assumptions are supported.

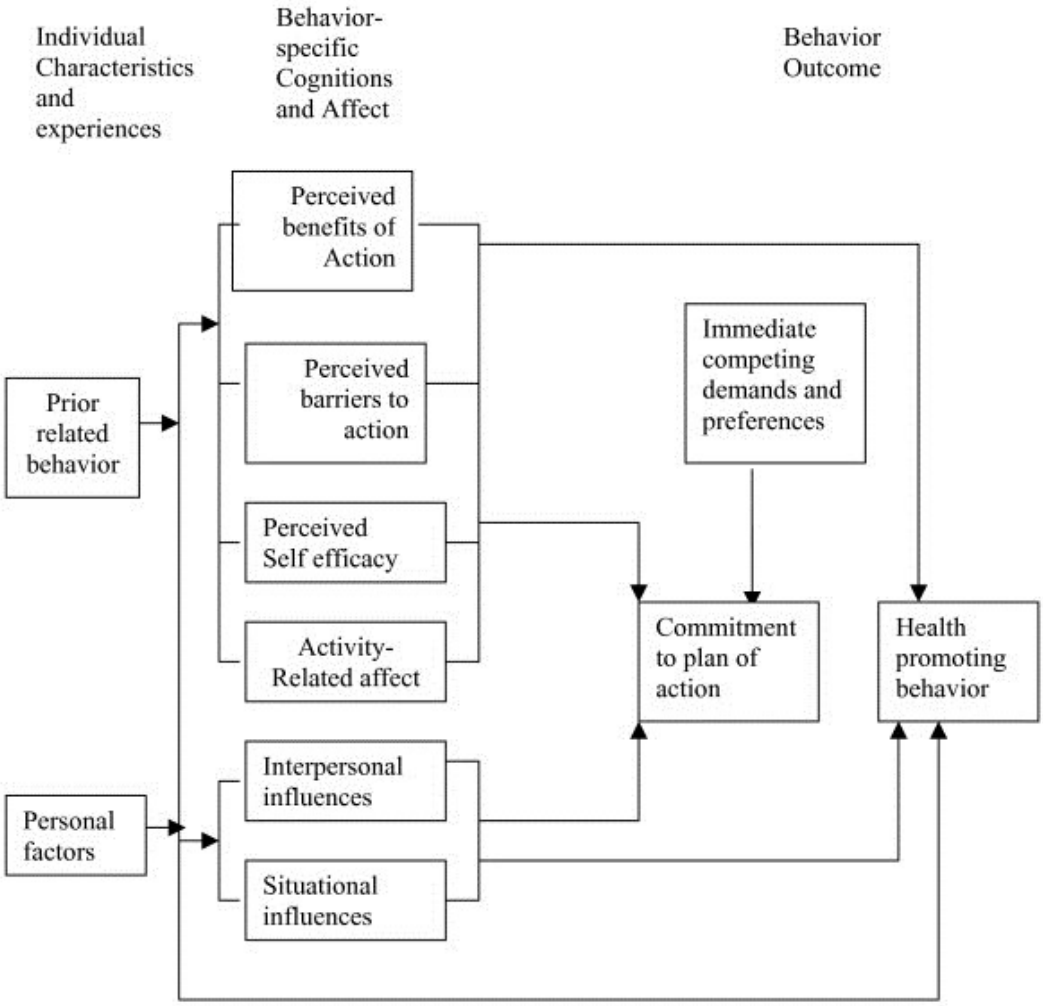

Figure 1: Pender's Health Promotion Model (McEwen & Wills, 2011)

Significance to Nursing

Childhood obesity is an important health matter facing school nurses. It is imperative that school nurses are proactive concerning this issue due to the chronic medical conditions associated with childhood obesity. Through appropriate identification of obese students and referrals to weight management programs, school nurses are able to aid children and adolescents in adopting healthy lifestyles. Research into the knowledge, opinions, perceptions, and practice measures of school nurses regarding childhood obesity is significant to determine whether or not school nurses feel competent in their abilities.

CHAPTER II

Research Based Evidence

School nurses' involvement in identifying and treating students affected by childhood obesity has become an increasingly important topic. School nurses often interact with students on a daily basis and are valuable assets in addressing weight-related issues. Several published studies and research journal articles have investigated the relationship between school nurses and childhood obesity. Findings from these resources provide background information, research data, and areas that need further exploration concerning this subject.

Review of Literature

One study conducted by Murphy and Polivka (2007) examined parental perceptions of schools' roles in addressing childhood obesity. One hundred seventeen parents of children in an after-school program affiliated with an Ohio suburban school system completed the "Parental Perceptions of Body Mass Index and Obesity in School-Age Children" survey. The research tool asked yes/no and Likert-type questions regarding parents' familiarity with BMI screenings, opinions concerning obesity, causes of obesity, and schools' roles in the prevention and treatment of childhood obesity. Eighty percent of respondents agreed that BMI is appropriate for schools to utilize in weight screenings. Approximately 67% of participants selected that they would prefer to receive a letter from the school nurse regarding their child's BMI. Sixty percent of parents in the study believed that schools should recommend treatment for weight loss for children and parents who ask for help. In addition, over 80% of the parents felt schools should provide educational units on nutrition and weight control, as well as offer physical education classes. Pender's Health Promotion Model served as the theoretical framework

for the study. The model evaluated how the concepts of perceived barriers and perceived benefits influenced parental perceptions of schools' roles in addressing childhood obesity. There were two main assumptions based on the Health Promotion Model. First, perceived barriers would inhibit the initiation of action in reducing children's weight. Barriers included limited physical education classes, students not participating in physical activity due to embarrassment, and poor quality of food choices at school. Second, perceived benefits would lead to better school policies on the collection and distribution of BMI information to parents. Benefits included implementation of health screening programs, introduction of special low-calorie meals, and elimination of junk food machines to encourage healthier lifestyles and a reduction in childhood obesity.

Nauta, Byrne, and Wesley (2009) conducted research to evaluate school nurses' knowledge and practice measures regarding childhood obesity. One hundred three school nurses from New Jersey, who attended county School Nurses' Association meetings, completed the "School Nurses' Perceptions of Childhood Obesity Tool." The instrument was a 55-item, five-point Likert-type questionnaire that collected information concerning knowledge about childhood obesity and weight control programs, practices about referral for obesity, schools' roles in weight control, criteria utilized for determining obesity, health risks related to childhood obesity, and sources of weight control information. Findings from the study demonstrated that school nurses were overall knowledgeable about childhood obesity. Ninety-nine percent of study participants believed that poor eating behavior and excessive caloric consumption were major contributors to the occurrence of childhood obesity. Thirty-four percent of respondents stated that they recommended treatment for weight loss for obese children. Sixty-five percent of the

school nurses sampled in the study replied that they sometimes, rarely, or never use age-specific BMI to calculate childhood obesity. Also, 77% of the nurses believed that schools were not doing enough to alleviate childhood obesity. Nauta et al. (2009) selected Pender's Health Promotion Model as the conceptual framework for this study. The Health Promotion Model focused on three factors to describe school nurses' knowledge and practice regarding childhood obesity: individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes. The key concepts of the study were childhood obesity, knowledge, practice measures, and school nurses. Based on the Health Promotion Model, it was assumed that school nurses would conduct BMI screenings often and inform families about weight control programs. Overall, this assumption was not supported in the study's findings as less than half of the respondents conducted regular BMI screenings or recommended weight loss treatment.

A qualitative study by Della Torre, Akré, and Suris (2010) investigated the opinions of school stakeholders regarding childhood obesity prevention. Forty school representatives from six stakeholder sets in Switzerland schools attended focus groups. School directors, physical education teachers, catering staff, school nurses and health educators, parents of young adolescents, and young adolescent students represented the six stakeholder groups. The principal investigator utilized a semistructured questionnaire to guide discussions on childhood obesity prevention recommendations. Subject matter for prompt questions included strategies to promote healthy eating and physical activity for students, partners that should be involved in the development of childhood obesity prevention measures, possible negative effects of obesity prevention interventions, and recommendations for planning obesity prevention programs. Healthy eating, physical

activity, health messages, and prevention programs were the four major topics that emerged from the focus groups. In regards to healthy eating, members of the focus groups acknowledged the improved quality of meals served in school cafeterias, but cited alternative unhealthy food options and lack of time to eat as barriers to childhood obesity prevention. The school representatives discussed the decreased amount of time students spent in physical education classes as a challenge to meeting adequate physical activity requirements. Subjects agreed that health promotion messages were needed in the school setting, but expressed concerns of effectiveness due to limited parental support and resistance from students. In addition, participants reported that initiatives for childhood obesity prevention programs were currently in place in schools; however, the programs required increased coordination and clearer guidelines for successful development and implementation. Data analysis was based on the grounded theory process to identify predominant and reliable themes. Conceptual similarities and differences were derived from focus group members' responses to create explanatory schemes.

Steele et al. (2011) analyzed the perceived barriers school nurses encountered in discussing weight issues with students and their families. Twenty-two school nurses from three school districts located in the Midwestern United States participated in focus groups. The main content areas for the focus groups were the school nurses' attitudes and knowledge concerning childhood obesity. Barriers identified by the school nurses were organized into five categories: individual (nurse) factors, family factors, interactions between nurses and families, institutional factors, and societal factors. Regarding individual (nurse) factors, study participants stated that lack of knowledge or resources and self-perceived competency inhibited them from addressing weight issues with

students. For family factors, subjects acknowledged that characteristics of students' families, familial cultural factors, and lack of motivation among students affected weight-related discussions. Interactions between school nurses and families were inhibited by barriers such as fear of others' reactions, difficulty establishing relationships with students, and negative past experiences when addressing weight with students and their families. Concerning institutional factors, respondents cited a lack of support from school administrators in relation to childhood obesity, professional time constraints, and the food choices offered at schools as barriers. In the final category of societal factors, school nurses reported social norms, such as increased sedentary behaviors, changing perceptions of normal weight, and larger portion sizes of meals, as barriers to addressing weight-related issues. Bronfenbrenner's Socioecological Model provided the conceptual framework for the study, which examined how macrosystemic and exosystemic factors interacted and influenced mesosystems and microsystems. The topics of barriers, communication, childhood obesity, school nurses, and weight-related health served as the major concepts of the study.

Jain and Langwith (2013) studied real-world implementations of interventions addressing childhood obesity in school settings. Six school districts from Florida, Georgia, and Texas were selected to partake in the Activate for Kids initiative. Activate for Kids was designed to reduce obstacles in dealing with weight-related issues by providing training and support to school nurses and by placing wellness coordinators in the school districts. Nineteen key informants, including administrators, school nurses, and wellness coordinators, participated in semistructured interviews. Interview questions were open-ended and focused on the establishment of Activate for Kids, informants'

roles and responsibilities related to childhood obesity interventions, schools' policies regarding wellness programs, and the implementation and effectiveness of initiatives. Overall, the informants felt that Activate for Kids was successful with an increased awareness among students of the connection between weight status and overall health. Subjects also identified the participation and encouragement of school nurses as valuable to the initiative. Results from the study demonstrated that in order to be successful, the program had to be customized based on specific needs and provide on-the-job support and assistance. Furthermore, the study found that having a single person committed to decreasing childhood obesity was essential to changes in behavior and practice.

Bryan, Broussard, and Bellar (2013) discussed the collaborative relationship between school nurses and physical education teachers in combating childhood obesity. School nurses had several primary roles related to weight management in the educational setting. These roles included promoting normal developmental patterns, facilitating positive intervention responses, serving as leaders for health and safety initiatives, providing quality health care with identification of health problems, and working with school and community members to create a healthy learning environment for students and families. Through these roles, school nurses were able to join physical education teachers in developing instructive programs regarding childhood obesity. Components of these programs involved screenings for BMI and blood pressure, early detection of overweight children with appropriate interventions, and information on healthy diet and activity practices. This collaborative approach positively impacted the overall well-being of students and their ability to make healthy lifestyle choices. The partnership between

school nurses and physical education teachers also increased the exposure of health-related information and reinforced the importance of addressing childhood obesity.

Summary

School nurses are at the forefront of the childhood obesity epidemic. Research has shown that parents would choose to receive information regarding their child's weight status from school nurses and that parents believe that schools should take more active roles in weight management (Murphy & Polivka, 2007). Findings from another study demonstrated that school nurses are overall knowledgeable regarding the etiology of childhood obesity, but age-specific BMI screenings are not routinely utilized for weight assessments (Nauta et al., 2009). School stakeholders, including school nurses, understand the importance of childhood obesity prevention measures, but encounter a multitude of barriers in addressing weight-related issues (Della Torre et al., 2010; Steele et al., 2011). Research findings also recognize school nurses as key to establishing behaviors and practices to decrease childhood obesity (Jain & Langwith, 2013). Partnerships and collaborations between school nurses and physical education teachers have a positive impact on initiatives to promote healthy eating patterns and appropriate activity levels (Bryan et al., 2013). Further research is needed to identify school nurses' knowledge and practice measures related to childhood obesity. In addition, it would be beneficial to investigate the impact that students' ages and grade levels have on receptiveness to information concerning childhood obesity.

CHAPTER III

Methodology

Due to rising occurrences and associated negative health effects, childhood obesity has become a prevalent medical topic requiring attention (Benjamin, 2011). Nurses working in school settings are in unique and valuable roles to identify obese students and develop obesity treatment and prevention programs. School nurses must have adequate knowledge and appropriate practice measures to address childhood obesity. The purpose of this research study is to assess South Carolina school nurses' knowledge, opinions, perceptions, and practice measures regarding childhood obesity.

Implementation

A quantitative study was conducted to research the knowledge, opinions, perceptions, and practice measures of South Carolina school nurses in regards to childhood obesity. A formal and objective process was employed to collect data for statistical analysis in order to describe variables (Burns & Grove, 2009). Participants responded to a questionnaire entitled, "School Nurses' Perceptions of Childhood Obesity Tool" (Nauta et al., 2009). Permission to use the questionnaire was obtained from the instrument's developers.

Setting

Subjects responded to the "School Nurses' Perceptions of Childhood Obesity Tool" in an online setting through the SurveyMonkey website. The questionnaire was uploaded to the secure website. Participants were able to answer questions from remote locations by using computers with internet access capabilities.

Sample

Participants were recruited from a South Carolina lead school nurse meeting and individual school websites. Subjects were contacted via electronic mail. Six hundred nineteen questionnaires were sent to school nurses in South Carolina, and 162 questionnaires were completed.

Design

A descriptive, correlational, cross-sectional design was utilized for this study. The research provided an accurate portrayal of South Carolina school nurses while investigating the relationships among several variables related to childhood obesity (Burns & Grove, 2009). Subjects completed the "School Nurses' Perceptions of Childhood Obesity Tool" in an online setting. Data was collected and statistically analyzed utilizing the IBM Statistical Package for the Social Sciences (SPSS) software program.

Protection of Human Subjects

Permission from the Interim South Carolina School Nurse Consultant was obtained for research purposes. The South Carolina Department of Health and Environmental Control, the South Carolina Department of Education, and the South Carolina Association of School Nurses were not responsible or associated with this research study or results. Participants were not exposed to any risks or benefits during the conduction of the research. Letters of informed consent detailing the purpose, risks, benefits, and voluntary completion of the questionnaire were sent to all school nurses contacted for the research study. Subjects were protected throughout the implementation

and dissemination of results by the concealment of identifying demographic and personal information.

Instrument

The research instrument was the "School Nurses' Perceptions of Childhood Obesity Tool." The 55-item, five-point Likert-type questionnaire was originally developed by Price, Desmond, Ruppert, and Stelzer in 1987 (Nauta et al., 2009). The questionnaire was divided into nine sections based on the following topics: school age obesity and weight control programs, school nurses' opinions concerning childhood obesity, referral for obesity, school role in weight control, definition of obesity, health risks associated with obesity, etiology of childhood obesity, sources of weight control information, and demographic questions. Based on the sections, answer choices ranged from agree or disagree, ratings of how often actions were performed, and rankings of importance. Reliability of the original instrument was $\alpha = .80$. Three veteran school nurses established content validity of the instrument. Moyers, Bugle, and Jackson revised the tool in 2005 and administered it to 106 school nurses (Nauta et al., 2009). Reliability of this revised instrument was $\alpha = .74$. Nauta et al. (2009) utilized the revised instrument in their study of New Jersey's school nurses' knowledge and practice measures related to childhood obesity. Reliability of the revised instrument for their study was $\alpha = .77$.

Data Collection

The data required for the research study were answers from the "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire. South Carolina school nurses were the sources of the data. E-mail addresses for South Carolina school nurses were

collected from a South Carolina lead school nurse meeting and individual school websites. Letters of informed consent and the hyperlink to the online questionnaire were sent to the school nurses via e-mail. Participants completed the questionnaire, and the data was stored on the SurveyMonkey website. The researcher collected responses to questions from the SurveyMonkey website.

Data Analysis

The researcher entered the data into the IBM SPSS software program for statistical analysis. There were two theoretical assumptions for data analysis. First, South Carolina school nurses would be knowledgeable concerning the etiology and health risks of childhood obesity. Second, South Carolina school nurses would use BMI screenings on a regular basis to identify obese students and refer these students to weight management programs.

Summary

A descriptive, correlational, cross-sectional research design was utilized to study South Carolina school nurses' knowledge, opinions, perceptions, and practice measures regarding childhood obesity. Participants were contacted via e-mail and answered questions from the "School Nurses' Perceptions of Childhood Obesity Tool." Responses provided data for statistical analysis using the IBM SPSS software program. The researcher protected the rights and privacy of subjects by maintaining the confidentiality of identifying information.

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CHAPTER IV

Results

As the prevalence of childhood obesity grows, it is important to understand school nurses' knowledge, opinions, perceptions, and practice measures regarding this health issue (CDC, 2012). In order to assess this information, school nurses from South Carolina completed the "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire. Responses to the questionnaire provide insight into school nurses' awareness of causes of childhood obesity and related health effects. Major findings from the research study demonstrate how childhood obesity is currently being addressed in South Carolina schools.

Sample Characteristics

The "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire was sent through electronic mail to 619 school nurses in South Carolina. The final sample size was 162 South Carolina school nurses. All of the respondents did not answer all of the items for each collected questionnaire. There were 457 total nonresponses, and no withdrawals or losses. Questions regarding demographic information of the sample were located in section nine of the questionnaire and included level of education, credentials, number of years practicing as a school nurse, and number of students and grade levels school nurses were responsible for at their schools. The majority of the subjects had a bachelor degree in nursing (n = 73), followed by an associate degree in nursing (n = 58). Most respondents were registered nurses (n = 129) as opposed to licensed practical nurses (n = 19). The years of practice spanned from 0.5 to 38 years with a mean number of 11 years. The number of students that school nurses were responsible for at their schools

ranged from 0 to 4000 students with a mean number of 745.6 students. In regards to the grade levels of students participants cared for, a majority reported preschool and elementary students followed by middle school/junior high and high school students (Table 1).

Table 1

Demographic Information

Items	Responses
What is your level of education?	
Associate Degree in Nursing	*n* = 58, (42%)
Bachelor Degree in Nursing	*n* = 73, (52.9%)
Master Degree in Nursing	*n* = 7, (5.1%)
Doctorate in Nursing	*n* = 0, (0%)
What are your credentials?	
Licensed Practical Nurse (LPN)	*n* = 19, (12.8%)
Registered Nurse (RN)	*n* = 129, (87.2%)
How many years have you practiced as a school nurse?	
Minimum	0.5 years
Maximum	38 years
Mean	11 years
How many students are you responsible for at your school(s)?	
Minimum	0 students
Maximum	4000 students
Mean	745.6 students
What are the grade levels of students you care for? (Select all that apply)	
Preschool	*n* = 44, (29.3%)
Elementary	*n* = 93, (61.3%)
Middle School/Junior High	*n* = 47, (31.3%)
High School	*n* = 30, (20%)

Major Findings

The questionnaire was divided into nine sections. Sections one through eight focused on school nurses' knowledge, opinions, perceptions, and practice measures regarding childhood obesity along with sources of weight control information. Section nine gathered demographic information from participants to provide sample characteristics. Based on the sections, answer choices ranged from agree or disagree, ratings of how often actions were performed, and rankings of importance. Reliability of the instrument was measured by Cronbach alpha statistical testing. For this research study, the Cronbach alpha coefficient for the total instrument was $\alpha = .985$.

Section one

Section one contained eight statements measuring school nurses' perceptions regarding school age obesity and weight control programs. Participants were able to select "Strongly Agree", "Agree", "Uncertain", "Disagree", or "Strongly Disagree" based on the content of statements. The Cronbach alpha coefficient for section one was $\alpha = .964$. Most subjects strongly agreed that normal weight was important to the health of children while the majority either strongly agreed or agreed that school nurses should be role models by setting an example as one who maintained their normal weight. Respondents were divided in their thoughts about the obligation of school nurses to counsel the parents of obese children concerning the health risks of obesity and feeling competent in recommending weight loss programs. The majority of study participants strongly agreed or agreed that designing programs and counseling children and parents about weight loss was difficult. The subjects' responses for counseling children and their parents on weight being inconvenient were concentrated around strongly disagree and

disagree. Selections for statements concerning professional gratification for weight loss advisement and schools' actions in alleviating childhood obesity were spread out among the options (Table 2).

Table 2

Section One: School Nurses' Perceptions Regarding School Age Obesity and Weight Control Programs

Items	Strongly Agree *n* (%)	Agree *n* (%)	Uncertain *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
1. Normal weight is important to the health of children.	119 (73.5%)	42 (25.9%)	1 (0.6%)	0 (0%)	0 (0%)
2. I believe school nurses should be role models by setting an example as one who maintains their normal weight.	58 (35.8%)	89 (54.9%)	8 (4.9%)	4 (2.5%)	3 (1.9%)
3. School nurses are obligated to counsel the parents of obese children concerning the health risks of obesity.	6 (3.7%)	45 (28%)	58 (36%)	45 (28%)	7 (4.3%)
4. I feel competent in recommending weight loss programs for children.	9 (5.6%)	37 (22.8%)	48 (29.6%)	56 (34.6%)	12 (7.4%)
5. Designing programs and counseling children and their parents about weight loss is difficult.	61 (37.9%)	82 (50.9%)	8 (5%)	7 (4.3%)	3 (1.9%)
6. Counseling children and their parents on weight is inconvenient.	6 (3.8%)	33 (20.6%)	24 (15%)	81 (50.6%)	16 (10%)
7. Counseling children and their parents on weight loss is professionally gratifying.	9 (5.7%)	67 (42.4%)	61 (38.6%)	18 (11.4%)	3 (1.9%)
8. Schools are not doing enough to help alleviate childhood obesity.	27 (16.7%)	51 (31.5%)	31 (19.1%)	46 (28.4%)	7 (4.3%)

Section two

Section two had seven statements regarding school nurses' opinions concerning childhood obesity. Participants were able to select "Strongly Agree", "Agree", "Uncertain", "Disagree", or "Strongly Disagree" based on the content of statements. The Cronbach alpha coefficient for section two was $\alpha = .965$. Most participants strongly agreed or agreed that childhood obesity was becoming more prevalent, that alleviating childhood obesity was more important to health than alleviating obesity in adulthood, and that childhood obesity was a significant cause of peer rejection. The majority of subjects strongly disagreed or disagreed that most obese children would outgrow their obesity. Respondents were divided in their opinions about childhood obesity being more amenable to treatment than adult obesity. Furthermore, the majority of participants strongly agreed or agreed that with proper guidance, most obese children were able to lose significant amounts of weight and maintain their weight loss (Table 3).

Table 3

Section Two: School Nurses' Opinions Concerning Childhood Obesity

Items	Strongly Agree *n* (%)	Agree *n* (%)	Uncertain *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
9. Childhood obesity is becoming more prevalent.	85 (52.8%)	70 (43.5%)	6 (3.7%)	0 (0%)	0 (0%)
10. Most obese children will outgrow their obesity.	0 (0%)	3 (1.9%)	18 (11.2%)	97 (60.2%)	43 (26.7%)
11. Alleviating childhood obesity is more important to health than alleviating obesity in adulthood.	31 (19.4%)	79 (49.4%)	26 (16.3%)	24 (15%)	0 (0%)
12. Childhood obesity is a significant cause of peer rejection.	47 (29.2%)	85 (52.8%)	17 (10.6%)	12 (7.5%)	0 (0%)
13. Childhood obesity is more amenable to treatment than adult obesity.	19 (11.9%)	69 (43.1%)	44 (27.5%)	25 (15.6%)	3 (1.9%)
14. With proper guidance, most obese children are able to lose significant amounts of weight.	9 (5.7%)	74 (46.5%)	61 (38.4%)	14 (8.8%)	1 (0.6%)
15. With proper guidance, former obese children are able to maintain their weight loss.	9 (5.6%)	84 (52.5%)	57 (35.6%)	8 (5%)	2 (1.3%)

Section three

Section three was comprised of four statements that focused on school nurses' referrals for obesity. Participants were able to select "Strongly Agree", "Agree", "Uncertain", "Disagree", or "Strongly Disagree" based on the content of statements. The Cronbach alpha coefficient for section three was $\alpha = .931$. Most of the respondents strongly disagreed or disagreed that they usually recommended treatment for weight loss for all obese children. In comparison, the majority strongly agreed or agreed that they usually recommended treatment for weight loss for children or parents who asked for help. Participants' recommendations for weight loss treatment varied for children with a health problem affected by their obesity. Selections also demonstrated a predominance of subjects strongly agreeing or agreeing that they usually did not recommend treatment for weight loss (Table 4).

Table 4

Section Three: Referral for Obesity

Items	Strongly Agree *n* (%)	Agree *n* (%)	Uncertain *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
16. I usually recommend treatment for weight loss for all children who are obese.	1 (0.6%)	12 (7.6%)	24 (15.3%)	103 (65.6%)	17 (10.8%)
17. I usually recommend treatment for weight loss only for children (or parents of) who ask for help.	23 (14.6%)	84 (53.5%)	18 (11.5%)	27 (17.2%)	5 (3.2%)
18. I usually recommend treatment for weight loss only for children with a health problem affected by their obesity.	9 (5.8%)	47 (30.1%)	26 (16.7%)	67 (42.9%)	7 (4.5%)
19. I usually do not recommend treatment for weight loss.	15 (9.6%)	74 (47.1%)	16 (10.2%)	50 (31.8%)	2 (1.3%)

Section four

Section four involved four statements concerning school nurses' thoughts on schools' roles in weight control. Participants were able to select "Strongly Agree", "Agree", "Uncertain", "Disagree", or "Strongly Disagree" based on the content of statements. The Cronbach alpha coefficient for section four was $\alpha = .958$. The majority of subjects strongly agreed or agreed that a comprehensive health curriculum with units on nutrition and weight control should be available in every school and that schools should eliminate "junk food" machines. Most also strongly agreed or agreed that schools should offer special low-calorie lunches and that physical education classes, especially for overweight children, should be available in every school. Respondents were divided in their thoughts concerning whether or not schools should offer on-site weight control treatment programs for students (Table 5).

Table 5

Section Four: School Role in Weight Control

Items	Strongly Agree *n* (%)	Agree *n* (%)	Uncertain *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
20. A comprehensive health curriculum with units on nutrition and weight control should be available in every school.	74 (48.4%)	71 (46.4%)	8 (5.2%)	0 (0%)	0 (0%)
21. Schools should eliminate "junk food" machines.	75 (48.7%)	47 (30.5%)	16 (10.4%)	14 (9.1%)	2 (1.3%)
22. Schools should offer special low-calorie lunches.	49 (31.8%)	71 (46.1%)	17 (11%)	17 (11%)	0 (0%)
23. Schools should offer on-site weight control treatment programs for students.	26 (16.9%)	46 (29.9%)	42 (27.3%)	32 (20.8%)	8 (5.2%)
24. Physical education classes, especially for overweight children, should be available in every school.	80 (51.9%)	61 (39.6%)	7 (4.5%)	6 (3.9%)	0 (0%)

Section five

Section five focused on school nurses' definitions of obesity by asking which methods respondents used to assess excess weight in children and adolescents. Participants were able to select "Most of the Time", "Often", "Sometimes", "Rarely", or "Never" based on the varying options. The Cronbach alpha coefficient for section five was $\alpha = .934$. Clinical impression, body mass index (BMI = weight/height^2), and BMI-for-age percentile were the options with the highest percentages of being selected as used for most of the time. Skin-fold thickness percentile and waist-hip ratio or waist circumference were the options most often selected as never utilized. Overall, the majority of subjects responded that they sometimes, rarely, or never used most of the weight screening methods to assess excess weight in children and adolescents (Table 6).

Table 6

Section Five: Definition of Obesity

How often do you use each of the following methods to assess excess weight in children and adolescents?	Most of the Time	Often	Sometimes	Rarely	Never
Items	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
25A. Clinical impression	47 (32.2%)	42 (28.8%)	30 (20.5%)	6 (4.1%)	21 (14.4%)
25B. Weight for height percentile	22 (15.1%)	21 (14.4%)	26 (17.8%)	22 (15.1%)	55 (37.7%)
25C. Body mass index (BMI = weight/height^2)	29 (19.9%)	18 (12.3%)	29 (19.9%)	18 (12.3%)	52 (35.6%)
25D. BMI-for-age percentile	25 (17.2%)	21 (14.5%)	25 (17.2%)	17 (11.7%)	57 (39.3%)
25E. Skin-fold thickness percentile	2 (1.4%)	2 (1.4%)	2 (1.4%)	21 (14.5%)	118 (81.4%)
25F. Waist-hip ratio or waist circumference	1 (0.7%)	3 (2.1%)	3 (2.1%)	19 (13.3%)	117 (81.8%)

Section six

The topic of section six was health risks associated with obesity as school nurses in the study answered the question, "What role does obesity play in the etiology of the following diseases?" Participants were able to select "Major Role", "Minor Role", or "No Role" based on the presented health conditions. The Cronbach alpha coefficient for section six was $\alpha = .819$. The majority of all respondents indicated their beliefs that obesity played a major role in the development of hypertension, coronary heart disease, strokes, diabetes mellitus type 2, stress, osteoarthritis, and colon cancer (Table 7).

Table 7

Section Six: Health Risks Associated with Obesity

What role does obesity play in the etiology of the following diseases? Items	Major Role *n* (%)	Minor Role *n* (%)	No Role *n* (%)
26A. Hypertension	146 (97.3%)	4 (2.7%)	0 (0%)
26B. Coronary heart disease	146 (97.3%)	4 (2.7%)	0 (0%)
26C. Strokes	139 (92.7%)	11 (7.3%)	0 (0%)
26D. Diabetes mellitus type 2	148 (98.7%)	2 (1.3%)	0 (0%)
26E. Stress	120 (80%)	28 (18.7%)	2 (1.3%)
26F. Osteoarthritis	118 (79.2%)	29 (19.5%)	2 (1.3%)
26G. Colon cancer	84 (58.3%)	53 (36.8%)	7 (4.9%)

Section seven

Section seven examined the causes of childhood obesity with the question, "What role do the following items play in the etiology of childhood obesity?" Participants were able to select "Major Role", "Minor Role", or "No Role" based on the presented options. The Cronbach alpha coefficient for section seven was $\alpha = .911$. The majority of all subjects expressed their opinions that poor eating behavior, excessive caloric consumption, sedentary lifestyle, heredity, cultural factors, prevalence of machine-dispensed "junk food", lack of parental concern, and low socioeconomic class played a major role in childhood obesity. Most felt that peer pressure, in utero development of adipose hypercellularity, and hormone problems had a minor role in the development in childhood obesity (Table 8).

Table 8

Section Seven: Etiology of Childhood Obesity

What role do the following items play in the etiology of childhood obesity? Items	Major Role *n* (%)	Minor Role *n* (%)	No Role *n* (%)
27A. Poor eating behavior	144 (96.6%)	4 (2.7%)	1 (0.7%)
27B. Excessive caloric consumption	146 (98%)	3 (2%)	0 (0%)
27C. Sedentary lifestyle	145 (97.3%)	4 (2.7%)	0 (0%)
27D. Heredity	95 (63.8%)	53 (35.6%)	1 (0.7%)
27E. Cultural factors	115 (77.7%)	32 (21.6%)	1 (0.7%)
27F. Prevalence of machine-dispensed “junk food”	81 (54.7%)	64 (43.2%)	3 (2%)
27G. Lack of parental concern	128 (85.9%)	20 (13.4%)	1 (0.7%)
27H. Low socioeconomic class	104 (69.8%)	41 (27.5%)	4 (2.7%)
27I. Peer pressure	64 (43.8%)	71 (48.6%)	11 (7.5%)
27J. In utero development of adipose hypercellularity	32 (21.9%)	95 (65.1%)	19 (13%)
27K. Hormone problems	56 (38.1%)	89 (60.5%)	2 (1.4%)

Section eight

Section eight collected data on school nurses' sources of weight control information. Participants were able to select all sources they used concerning the subject of childhood obesity based on a list of options. The resources with the highest responses were nursing journals, workshops/seminars, and past experience. Colleagues and mass media were also references for a majority of the respondents. Nursing school classes and textbooks were the least utilized sources of weight-related information (Table 9).

Table 9

Section Eight: Sources of Weight Control Information

Select all sources you use for information on childhood obesity. Items	Responses *n* (%)
28A. Colleagues	85 (59%)
28B. Mass media	81 (56.3%)
28C. Nursing journals	117 (81.3%)
28D. Nursing school classes	41 (28.5%)
28E. Past experience	89 (61.8%)
28F. Textbooks	41 (28.5%)
28G. Workshops/Seminars	102 (70.8%)

Summary

South Carolina school nurses are valuable assets in addressing, treating, and preventing childhood obesity. Data collected from the "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire increased the understanding of the knowledge, opinions, perceptions, and practice measures of South Carolina school nurses in regards to childhood obesity. Each section of the questionnaire focused on important aspects of childhood obesity, including definitions of obesity, referrals for obesity, school role in weight control, and health risks and etiology of childhood obesity. The Cronbach alpha coefficients demonstrated the reliability of the instrument and questionnaire sections.

CHAPTER V

Discussion

Childhood obesity has become a significant health problem affecting American youth and resulting in associated medical conditions (CDC, 2011). Through educational units on balanced nutrition and physical activity in school settings, children and adolescents are able to learn and develop healthy habits. School nurses are in prime positions to help combat childhood obesity as they care for select demographic groups affected by this disease. Identification of overweight students and programs for weight loss and maintenance are important components to successful results.

Implication of Findings

Responses to the "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire provide insight into South Carolina school nurses' knowledge, opinions, perceptions, and practice measures regarding childhood obesity. Subjects agreed that normal weight is important to the health of children and that school nurses should be role models in maintaining their normal weight. School nurses understand that many students observe the actions of others as examples for their own behaviors. By displaying balanced eating and exercise habits in their personal lives, school nurses are able to have a greater impact on helping students make healthy lifestyle choices. Participants mostly agreed that designing programs for weight loss is difficult. This perception of difficulty is reflected in the divided responses of the school nurses' thoughts on their obligations to counsel the parents of obese children, their levels of competency in recommending weight loss programs for children, and schools' actions in alleviating childhood obesity. As weight information is a sensitive subject to many students and parents, creating

programs for weight loss involves rigorous adherence to evidence-based practice standards to ensure the safety of students. The time commitment required for weight status screenings and the development of successful weight loss programs may be overwhelming for school nurses as they already have numerous responsibilities. McBride, Hall, and McKinney (2014) describe the duties of a school nurse in their article, "A Day Inside a School Nurse Office." The authors discuss the various medical conditions school nurses potentially encounter on any given school day, including anaphylaxis, asthma attacks, and students experiencing abdominal discomfort. In addition to assessments and treatments, school nurses administer medications, conduct health screenings, develop health care plans for chronically ill students, and monitor immunization records to ensure compliance with state standards. School nurses are challenged with finding the time to complete these tasks while continuing to meet the health needs of students (McBride et al., 2014).

The school nurses in the study felt strongly in their opinions that childhood obesity is becoming more prevalent, that alleviating childhood obesity is more important to health than alleviating obesity in adulthood, and that most obese children are able to lose significant amounts of weight and maintain their weight loss with proper guidance. School nurses understand the growing prevalence of childhood obesity and the health effects excessive weight may have on the present and future health of students. The majority of all respondents indicated their beliefs that obesity plays a major role in the development of hypertension, coronary heart disease, strokes, diabetes mellitus type 2, stress, osteoarthritis, and colon cancer. Encouraging students to make changes in their dietary and exercise behaviors aids them in creating healthy habits that are favorable to

weight loss and maintenance. This also helps students to have healthy weight statuses into adulthood. Despite the school nurses' beliefs that designing programs for weight loss is difficult, they acknowledge that most obese students are able to lose weight with supervision and support. Many children and adolescents need structure in order to complete tasks, and having a managed weight loss plan may be beneficial to successful results. In relation to this, a research study conducted by Pbert et al. (2013) examined the effects of a school nurse designed intervention program for overweight and obese adolescents. Subjects in the control group attended 6 one-on-one visits with the school nurse over a two month period. The visits allowed the school nurse to assess the participants' weight and discuss weight-related information. At the conclusion of the study, subjects reported eating breakfast on more days each week, having a lower intake of total sugar, and limiting their soft drink and fast food consumption (Pbert et al., 2013).

Concerning referrals for obesity, most of the school nurses partaking in the study indicated that they usually do not recommend treatment for weight loss for all obese students or treatment for weight loss in general. However, the majority strongly agreed or agreed that they usually recommend treatment for weight loss for students or parents who ask for help. The professional time constraints school nurses face in completing mandated and required activities may be directly related to the lack of referrals for weight loss treatment as they are not able to screen the weight statuses of all students. On the other hand, when students or parents actively seek assistance, school nurses are able to build personal relationships and offer guidance.

As school nurses are employed in educational settings, their thoughts on schools' roles in weight control affect their practice. Study subjects expressed their opinions that

poor eating behavior, excessive caloric consumption, sedentary lifestyle, heredity, cultural factors, prevalence of machine-dispensed “junk food”, lack of parental concern, and low socioeconomic class played a major role in childhood obesity. This information directly relates to the actions the nurses believe schools should take to reduce occurrences of childhood obesity, including eliminating “junk food” machines, serving low-calorie lunches, and providing physical education classes. As national statistics reveal that 62.4% of middle schools and 85.8% of high schools have at least one vending machine, Pasch et al. (2011) conducted a study involving 106 schools to determine the nutritional content of these foods and beverages. Results from the research study found that items offered in vending machines were high in fat and calories and poor in nutritional quality.

By school nurses working in unison with schools toward a common goal of reducing rates of childhood obesity, students have increased support and resources to help them lose weight and maintain healthy lifestyles. School nurses from across the country were influential in the passing of the Child Nutrition Act to improve the nutritional content of school meals (Embrey, 2011). Through advocacy at congressional hearings, school nurses shared their knowledge of how school foods contribute to childhood obesity. As a result of their diligent efforts, there are now federally mandated nutritional standards that school districts must abide by in planning school meals (Embrey, 2011). For example, school provided meals must offer choices of fruits, vegetables, and whole grain items. In addition, by incorporating weight management strategies into various school activities, students have increased exposure to health information. This may lead to improved understanding and application of learning to everyday life.

Application to Conceptual/Theoretical Framework

Pender's Health Promotion Model served as the theoretical framework for this research study. The Health Promotion Model focused on health-promoting behaviors and the factors that influence these behaviors. Pender's Health Promotion Model was appropriate as this study examined health-promoting behaviors in improving the health of populations (McEwen & Wills, 2011). The purpose of this study was to measure South Carolina school nurses' knowledge, opinions, perceptions, and practice measures regarding childhood obesity. Questions centered on causes and health effects of childhood obesity, assessments of weight status, and referrals for obesity. Health promoting behaviors, such as removing "junk food" machines and offering physical education classes, were identified to help improve the health of student populations.

The major concepts of the Health Promotion Model were individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes (Sakraida, 2010). Individual characteristics and experiences encompassed prior related behavior and biological, psychological, and sociocultural personal factors. These variables were determinants as to whether or not study participants would partake in health-promoting behaviors (McEwen & Wills, 2011). Individual characteristics and experiences explored South Carolina school nurses' personal and demographic information. This data was collected in sections eight and nine of the questionnaire. Personal information focused on the main sources of weight control materials utilized by school nurses. Nursing journals, workshops/seminars, and past experience were the predominant resources used by school nurses in regards to childhood obesity. Most of the participants had a bachelor degree in nursing and were registered nurses. The mean

number of years for practice as a school nurse was 11 years, while the mean number of students school nurses were responsible for at their schools was 745.6 students.

Behavior-specific cognitions and affect involved perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related affect, and interpersonal and situational influences. These factors served as motivators for health-promoting behaviors and could be influenced by nursing care (Stark et al., 2010). Behavior-specific cognitions and affect examined what school nurses viewed as benefits and barriers to action, and also how competent school nurses felt in addressing childhood obesity. Results related to this concept were located in sections one and two of the questionnaire. Benefits to action included study subjects agreeing that normal weight was important to the health of children and that most obese children were able to lose weight and maintain their weight loss with proper guidance. One of the main barriers identified by the school nurses was the difficulty of designing programs for weight loss and counseling students and parents about weight. Participants were divided concerning their feelings of competence in recommending weight loss programs for students.

Behavioral outcomes included commitment to a plan of action, immediate competing demands and preferences, and health-promoting behaviors. These influences affected actions that contributed to health-promoting behaviors (Nauta et al., 2009). Behavioral outcomes were demonstrated by school nurses making commitments to plans of action to identify obese students, refer obese students to weight management programs, and promote healthy behaviors. Sections three, four, and five of the questionnaire contained information concerning this concept. The majority of subjects responded that they sometimes, rarely, or never used most of the weight screening

methods to assess excess weight in children and adolescents. Most of the school nurses in the study indicated that they usually did not recommend treatment for weight loss unless students or parents asked for help. In regards to health promoting behaviors, the participants agreed that comprehensive health units on nutrition and weight control should be available in every school. They also agreed that schools should eliminate "junk food" machines, serve special low-calorie lunches, and offer physical education classes, especially for overweight children.

Based on Pender's Health Promotion Model, two theoretical assumptions were developed for the research study. The first theoretical assumption was that school nurses would be knowledgeable about the causes and health risks of childhood obesity. This assumption was supported by data from sections six and seven of the questionnaire. The majority of all subjects expressed their opinions that poor eating behavior, excessive caloric consumption, sedentary lifestyle, heredity, cultural factors, prevalence of machine-dispensed "junk food", lack of parental concern, and low socioeconomic class played a major role in childhood obesity. Most respondents also indicated their beliefs that obesity had a major role in the development of hypertension, coronary heart disease, strokes, diabetes mellitus type 2, stress, osteoarthritis, and colon cancer.

The second theoretical assumption was that school nurses would use BMI screenings on a regular basis to identify obese students and refer these students to weight management programs. Responses related to this assumption were located in sections three and five of the questionnaire. This assumption was not supported as the majority of participants indicated that they sometimes, rarely, or never used BMI screenings to assess

excess weight in children and adolescents. In addition, a majority of the school nurses strongly agreed or agreed that they usually did not recommend treatment for weight loss.

Limitations

Limitations of the study include generalizability and setting restrictions. Generalizability is limited due to the questionnaire reply rate of 26%, as 619 questionnaires were sent to school nurses in South Carolina, and 162 questionnaires were completed. Setting restrictions refer to the fact that the questionnaire was only sent to school nurses in South Carolina. Results from one state may not be representative of how other geographic locations view and address childhood obesity issues. For example, health curricula and regulations regarding vending machines and school meals vary from state to state. Another limitation is that the responses are from school nurses interested enough to participate in the study and may not reflect the knowledge, opinions, perceptions, and practice measures of all school nurses in South Carolina.

Implications for Nursing

The results from the "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire are significant to nursing as childhood obesity is a serious medical issue with health consequences that have the potential to last through adulthood (CDC, 2011). Based on the responses to the questionnaire, school nurses in South Carolina recognize the seriousness of childhood obesity, but are overall not conducting mass screenings for weight status or developing programs for weight loss and maintenance. This is due in part to the perceived difficulty of designing weight loss programs for students and the professional time constraints facing school nurses (McBride et al., 2014).

The main future implication for school nurse practice is for school nurses to take more active roles in addressing childhood obesity. School nurses have access to large numbers of students in school settings. They may utilize this position to identify overweight and obese students and coordinate efforts with other school staff members to develop programs to promote weight loss (Bryan et al., 2013). In addition, school nurses may work with school district administrators to invest in school wellness programs. School wellness programs involve a designated school wellness nurse, separate from school nurses, who supervises health promoting activities in the school setting. This allows school nurses to partake in weight management activities, but still care for ill students and complete mandatory obligations (Avery, Johnson, Cousins, & Hamilton, 2013).

Another important implication for practice is that school nurses should be properly educated and trained on assessing and treating childhood obesity. It is essential to the safety of students that school nurses adhere to evidence-based practice guidelines and appropriate nursing theories in regards to obesity reduction programs (Rosenblum & Sprague-McRae, 2014). Through training sessions from qualified personnel and continuing education courses, school nurses are able to stay up-to-date on childhood obesity information. This results in well-designed programs that aid students in managing their weight issues.

Recommendations

Based on the research study, recommendations for school nurses include increasing their interest in the weight statuses of their students and promoting balanced eating and exercise behaviors. By screening students' weight statuses, school nurses

demonstrate the importance of maintaining a healthy weight and encourage the discussion of weight-related topics. Recommendations and referrals may be completed for overweight and obese students who require further evaluation. Designing and developing programs related to nutrition and physical activity allows school nurses to have positive impacts on students affected by obesity. These programs assist students in making lifestyle changes to reduce weight and improve overall quality of life (Pbert et al., 2013).

Recommendations that could further the study of this topic are to increase the number of school nurses' responses to the "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire and to develop questions to identify specific reasons why school nurses do not evaluate the weight statuses of students more often. Distributing the questionnaire to school nurses from additional states would increase the knowledge base of how school nurses view and address childhood obesity. This information would be beneficial in identifying school nurses in need of further education and guidance in assessing and treating obese students (Rosenblum & Sprague-McRae, 2014). Furthermore, creating questions regarding definitive barriers to weight screenings and school based weight loss programs would be useful. For example, are school nurses not conducting mass weight screenings for students due to lack of resources? Or are school nurses not developing weight loss and maintenance programs due to lack of time? This data would allow for improved understanding of obstacles school nurses must overcome in order to address childhood obesity.

Conclusion

Research findings from the "School Nurses' Perceptions of Childhood Obesity Tool" questionnaire demonstrate school nurses' beliefs that normal weight is important to the health of children and that alleviating childhood obesity is beneficial to overall well-being. Despite these beliefs, the majority of school nurses are not conducting routine weight status screenings or developing weight loss programs for obese students due to perceived difficulties and practice restraints. Implications for nursing involve increased participation of school nurses in the weight management of students and continuing education concerning the issue of childhood obesity. These efforts by school nurses may aid students in recognizing the significance of proper nutrition and physical activity and enable them to make informed decisions that promote their health.

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