Baccalaureate Nursing Students’ Attitudes Towards Obese Children, Knowledge About Childhood Obesity, and Reported Self-Efficacy in Addressing Children’s Weight as a Health Problem

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BSN STUDENTS AND CHILDHOOD OBESITY

The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

BSN Students’ Attitudes Towards, Knowledge About, and Self-Efficacy in Addressing Childhood Obesity as a Health Problem

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ABSTRACT

Childhood obesity is a significant health problem. This mixed methods study used an online survey to investigate senior baccalaureate nursing students’ knowledge about childhood obesity, attitudes toward, and their perceived self-efficacy in addressing childhood obesity as a health problem. Attribution value theory and social cognitive theory were used. A sample of senior BSN students (N=102) completed the survey. This study investigated whether child weight, gender, and physical activity level or parent weight influenced health promotion and attitude towards the child and parent. Student self-efficacy and educational preparation to address weight as a health problem was also investigated. Randomized multiple segment vignettes featuring a five and a 15-year old were used with open-ended questions and semantic differentials. An overweight child was more likely to elicit nutrition as a health promotion topic, $\chi^2(1) = 4.386, p = .037$. The weight of the child was significantly related to the number of weight-related topics introduced, $\chi^2(7) = 29.35, p = .000$. The gender of the adolescent was significantly related to the number of weight related topics, $\chi^2(7) = 91.201, p = .008$. BSN students have more negative than positive attitudes towards overweight children and overweight mothers. Low child and adolescent activity was also associated with more negative attitudes. Students reported being confident in their abilities to work with children and families with childhood obesity. Students described varying foci of their education regarding childhood obesity including nutrition and health effects of obesity. These findings have implications for nursing education. However, more research is needed.
Chapter 1
Childhood Obesity as a Health Problem

Childhood obesity is a significant health problem. According to the Center for Disease Control and Prevention (2014), approximately 21-24% of American children and adolescents are overweight, and another 16-18% are obese. The prevalence of obesity is higher among Hispanic and African American children than Caucasian non-Hispanic children (CDC, 2014). Obesity in children is defined as a body mass index (BMI) at or above the 95th percentile for age and sex. Overweight in children is defined as a BMI at or above the 85th percentile and below the 95th percentile for age and sex (CDC, 2014). The health impact of obesity in children is both physical and psychological. Evidence of the physical impact of obesity is noted in increased numbers of children with type II diabetes, hypertension, and other weight related health disruptions (Han, Lawler, & Kim, 2010). The psychosocial and emotional impacts are reflected in the stigmatization and weight-based teasing to which overweight or obese children are subjected (Puhl, Luedicke, & Heuer, 2011).

The increased numbers of children who develop obesity and the significant impact on children’s health make it essential that individuals leaving undergraduate nursing education and entering practice have the knowledge and skills necessary to address weight as a health problem. The United States Preventive Services Task Force recommends that clinicians, including nurses, screen children for obesity and make addressing health problems such as obesity a priority (Agency for Healthcare Research and Quality (ahrq), 2010). Addressing childhood obesity as a health priority means that clinicians such as nurses need knowledge about obesity
parameters, know where to refer children and families for resources regarding nutrition, physical activity, and weight management or have the knowledge and skills to directly provide education about these topics (ahrq.gov, 2010). However, it is not clear that graduates of baccalaureate nursing programs are prepared to provide this education.

A cross-sectional survey of 344 baccalaureate nursing programs associated with the American Association of Colleges of Nursing identified student preparation to address health topics such as childhood obesity and child and adolescent nutrition as an area of faculty concern (McCarthy & Wyatt, 2014). Faculty with teaching responsibilities in pediatric content reported strong emphasis on acute care topics and limited attention to content areas of genetics, nutrition, and childhood obesity (McCarthy & Wyatt, 2014). A mean of 43 hours of classroom time for pediatric content was reported and 59% of programs reported two hours or less time spent on pediatric genetics, child health nutrition, and environmental health (McCarthy & Wyatt, 2014). This study did not explore the subject of obesity in nursing curriculum outside of pediatrics, so it is possible that students gained knowledge about obesity as a health concern in other parts of a curriculum. However, in a curriculum understood to be content dense, nursing students are more likely to focus on content areas they deem important to success in the course or important to the instructor. Given the complexity of childhood obesity as a health problem, if minimal attention is paid to the topic, there is a potential for a significant knowledge or skills gap in BSN students.
Nursing care addressing weight as a health problem is multi-dimensional, requiring knowledge, technical and communication skills, and a sufficient level of self-efficacy about childhood obesity. Therefore, this study investigates senior baccalaureate nursing students’ attitudes towards obese children, knowledge about childhood obesity, and reported self-efficacy in addressing children’s weight as a health problem. Understanding nursing students’ attitudes and knowledge about overweight/obese children and their perceptions of self-efficacy regarding weight management education will fill a gap in the available information about nursing students and childhood obesity. Additionally, better understanding of nursing students’ perceptions of their self-efficacy may provide insight into how to prepare student nurses to address childhood obesity as a health problem.

**Childhood Obesity**

Care of obese individuals is complex. The interactions of nurses with overweight children and their parents in various health care settings are likely to be affected by the nurses’ attitude about obese children and their families, knowledge about obesity, and their perceived self-efficacy regarding weight management or obesity prevention in the child as part of nursing care. Intervention and prevention programs addressing childhood obesity have been studied extensively, but little work has been done regarding nurses’ or student nurses’ knowledge, attitudes, and self-efficacy about childhood obesity.

Self-efficacy is defined as the belief that one has the capability to organize and complete a set of actions to achieve a desired goal or level of achievement (Bandura, 1997). Self-efficacy includes both the outcome expectations (i.e., what
will happen) and efficacy expectations (i.e., the ability to execute the necessary behaviors) and may be predictive of professional behavior such as health education (Bandura, 1997).
Chapter 2

Review of the Literature

Knowledge about Obesity in Children

Knowledge includes awareness or understanding, information, and facts or skills (Mosby Dictionary of Medicine, 2006). Knowledge concepts related to childhood obesity include parameters used to define obesity in children, factors that contribute to or reduce the incidence of childhood obesity, nutrition, and weight management interventions. Childhood obesity parameters utilize growth chart percentiles and BMI (CDC, 2012). Assessment of height, weight, and calculation of BMI are knowledge-based skills. A large body of evidence has identified factors that potentially contribute to the development of childhood obesity. Non-modifiable risk factors such as ethnicity (James, Matsangas, & Connelly, 2013) and genetics (Huen, Harley, Beckman, Eskenazi, & Holland, 2013; Xia & Grant, 2013) should be considered as increasing the need for preventive interventions. Additional factors that have been identified as contributing to the risk of childhood obesity included maternal weight before, during, and after pregnancy (James et al., 2013; Weng et al., 2013); home environment (parent modeling, nutritional knowledge and parenting style) (Weng et al., 2013, Wethington, Pan, & Sherry, 2013); parental obesity (Agras, Hammer, McHicholas, & Kraemer, 2004; James et al., 2013); consumption of sugar sweetened beverages (Hu, 2013); inadequate sleep (Agras et al., 2004); no breastfeeding in first year of the child’s life (Weng et al., 2013); and low physical activity and greater amounts of screen time (Agras et al., 2004; Siddarth, 2013).
The number of hours per day that a child aged 7-11 years spent in screen time (television, videos or computer) was a significant predictor of obesity; a 3-hour daily increase in time resulted in a 50% increase in the odds of becoming obese (Siddarth, 2013). Children over age 12 who consumed three or more meals per week at a fast-food place were 20% more likely to be obese than those who consumed fewer fast-food meals (Siddarth, 2013). There is also evidence that health care interactions focused on the child and the family that include addressing behavioral components such as appropriate levels of physical activity, screen time limitations, limiting sugared drink intake, and increasing fruit and vegetable intake, can potentially reduce the risk of developing childhood obesity (Tucker et al., 2013). For these health care interactions to be successful, however, the nurse must know about these components and effectively communicate with children and families about how to make behavior and lifestyle changes.

Nurses in school settings have consistently identified a lack of knowledge (Nauta et al., 2009; Steele et al., 2011) and a lack of confidence in their ability to address weight as a health problem even though they perceived they had the necessary knowledge (Moyers, Bugle, & Jackson, 2005; Quelly, 2014). Nurses with less than five years of experience in practice identified a lack of knowledge and educational materials as barrier to addressing child obesity in a sample of nurses from Australia (Robinson, Denny-Wilson, Laws, & Harris, 2013). In a small sample of acute care pediatric nurses, 88% reported that they were only somewhat knowledgeable about childhood obesity and only 12% could correctly identify the
definition of childhood obesity as a BMI above the 95th percentile (DiNapoli, Sytnyk, & Waddicor, 2011).

Nurses may not be knowledgeable about obesity in general. In a cross-sectional survey of 760 nurses in six geographic regions of the United States, only 26% of the nurses used BMI as part of the clinical reasoning and decision-making process for care of the child, and 76% of the nurses did not discuss weight as a health problem with patients (Miller, Alpert, & Cross, 2008). Sixty-two percent of the nurses in the study identified a need for further education regarding obesity, including the health implications and 78% identified a need for more education about weight-related patient education (Miller et al., 2008). A significant number (77%) of nurse midwives in Australia reported that their education and training in counseling women about obesity was barely adequate, inadequate, or non-existent (Biro et al., 2013).

There is limited evidence regarding nursing student knowledge about obesity. How knowledge has been assessed has been inconsistent. Qualitative research with nursing students in the United Kingdom identified a lack of focus on obesity in the educational programs as an issue (Keyworth et al., 2012). Participants identified a lack of knowledge and information about how to manage weight and how to facilitate weight loss. Students compared education about weight to education about smoking and alcohol and reported they had been provided more information about addressing health behaviors related to smoking and alcohol consumption than weight management (Keyworth et al., 2012).

A survey of African–American baccalaureate nursing students assessing knowledge about obesity found that these students lacked knowledge about obesity
as a topic and particularly as a topic related to African Americans (Williamson & Kautz, 2013). Knowledge about obesity was assessed using 20 true-false questions about obesity in the following categories: nutrition and exercise, guidelines for healthy eating, overweight and obesity, and diabetes. Mean test score was a 60% with category scores ranging from 45% (guidelines for healthy eating) to 69% (overweight and obesity).

A recent study of health care professionals including nurses’ views on obesity assessed causes of obesity (Bleich et al., 2015). Nearly all identified individual behaviors (e.g., insufficient physical activity, overconsumption of food, restaurant/fast food eating and consumption of sugar sweetened beverages) as causes of obesity. Biological factors including genetics were identified as important by 75% of the nurses (Bleich et al., 2015). Although this study was not focused on childhood obesity, it supports the premise that nurses strongly associate obesity with individual behaviors. Whether these same associations are true for children, is not known.

**Attitudes toward Obese Individuals by Health Care Providers**

Often, researchers investigating attitudes, beliefs, perceptions, and biases against obese individuals have not made their conceptual definitions clear. Multiple terms to label attitudes about obesity have been used - anti-fat attitude (Crandall & Biernat, 1990; Morrison & O’Conner, 1999), negative attitude (Neumark-Sztainer, Story, & Harris, 1999; Poon & Tarrant, 2009; Zuzelo & Seminara, 2006), anti-fat bias (Teachman & Brownell, 2001), weight stigma (Ambwani, Thomas, Hopwood, Moss, & Grilo 2014; Sikorski et al., 2013), weight bias (Poustchi, Saks Piasceki, Hahn & Ferrante, 2013; Swift, Hanlon, El-Redy, Puhl, & Glazebrook, 2012), and
anti-fat prejudice (O’Brien et al., 2013). A systematic review of 12 studies examining the relationship between health care professionals’ weight and attitudes towards weight management defined attitude as the “sum of beliefs, attitudes, perceptions and views and measured by assessing a person’s belief” (Zhu, Norman, & While, 2011, p. e326). In this dissertation, this definition of attitude has been used to refer to beliefs, attitudes, perceptions, and views about childhood obesity and obese children. In the review of the literature, the terms used by authors are included.

The substantial body of research regarding health care provider attitudes toward obese individuals contains strong evidence of negative attitudes towards obese adults (Brown, 2006; Budd, Mariotti, Graff, & Falkenstein, 2011, Sikorski et al., 2012). Teachman and Brownell (2001) found evidence of implicit ant-fat bias and negative attitudes towards obese individuals among health care professionals, including individuals who specialized in the treatment of obesity as a health problem. The attitudes of healthcare professionals towards obese individuals were studied using a vignette of an obese woman and a normal weight woman; Fat Phobia Scale (F-Scale) scores reflected significant weight stigmatization (Sikorski et al., 2012). It is noteworthy that the nurses had lower Fat Phobia Scale scores than physicians and other medical staff (Sikorski et al., 2012), although their scale scores still reflected weight stigmatization.

Studies of undergraduate nursing students found they held negative attitudes towards adult obese patients (Culbertson & Smolen, 1999; Keyworth, Peters, Chisholm, & Hart, 2012; Poon & Tarrant, 2009; Waller, Lampman, & Lupfer-Johnson, 2012). Medical and nursing students believed that obesity was synonymous
with being unhealthy and they held overwhelmingly negative attitudes towards obese individuals (Petrich, 2000). Only 1% of nursing, dietetic, and medical students reported positive or neutral attitudes towards obesity (Swift et al., 2012). Students in the first year of nursing and dietetics had more negative attitudes than did students in the final year of their educational programs (Swift et al., 2012). This difference in scores may be due to increased knowledge and clinical experience, but since no comparison was available for the same students over time, other explanations for these findings may not be ruled out.

**Attitudes toward Obese Children**

Although negative attitudes by nurses and nursing students towards adult obese individuals are well documented, there is less evidence regarding attitudes about obese children. A representative sample of the general public in Germany revealed significant stigmatization towards overweight children (Sikorski et al., 2012). This study used vignettes of obese and normal weight children, adults, and senior citizens. The obese child was rated the most negative with more than 95% of the 2459 respondents having a Fat Phobia Scale score indicating negative attitudes toward the child described (Sikorski et al., 2012). Evidence from studies done in the United States have documented that negative attitudes towards obese individuals begin in early childhood with peers (Musher-Eizeenman, Holub, Barnhart Miller, Goldstein, & Edwards-Leeper, 2004). Children were less likely to help overweight peers; peers of average or below average weight demonstrated weight prejudice towards overweight peers (Patel & Holub, 2011). This attitude persists through childhood into adolescence; weight based stigmatization was the most common
reason for discrimination and stigmatization during adolescence (Puhl, Luedicke, & Heuer, 2011).

Factors Related to Attitudes about Obesity and Obese Individuals

Gender. Men have been identified as having more negative attitudes towards obesity than women (Crandall, Merman, & Hebl, 2009; Hansson & Rasmussen, 2014; Latner, Stunkard, & Terence Wilson, 2005; Puhl, Schwartz, & Brownell, 2005). Findings from a vignette study with undergraduate students from multiple disciplines indicate men had more stigmatizing beliefs about obese individuals than women did, but women had a higher fear of fat than men. Men, more than women, thought obese persons had less willpower than normal weight people (Bannon et al., 2009). Male nurses and male nursing students have not been studied so there is insufficient evidence to know whether they hold similar attitudes as other male students or the general population of men. In a systematic review of 12 studies that included health care professionals, study participants who were men had more negative attitudes towards obese patients than women did (Zhu et al., 2011).

Weight. An individual’s own weight or BMI has been found to be related to attitudes about obesity; however, the evidence has not been consistent. In some studies, as weight of the study participant increased into the overweight or obese BMI category, attitudes became less negative (Allison, Basile, & Yuker, 1991, Brown et al., 2007). In a population of school nurses and teachers working with adolescents, however, participant BMI was not related to attitudes about obesity (Neumark-Sztainer, Story, & Harris, 1999). In a study of nurses and other health professionals, as nurse BMI increased, there was a corresponding increase in
stigmatizing attitudes (Sikorski et al., 2013). When addressing weight as a health topic was investigated with nursing students, students perceived that there was a converse relationship between a nurse’s weight and the likelihood of weight being addressed as a health concern, that is, as nurse weight increased, the likelihood of weight being addressed decreased (Keyworth et al., 2012).

A systematic review of the relation between health professionals’ weight status and attitudes toward weight management found that health professionals of normal weight were more confident in their weight management practice, perceived fewer barriers to weight management and had more positive outcome expectations (Zhu et al., 2011). Nurse practitioner faculty demonstrated the belief that their personal experiences with weight management, including obesity, increased empathy for obese and overweight patients (Ragge & Merrill, 2012). However, participants who were not overweight and perceived themselves to be engaged in a healthy lifestyle to prevent weight gain had less compassion or empathy for patients who were overweight or obese (Rogge & Merrill, 2012).

Acute care pediatric nurses were surveyed regarding their perception of nurse weight as an influence on effectiveness of child/family teaching about weight. In a sample of 67 nurses, 77% believed that patients and families would respond better to education from nurses who appeared to follow it themselves, and 48% reported difficulty in promoting healthy behaviors related to weight that they did not follow themselves (Blake & Patterson, 2015).

**Perception of controllability of weight.** Evidence regarding perceptions of controllability of weight is not consistent. Within a population of 682 health care
providers, including 321 nurses, nearly half held adult individuals responsible for being overweight or obese, about 30% identified genetic influences as more relevant than individual behavior (Sikorski et al., 2013). Similarly, nursing students blamed patients for being overweight, attributing overweight to a lack of self-control and failing to adopt a healthy lifestyle (Keyworth et al., 2012).

**Responsibility for weight.** Using vignettes with undergraduate psychology students, Ebneter and Latner (2013) found that obese persons were blamed more for their condition than other groups such as individuals with mental health disorders. Additionally, the obese person was identified as having the greatest lack of self-discipline (Ebneter & Latner, 2013). Assigning personal responsibility for weight to an individual was associated with higher levels of stigmatization in a study assessing weight stigma and health care professionals in Germany (Sikorski et al., 2012).

A meta-synthesis of qualitative studies about obesity and responsibility in health care (Malterud & Ulriksen, 2011) found that health care workers often blamed patients for their weight. Additionally, patients with obesity were blamed for a lack of responsibility for investment in changing their weight (Malterud & Ulriksen, 2011). Responsibility for weight was placed within the individual’s domain by nurses working in a bariatric care unit (Jeffery & Kitto, 2006). These nurses reported frustration with patients who had allowed themselves to become so overweight and wondered why people didn’t do something about their weight before they became so large (Jeffrey & Kitto, 2006). Personal responsibility for weight was identified by nurse practitioner faculty who emphasized that if patients would engage in the right kind of eating and exercise they would achieve and maintain a healthy weight.
(Rogge & Merrill, 2013). Within a population of adolescents, 16.7% of girls and 29.76% of the boys thought that a fat child was at fault for being fat (Rukavina & Li, 2011). Slightly less than half (44.20%) of the girls and only 28.57% of the boys thought it was not the child’s fault that they were overweight (Rukavina & Li, 2011).

**Self-Efficacy in Working with Childhood Obesity**

Self-efficacy related to childhood obesity includes the technical skills of measuring height and weight and converting to a BMI as well as the interpretation of these data. Additionally, self-efficacy includes communication skills used in patient/family education. These skills encompass application of knowledge specific to childhood obesity and patient education principles for pediatric patients. Self-efficacy includes the ability to perform the expected behaviors and the perception of likelihood that engaging in a behavior that will achieve the desired outcome. Not all researchers have studied both dimensions; some researchers have focused on the technical skills of assessment (Hendershot, Telljohann, Price, Dake, & Mosca, 2008), on the knowledge and perceived ability to effectively educate (Bohman Ghaderi, & Rasmussen, 2014), and some have examined both dimensions (Quelly, 2014).

Nurse self-efficacy in measuring BMI in elementary school children was assessed in a random sample of members of the National Association of School Nurses (Hendershot et al., 2008). The majority (73%) of nurses reported being very confident in accurately measuring height and weight and 51.5% indicated they were confident in converting height and weight to a BMI. Nurses who practiced within a state that mandated BMI assessment in schools reported higher levels of confidence
than those nurses practicing in states without a mandate. Graduate education was related to greater self-efficacy expectations (Hendershot et al., 2008).

School nurses’ have reported moderately high levels of self-efficacy in their abilities to calculate and track BMI’s in children, but they perceived lower self-efficacy in their abilities to recommend weight loss programs or behaviors (Quelly, 2014). School nurses in Sweden reported high self-efficacy in sharing facts about diet and exercise but low self-efficacy in motivating a child to engage in specific behaviors (Mullersdorf, Martinson Zuccato, Nimborg, & Eriksson, 2010).

A nurse’s beliefs in his or her capability to effectively promote and motivate parents to engage their children in healthy dietary and physical activity behaviors was assessed as part of a randomized clinical trial (Bohman et al., 2014). Nurses who completed an educational program on family intervention in childhood obesity prevention reported increased self-efficacy following the program. Higher self-efficacy was associated with implementation of interventions to address childhood obesity (Bohman et al., 2014).

Parent weight contributed to lower nurse self-efficacy regarding childhood obesity. Nurses identified parents’ weight as a barrier and reduced their self-efficacy in addressing children’s weight because they were concerned about offending the overweight parent (Edvardsson, Edvardsson, & Hörnsten, 2009; Isma, Bramhagen, Ahlstrom, Ostman, & Dykes, 2012). Nurses also identified a feeling of futility about addressing weight with an overweight or obese child when the parent was also overweight, thus reducing nurse self-efficacy (Small, Anderson, Sidora-Arcoleo, & Grance-Clevaland, 2009). A nurse’s confidence in ability to provide lifestyle
education regarding weight management was reported to be lower when the client was the parent of an overweight child rather than an overweight adult (Robinson et al., 2013). Nurses reported education, resources, and life experiences as significant factors that influenced confidence in their ability to provide healthy lifestyle education to overweight clients (Robinson et al., 2013).

Having the relevant knowledge and clinical experience with weight management was predictive of higher self-efficacy regarding adult weight management in female health professionals who were normal weight (Zhu et al., 2011). Higher self-efficacy and relevant knowledge was predictive of more positive attitudes towards obesity and adult obese patients than those health care professionals who had lower self-efficacy or identified lack of knowledge (Zhu et al., 2011). Whether this is true for health professionals and obese children is not clear. A qualitative study of nurses in community practice in England found that higher self-efficacy related to obesity management was related to the belief that obesity management was part of their role, confidence in their communication skills and the support for time used to manage obesity (Nolan, Deehan, Wylie, & Jones, 2012). Lower self-efficacy was associated with lower awareness, lack of knowledge, a perceived lack of expertise in childhood obesity assessment and management, and a belief that they had a limited impact on the outcome (Nolan et al., 2012). Additionally, the belief that the patient was responsible for being overweight and unsuccessful in weight management negatively impacted nurses’ self-efficacy when working with obese patients (Nolan et al., 2012).

**Potential Interaction Effects of Nurses’ Knowledge, Attitudes, and Self-Efficacy**
The degree to which attitudes effects the care of obese individuals is not clear. It has been demonstrated that although negative attitudes exist, nursing care provided to obese patients was not measurably different when provided by nurses with more negative or more positive attitudes regarding obese patients (Budd et al., 2011; Gudzune, Huizinga, & Cooper, 2011). Although increasing knowledge may not directly reduce negative attitudes, it may promote the development of more effective communication and interaction skills, which may result in more positive nurse-patient interactions and improved health care encounters for obese individuals. Higher levels of knowledge have been demonstrated to increase nurse self-efficacy that may positively affect patient outcomes (Bohlman et al., 2014).

More recent work by Zhu et al (2013) found that nurses in the United Kingdom had neutral to positive attitudes towards obese people. Additional evidence from this study found that self-efficacy is a key factor in addressing weight as a health problem; self-perceived skills positively influenced self-efficacy and the nurses’ engagement in weight management with their patients (Zhu et al., 2013).

Theoretical Frameworks

This study is guided by two theoretical frameworks. Attribution value theory has been used extensively in research about bias and attitudes about obesity (Weiner, 1995). Social cognitive theory provides the underpinnings for the concepts of self-efficacy (Bandura, 1997).

Research into attitudes about obesity has been guided most predominantly by attribution value theory. Attribution value theory posits that when negative attributes of a person are to be within the person’s control, stigmatization will occur at a higher level
than when the attribute is viewed as uncontrollable by the individual (Weiner, 1995). Negative attitudes associated with blame can lead to discrimination and prejudice and antipathy by individuals, including health care providers, towards obese individuals (Crandall, 1994). Obese people are among the most negatively viewed social groups among students and perceptions of personal control of obesity have contributed to negative attitudes (Vartanian, 2010).

Social cognitive theory (Bandura, 1997) is a second theoretical framework that guides this study. Self-efficacy is a construct within this framework and is defined as the belief that one has the capability to organize and complete a set of actions to achieve a desired goal or level of achievement. Self-efficacy includes both the outcome expectations (what will happen) and efficacy expectations (the ability to execute the necessary behaviors) (Bandura, 1997). Within the domain of nursing and childhood obesity, self-efficacy would include knowledge and skills. Foundational knowledge would include normal weight and growth patterns, causes of or contributors to childhood obesity, health risks of obesity in children, nutritional needs of children who are overweight/obese, age appropriate physical activity recommendations, resources available for children and families, and how to assess a child’s BMI. Additional skills that incorporate knowledge would include communication about weight to child and family, education about nutrition, physical activity, resources to assist the child and family in the process of weight loss, health consequences of overweight/obesity in childhood and the technical skills of assessment of a child’s BMI.

Knowing what do is part of outcome expectations. BSN students may have confidence (high self-efficacy) in their knowledge about childhood obesity; recognize the
definitions of obesity, causes and contributing factors as well as the typical assessments and interventions to address weight as a health problem. Efficacy expectation is the confidence in the ability to do the work – assess a child’s height and weight to calculate a BMI, engage a child and a parent in a conversation about weight, teach about health risks of obesity and nutrition that promotes weight loss and still meets children’s energy needs for metabolism and physical growth, incorporating physical activity into daily life and provide resources or guidance to resources about weight reduction in children. High confidence in knowledge is not necessarily predictive of high efficacy expectations. Conversely, it is possible that students would have low confidence in their knowledge but report high confidence in their ability to do what should be done if they knew what those things were.

A second dimension of outcome expectations is the expected outcome- what will happen if the behavior is enacted. What a student nurse thinks will happen if they assess, teach, and refer a child/family to resources influences outcome expectations. If BSN students hold negative attitudes about obesity and believe that there is little chance of impacting the child’s weight status through teaching and referral to resources, then self-efficacy is potentially decreased.

**Measurement of, Knowledge, Attitudes, Self-efficacy**

**Knowledge about Obesity**

Researchers have used multiple measurements of nurses’ or student nurses’ knowledge about obesity. Most of these tools used to assess knowledge were designed by the researchers and focused on a specific population or content area, such as health risks associated with obesity, and there has been limited use of these tools beyond the initial
study published. In short, there is no ‘gold standard measure’ for knowledge about childhood obesity.

One author-designed survey asked respondents to list at least three and up to five unhealthy implications of obesity (Miller et al., 2008). Another author-designed tool was used to measure pediatric nurse knowledge using open-ended and multiple-choice questions (DiNapoli et al., 2011). The sample size was very small (n=27) and no reliability or validity estimates were calculated. An author-designed survey used with African–American nursing students was used in a small sample and the questions were specific to obesity among African-Americans (Williamson & Kautz, 2013). No measures of reliability or validity were reported for the tool.

The Obesity Risk Knowledge-10 (ORK-10) scale has been used to assess knowledge regarding effects of obesity on health (Swift et al., 2006). Items are true-false statements and are scored 1 for correct and 0 or incorrect or don’t know answers. Scores range from zero to 10, with higher scores indicating a higher level of knowledge. The scale meets the standard psychometric criteria for internal reliability (i.e. Cronbach’s alpha of 0.7). This tool was used to assess health care providers’ knowledge of the obesity risks in infancy (Redsell et al., 2011). Mean scores ranged from 5.5-9 with physicians having the highest scores, followed by nurses in practice and nursery nurses having the lowest scores (Redsell et al., 2011).

A short survey regarding knowledge of causes of obesity was used by Bleich et al. (2015) with 500 non-physician health professionals including 100 nurses. The knowledge questions focused only on causes of obesity and not on treatment or prevention strategies. Using a 4-point scale, respondents rated importance of possible causes of obesity for their
clients. Across disciplines, individual behaviors were identified as important causes of obesity (Bleich et al., 2015). This survey did not distinguish between adult or child obesity.

**Attitudes about Obese Individuals**

There are several attitude scales designed to assess attitudes about obese individuals. Measurement of attitudes toward obese persons guided by attribution theory includes tools such as the Anti-fat Attitudes Questionnaire (Crandall, 1994, O’Brien et al., 2008), the Attitudes Towards Obese Persons Scale (ATOP) (Ambwani et al., 2014; Poon & Tarrant, 2009), Beliefs About Obese People Scale (BAOP) (O’Brien, Puhl, Latner, Mir, & Hunter, 2010), and the Fat Phobia Scale (Robinson, Bacon, & O’Reilly, 1993).

The Fat Phobia Scale has been revised and the shorter form is known as the Fat Phobia Scale (F-scale) (Bacon, Scheltema, & Robinson, 2001). The authors describe this scale as measuring negative attitudes and stereotypes held about overweight people that they refer to as “fat phobia” (Bacon et al., 2001). Although this scale has been used with nursing students (Poon & Tarrant, 2009; Swift et al., 2012); graduate students (Puhl et al., 2009); medical students (Sikorski et al., 2013), and health professionals including physicians, nurses and therapists (Sikorski et al., 2013), the focus of the studies has been adult obesity.

The Anti-Fat Attitudes Questionnaire (Crandall, 1994) has been modified to change the target from adults to children and this modified instrument has been labeled The Anti-Fat Attitude Scale (Holub et al., 2011). This scale has been used with mothers but not with health care professionals or nursing students.
A scale specific to nurses, Nurses’ Attitudes towards Obesity and Obese Patients Scale (NATOOPS) has been used in both its initial form (Bagely, Conlin, Isherwood, Pechiulis, & Watson, 1989) and in a revised form (Watson, Oberle, & Deutscher, 2008). The focus of this tool is adult obesity.

Other measures of fat bias and weight stigmatization include measurement of implicit and explicit bias. Implicit bias has been measured using the Implicit Attitudes Test (IAT) (O’Brien et al., 2010; Teachman & Brownwell, 2001; Waller, Lampman & Lupfer-Johnson, 2012) and explicit bias using an author developed scale (Teachman & Brownell, 2001) and the Fat Phobia Scale (Robinson et al., 1993).

The Universal Measure of Bias-FAT (UMB-FAT) was used to examine weight bias among students in post-graduate health disciplines (Latner et al., 2008; Puhl, Luedicke, & Grilo, 2014). The FAT subscale of the UMB is a 20-item scale assessing general attitudes towards persons who are obese. This tool has been demonstrated to be independent of socially desirable responses and higher scores indicate greater weight bias (Latner et al., 2008). A Cronbach’s alpha of 0.87 was reported for this tool. Assessment of nurses’ beliefs, attitudes, and practices was done using an author-designed tool (Brown et al, 2007). This tool has multiple subscales but the authors reported that the attitudinal scales have low internal reliability (Brown et al., 2007).

**Self-efficacy**

One measure of nurse self-efficacy regarding childhood obesity (Self-Efficacy to Influence Parents) was identified. Developed to use in a randomized, controlled trial in Sweden focused on nurses and prevention of childhood obesity, the 18-item self-report instrument assesses nurses’ self-efficacy for influencing parents to promote healthy
dietary and physical activity behaviors in their children (Bohman et al., 2014). The instrument has four subscales focused on the nurse’s ability to: (1) elicit and strengthen motivation in parents regarding obesity prevention, 5 items; (2) influence parents to initiate and maintain health dietary behaviors in children, 6 items; (3) influence parents to initiate and maintain healthy physical activity behaviors, 2 items; (4) influence parents to engage in setting limits on unhealthy dietary and physical activity behaviors in children, 5 items. The tool used an 11-point Likert-type scale with 0=not at all confident, 10= to a very high degree. The highest possible score for an item was 10, the highest overall score possible was 180. Means for individual items ranged from 4.5 to 6.6. In the intervention group, the overall mean increased from 95 to 110.6. The control group decreased from 103.1 to 99.2. The authors reported measurement of internal consistency for the total instrument (Cronbach’s alpha = .95) and the four subscales (Cronbach’s alpha, .86, .89, .87, .89, respectively).

Bleich and colleagues (2015) assessed the self-efficacy of 500 health professionals from various disciplines (nutrition, nursing, behavioral/mental health, exercise and pharmacy) using two questions asking about confidence in ability and success with helping obese patients achieve clinically significant weight loss. Sixty-one percent of nurses reported having confidence in ability to help obese patients achieve significant weight loss but only one-third of the nurses reported success. Additional education and training was associated with increased self-efficacy.

One tool was identified that measured the dimensions of attitude and confidence including knowledge and self-efficacy (i.e., Attitude, Empathy, Confidence Scale). This tool has three subscales (negative obesity stereotypes, empathy, and confidence) and was
used with medical students (Kushner et al., 2014). Cronbach’s alpha for this scale was reported as 0.78 for the stereotypes subscale, 0.63 for the empathy subscale, and confidence as 0.60. This tool has questions that are relevant to nursing practice and assesses attitude (negative obesity stereotypes), confidence (self-efficacy and knowledge) as well as empathy. The responses to the statements use a Likert scale from 1-5, strongly disagree (1), strongly agree (5). The questions regarding confidence in clinical interaction with obese patients – confidence in talking to persons about weight, knowing what meaningful questions to ask in the history taking interaction and knowing what questions to ask to help obese persons manage their weight- may be appropriate for nursing interactions with obese children and their families.

**Limitations of Current Evidence**

Nursing students in the United States have not been well researched in regards to knowledge about obesity in adults or children, attitudes toward obese individuals, and their self-efficacy in addressing childhood obesity as a health problem. What nursing students know about childhood obesity is unclear. Most of the evidence about nursing students has been from studies done outside the United States: Hong Kong (Poon & Tarrant, 2009) and the United Kingdom (Fillingham et al., 2014; Keyworth et al., 2012; Swift et al., 2007). The study of the African American BSN population was focused on knowledge about obesity in African Americans (Williamson & Kautz, 2013). There are no published studies regarding student nurses’ or nurses’ attitudes towards obese children, and only limited evidence regarding others’ attitudes towards obese children. Finally, a limitation in the current evidence is a lack of evidence regarding nursing student self-efficacy regarding addressing childhood obesity and whether nursing
students have a different self-efficacy about addressing obesity compared to other chronic health problems. It is possible that senior nursing students don’t feel confident or knowledgeable about clinical problems other than obesity thus indicating a general lack of self-efficacy rather than lower self-efficacy specific to childhood obesity.

**Purpose of this Study and Research Questions**

The purposes of this study were to investigate senior baccalaureate nursing students’ (1) knowledge about childhood obesity, (2) attitudes toward obese children, and (3) reported self-efficacy in addressing children’s weight as a health problem. The research questions were:

1. Does a child’s or adolescent’s weight, gender, and physical activity, and parent’s weight effect the health promotion topics identified by nursing students?
2. Does a child’s or adolescent’s weight affect the information nursing students would seek from a parent?
3. Does a child’s or adolescent’s weight, gender, activity level, and parent’s weight affect the risk factors for obesity identified by nursing students?
4. Are nursing students’ attitudes toward obese children and adolescents different from their attitudes toward normal weight children and adolescents?
5. Are nursing students’ attitudes about mothers of obese children and adolescents different from their attitudes about mothers of normal weight children and adolescents?
6. Is the self-efficacy of nursing students regarding being able to work with children’s and adolescent’s weight as a health problem related to the weight of the child or adolescent?
7. In general, what patient characteristics do nursing students’ think are related to overweight as a health topic to be addressed with patients?

8. How do nursing students describe their educational preparation in learning to address weight as a health problem?

Studying senior nursing students in the United States in their final year of a BSN program from multiple nursing programs in multiple states may provide insights about entry-level nurses’ attitudes, knowledge, and self-efficacy about childhood obesity. Vignette research allowed for a depth of analysis that a survey alone would not provide (Ganong & Coleman, 2006; Sikorski et al., 2012). Providing a well-child clinical situation and varying weights of children allows for investigation into whether BSN students see weight as a health promotion topic that they should address in the plan of care for that interaction. Vignettes have been used in research about obesity and students. The vignette method employed in other research about obesity and attitudes has contributed to the understanding of how concepts related to obesity, such as stigmatization or perceived risk and personal responsibility, may be expressed as attitudes towards obese individuals. The gap in the literature is the use of vignettes in studies involving nursing students and their beliefs and attitudes about overweight children.
Chapter 3

Methods

Study Design

This mixed methods internet survey elicited quantitative and qualitative responses to multiple segment vignettes. In addition, two instruments were used to gather descriptive data purposes and an open-ended question asked students how prepared they thought they were to address childhood obesity. Data were obtained from a convenience sample of BSN senior students enrolled in nursing programs in Iowa, Nebraska, and South Dakota.

Sampling. Following Institutional Review Board (IRB) approval from the University of Missouri, 29 BSN programs in three states were contacted in the spring semester of 2016 to seek permission to recruit senior students to complete an online survey. One school declined immediately, reporting that they would not have senior BSN students until the following year. Another program declined because their students were involved in several studies. Six programs requested that I complete the institutional review board process at their institutions, which I did. Seven schools did not respond to either the first request or a follow-up e-mail sent two weeks after the initial request.

Program deans were asked to forward a recruiting e-mail to senior students. The introductory e-mail included an invitation to participate in the survey, consent information, researcher contact information, and a link to a Qualtrics web page in which the study survey was located. Respondents indicated their consent to participate by clicking on the link and beginning the survey after reading the instructions and consent information. The survey link remained open until May 1, 2016. When the link was
closed, 200 responses were on the site. Of these, 102 surveys were deemed sufficiently complete to analyze because the participants had completed at least one vignette and answered most of the questions.

At the end of the survey, if the student wanted to participate in a lottery for a $10 Amazon gift card, they clicked on a link that took them to a screen where they provided an email address that was used only to contact those students who were randomly selected for a gift card. Ninety-three e-gift cards were distributed using the e-mail addresses provided.

**Sample Demographics**

The mean age of the 93 respondents who reported their age was 23.47 years (sd = 4.36; range = 19-42). All but three were female. BMI was calculated using self-reported height and weight. Of the 90 who reported this information, the mean was 26.63; 49 respondents had BMIs below 25 (18.3-24.93) and 41 had BMI’s above 25 (25.23-44.97). According to criteria for weight based on BMI, 45% of the sample was overweight or obese.

**Procedures**

Nursing students who visited the study survey saw a set of directions (see Appendix A). The stimuli used to elicit knowledge, attitudes, and self-efficacy were two multiple segment factorial vignettes (MSFV). In these vignettes, nursing students read about a mother and a child (Vignette A) and a mother and adolescent (Vignette B) who came to a clinic to be seen by a nurse. Examples of the vignettes are shown in Appendix B. Nursing students were asked to place themselves in the role of the nurse in the vignettes.
Multiple segment factorial vignettes. MSFVs are vignettes in which researchers present independent variables of interest within hypothetical scenarios. Study participants were randomly assigned to read vignettes that contained different levels of independent variables that were written into the vignettes, and then respondents were asked a series of questions. The MSFV design allows researchers to investigate the effects of these independent variables on participants’ attitudes, beliefs, cognitions, and self-reported behaviors in situations that would normally be difficult to study (Ganong & Coleman, 2006). The MSFV design may be used to elicit quantitative and qualitative data. Study participants enjoy the method because it is more engaging than simply responding to self-report instruments, and there is evidence that it is a useful method for studying difficult subjects while at the same time reducing social desirability (Ganong & Coleman, 2006).

In MSFV designs, after participants are presented with information about individuals, relationships, or families in a vignette segment, they are asked to respond to questions. In MSFV designs, additional segments that contain new information are presented and new independent variables often are added. More questions are asked of the respondents.

In this study, nursing students were presented with two different MSFVs. Each one contained two segments. One MSFV portrayed a child and a mother visiting a clinic, and the other portrayed an adolescent and mother. Although the dependent variables in each vignette were the same, and there was some overlap in independent variables in the two vignettes, the independent variables were not measured in identical ways. Presenting two multiple segment vignettes to students is a way of assessing their attitudes,
knowledge, and efficacy beliefs in two different contexts, and provides some evidence of
the reliability of their responses.

_Vignette A: 5-year-old child._ The first segment had child’s weight (60th
percentile or 95th percentile) and child’s gender as the two independent variables and the
second segment had two additional independent variables, physical activity, as described
by amount of screen time (4 hours or 1 hour), and mother’s weight (normal weight or
overweight). Here is an example of Segment One:

A mother has brought her 5-year-old _son/daughter_ to a clinic for a well-
child visit. As the nurse, you assess the child to be in the 60<sup>th</sup>
_percentile/95<sup>th</sup> percentile_ for weight. The child is quiet and stays seated as
you talk to the mother.

After reading this paragraph, the participant was asked: “What are the health
promotion topics you would address during this interaction?” They answered in a text
box, using their own words. They then were asked, “What other information would you
want to know about the child/family to plan health promotion?” They again answered in a
text box. The text boxes allowed up to 500 characters to be entered. In Segment Two:

During your interaction with the family, the mother states, “I hope my
child will become more active when summer starts.” She also states that
the child spends about _4 hours/1 hour of screen time every day_ and plays
outside occasionally. During the interaction with the child and the mother,
you notice that the mother is polite but reserved, and appears to be _normal
weight/overweight._
After reading this paragraph, the participants were asked: “Based on this interaction, what are the health promotion topics you would address during this interaction?” They answered in a text box. They then were asked, “What are the factors that you would identify as contributing to this child being at risk for childhood obesity?” They again answered in a text box.

Participants then were asked, “What are your first impressions of this child?” They were presented with the Attitudes toward Obese Children Semantic Differential (ATOCSD) items. They also were asked, “What are your first impressions of this mother as a parent?” They shared their perceptions of the mother on the Attitudes toward Mothers of Obese Children Semantic Differential (ATMOCS.D). Finally, respondents were asked, “How confident are you that you could work effectively with this parent to address the child’s issues?” Answers to this question (one item), had end points separated by 10 spaces, with 10 = “Extremely confident” and 1 = “Not at all confident.”

**Vignette B: 15-year-old adolescent.** The first segment had adolescent’s gender and weight (60th percentile or 95th percentile) as the independent variables and the second segment had physical activity level, as described by playing sports or being a member of the school-based video gaming club, and parent weight (normal weight or overweight) as the independent variables. Here is Segment One:

A mother has brought her 15-year-old son/daughter to a clinic because the adolescent has been complaining about being tired a lot. As the nurse, you assess the adolescent to be in the 60th percentile/95th percentile for weight. He/she looks bored and stares at the wall while you talk to the mother, but
when you talk to the adolescent directly, he/she responds politely but briefly.

After reading this paragraph, the participant was asked: “What are the health promotion topics you would address during this interaction?” They answered in a text box structured the same as in Vignette A. They then were asked, “What other information would you want to know about the child/family to plan health promotion?” They again answered in a text box. In Segment Two:

During your interaction with the family, the mother complains about the teen-ager’s energy level around the house, stating, “I can’t get him/her to look up from her computer to do anything to help me. He/she is on the phone or computer all of the time.” The adolescent rolls his/her eyes at this, and tells you that he/she has homework to do on the computer, and then either texts friends or plays games. The adolescent rides the bus to school, is on the high school basketball team/participates in a school sponsored interactive video gaming club, and does not work part-time during the school year. During the interaction with the adolescent and the mother, you notice that the mother appears to be normal weight/overweight.

After reading this paragraph, the participant was asked: “Based on this interaction, what are the health promotion topics you would address during this interaction?” They answered in a text box. They then responded to the question, “What are the factors that you would identify as contributing to this child being at risk for childhood obesity?” in a text box.
Participants then were asked, “What are your first impressions of this adolescent?” and they were presented with the Attitudes toward Obese Children Semantic Differential (ATOCSD). Participants then were asked, “What are your first impressions of this mother as a parent?” They shared their perceptions of the mother on the Attitudes toward Mothers of Obese Children Semantic Differential (ATMOCSD).

Finally, respondents were asked, “How confident are you that you could work effectively with this parent to address the child’s health promotion needs?” Answers were given to one item, with end points separated by 10 spaces. The end points were “Extremely confident” and “Not at all confident.”

**Other questions.** After the vignettes were completed, respondents were asked two open-ended questions. The first question was, “When considering whether you would address weight as a childhood health problem, what factors would influence whether weight is addressed as a health problem?” The second question, “When considering your nursing education, describe how you have been taught to address weight as a health problem in children?” This questions explored their perceptions of how their academic education had prepared them to address weight as a health problem with children. Each of these questions was answered in a text box that allowed 750 characters. A third question, “How well prepared do you feel to work with obese children and their families?” had response choices ranging from 1 = very unprepared to 7 = very prepared.

**Measures**

**MSFV independent variables.** The stimulus variables in Vignette A included child weight, child gender, child activity level, and parent weight. Child weight was operationally defined in the vignettes as either 95th percentile (overweight) or 60th
percentile (normal weight). Parent weight was operationally defined as the mother being
described as normal weight or overweight. Physical activity in Vignette A was
operationally defined as either 1 hour of screen time per day or 4 hours of screen time per
day. In Vignette B the variables were adolescent’s weight, adolescent’s gender, physical
activity of the adolescent (defined as either being on the school basketball team or a
member of a school based interactive video gaming club), and mother’s weight (normal
or overweight).

**Health promotion topics/information sought/risk factors.** The construct,
knowledge about childhood obesity, was assessed with open-ended questions asked after
the first segment of each vignette. “What are the health promotion topics you would
address during this interaction?” assessed whether students identified weight as a health
promotion topic in a given context (child/adolescent weight, child/adolescent sex), and,
“What other information would you want to know about the child/family to plan health
promotion?” assessed what the students perceived to be important information to collect
when planning health promotion. These questions focused on knowledge about childhood
obesity and if nursing students thought about health promotion with obese children and
adolescents differently than with normal weight children and adolescents.

After the second segments of both vignettes, two open-ended questions were
asked. The first question again assessed whether students identified weight as a health
promotion topic in a given context (child/adolescent weight, child/adolescent gender,
level of activity, parent weight): “Based on this interaction, what are the health promotion
topics you would address during this interaction?” The second question asked about risk
factors, “What are the factors that you would identify as contributing to this child having
a risk for childhood obesity?” This question assessed if students recognized child weight, parent weight, and amount of physical activity or screen time as risk factors for the development of childhood obesity

Analyses of open-ended questions. Responses to these questions were analyzed using content analysis coding procedures. All qualitative data for each question were read and notes were made about common topics. After the first reading, an initial list of broad content categories was created and the data were read again. Data were coded into content categories. Examples of these initial categories included nutrition, physical activity, safety, growth and development, socioeconomics, and family. For each question, subthemes within the category were developed. For example, within the category of nutrition, subthemes included eating habits, snacks, diet. Within the physical activity theme, examples of subthemes were: activity, exercise, sedentary lifestyle, play, family activity, and limiting screen time.

For the first segments’ questions in both vignettes, of interest was whether topics related to nutrition and physical activity were mentioned. For instance, these statements were coded as being nutrition-related: “nutrition,” “proper nutritional needs of a 5-year-old,” “healthy snacks and proper intake,” “appropriate diet and activity level,” “healthy eating options.”

Responses grouped into the socioeconomic category were focused on resources or referral to resources for nutrition, i.e. proper resources to provide adequate nutrition, does the family receive any assistance or need any assistance, financial status, socioeconomic status. Growth and development responses included immunizations, developmental milestones, and, vaccinations.
Answers to questions raised after the second segments of both vignettes were coded first for responses related to physical activity or nutrition. For instance, these statements were coded as being related to physical activity: “having the child spend more time outside,” “increase outside physical activity,” and “children need 30-60 active minutes every day.” Other statements coded as addressing physical activity included references to limiting screen time, i.e. “actively limit the child’s access to television/computer,” “screen time recommendation.” Responses focused on increasing play were also coded as physical activity. Statements coded as not being related to physical activity included “psychosocial wellbeing,” “risks of childhood obesity,” “whether the child has friends in the neighborhood.” Nutrition coding was done the same way as previously described for the first question.

Responses to the question about the risk factors for obesity were coded first into three broad categories - nutrition related, family, and physical activity. Within the nutrition category, responses such as poor diet, unhealthy eating/snacking, poor nutrition habits” were included. Responses were placed in the family category if they referred to parent weight, lifestyle, or genetics, i.e. family predisposition (mom is overweight), family history of obesity, parenting, and family obesity. Physical activity responses included, screen time, and low level of exercise. Within each larger category, further analysis of themes was done. Responses that were coded as Growth and Development included is child in school or daycare, immunizations, is child meeting developmental benchmarks. Examples of responses within the Nutrition category included: what is the daily intake of the child, family eating habits, portion size. Physical activity responses included child’s activity level, how child plays, screen time. Responses coded as health included health
history, family health history, parent weight, and if child has diabetes. Responses to the open-ended question, “When considering whether you would address weight as a childhood health problem, what factors influence whether you would address weight?” were coded. We first looked for statements related to weight, such as negative health effects from their weight, if it’s affecting their everyday life, and health problems related to the obesity. A second theme was level of physical activity. Statements in this category included activity level, how much physical activity they get each day, lack of physical activity, and getting enough exercise.

There was a set of responses categorized as “nursing student related.” Responses in this category were related to the student rather than the child or family. There were nine responses in this category: experience and education on addressing the problem, I would address it to families with children that are inactive or lazy, and if I have seen others model it for me.

**Attitudes toward obese children.** Nursing students’ attitudes toward obese children and adolescents were measured by scores on the Attitudes toward Obese Children Semantic Differential (ATOCSD). The ATOCSD consisted of seven pairs of adjectives. The stimulus was, “The child is …” and the adjectives pairs were: bad-good, strong-weak, active – passive, insecure-secure, low self-esteem – high self-esteem, good self-control – poor self-control, lazy-industrious. Positive and negative adjectives were randomly presented on the left or right of the scale. These bipolar adjectives were derived from the literature on attitudes toward obese individuals. Semantic differential formats have a long history (Osgood, Suci, & Tennenbaum, 1957). Researchers can construct internally reliable instruments with semantic differential formats that measure social-
psychological constructs, such as attitudes toward obese children and their mothers. Items on the ATOCSD were scored so that positive poles were scored 7 and negative scores were scored 1. Responses to the items on these scales were summed. Higher scores indicated more positive attitudes. Possible scores ranged from 7-49.

**Attitudes toward mothers of obese children.** Nursing students’ attitudes were measured by individual item and subscale score on the Attitudes toward Mothers of Obese Children Semantic Differential (ATMOCSD). The ATMOCSD contained seven items using a semantic differential format. These items were pairs of bipolar adjectives, separated by 7 spaces. Positive and negative adjectives were randomly presented on the left or right. The stimulus was, “The mother is . . .” with these seven adjective pairs: good–bad, weak–strong, active–passive, secure–insecure, unhealthy–healthy, well informed–poorly informed, competent–incompetent. Items were scored so that positive poles were 7 and negative scores were 1. Responses to the seven items on the scales were summed. Higher scores indicated more positive attitudes.

**Self-efficacy.** Nursing students were asked one question after the second segment of each vignette that measured self-efficacy. They were asked, “How confident are you that you could work effectively with this parent to address the child’s health promotion needs?” Response choices were separated by 10 spaces, with the end points labeled, “Extremely confident” and “Not at all confident.” A second measure of self-efficacy was a question about how well prepared they felt to work with obese children and their families. Responses range from 1 = very unprepared, to 7 = very prepared.

**Educational preparedness.** The open-ended question, “When considering your nursing education, describe how you have been taught to address weight as a health
problem in children?” asked students to describe how they were taught or prepared via their nursing education to address weight as a health problem. The question had a text box allowing up to 1000 characters for students to enter textual information.

**Demographic variables.** Nursing students’ demographic variables were gender (male, female), age (recorded as years old at the time of study participation), BSN program attending (based on selection of type of school from drop down menu), height (self-reported in feet and inches, used for BMI calculation), and weight (self-reported pounds, used for BMI calculation).
Chapter 4

Results

Research Question One

This research question investigated whether variables such as a child’s or adolescent’s weight, gender, physical activity, and parent’s weight influenced the health promotion topics students mentioned that reflected appropriate and relevant knowledge about weight as a health concern with children and adolescents. Open-ended responses to the question, “Based on this interaction, what are the health promotion topics you would address?” were coded first for topics related to nutrition or physical activity, since these two topics were of greatest interest. Responses containing other subjects were not coded.

Table 1.

Number and Percentage of all Comments about Nutrition and Physical Activity as Health Promotion Topics.

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Nutrition Segment One</th>
<th>Nutrition Segment Two</th>
<th>Physical Activity Segment One</th>
<th>Physical Activity Segment Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-year old</td>
<td>91 (89.2%)</td>
<td>43 (43.4%)</td>
<td>60 (58.8%)</td>
<td>88 (86.3%)</td>
</tr>
<tr>
<td>(N=102)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-year old</td>
<td>69 (69.7%)</td>
<td>51 (51.50%)</td>
<td>56 (56.6%)</td>
<td>65 (65.6%)</td>
</tr>
<tr>
<td>(N=99)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Number of times nutrition and physical activity were mentioned.* In the first segment of the vignette about a five-year-old child, the single word *nutrition* was mentioned 31 times by the nursing students. Nutrition-related information was mentioned 60 times - such as *healthy snacks, picky eating habits, finger foods, and what foods the child should be eating/should not be eating.* In the second segment of the child vignette, *nutrition* without any further descriptors was mentioned 10 times and 26 times nutrition-
themed phrases such as encouraging a decrease in snack foods, health food options, and eating habits, were addressed.

For the adolescent vignettes, in the first segment, the word nutrition was used without further descriptive or clarifying information 13 times. Five responses mentioned descriptive information about nutrition such as proper, good, and habits. The words diet or healthy diet were mentioned in 24 responses. In the second segment of the adolescent vignette, the word nutrition was used alone five times and three times with additional descriptive information. Diet was mentioned seven times without further descriptive information. There were 36 other nutrition-themed responses such as improve meals offered at home, eating habits, healthy eating, and encourage family meals.

**Weight and gender effects on nutrition mentioned as a topic.** Chi-square analysis found that for five-year-old children, weight was not significantly associated with nutrition as a health topic in the first segment, $X(1)=.151, p=.698$. In the second segment, however, an overweight child was more likely to elicit nutrition as a health topic than a normal weight child did, $X(1) = 4.368, p=.037$. For adolescents, there was no effect of weight on nutrition as a health topic in the first segment $X(1)=.065, p=.799$ or in the second segment, $X(1)=.275, p=.600$. Gender was not significantly related to whether nutrition was a health promotion topic when the child was five, $X(1)=.209, p=.647$ or 15, $X(1)=2.789, p=.095$.

**Weight and gender effects on physical activity mentioned as a topic.** In the second segment, the physical activity level in the vignette was not significantly related to whether physical activity was a health topic addressed for the five-year-old $X(1)=.413, p=.521$. Physical activity as a health topic was not significantly related to child weight,
When the vignette included a 15-year-old, the physical activity level in the second segment was not significantly related to the mention of physical activity by nursing students as a health promotion topic, \( X(1)=2.78, p=.095 \) Physical activity as a health topic also was not significantly related to the adolescent’s weight, \( X(1)=2.786, p=.095 \), or mother’s weight, \( X(1)=.054, p=.816 \). However, adolescent gender was related to physical activity mentioned as a health topic at a level that approached statistical significance, \( X(1)=3.821, p=.051 \).

Weight, gender, physical activity, and mother’s weight effects on the number of weight-related topics. Nursing students who read about an overweight five-year-old mentioned weight or weight-related topics significantly more often than nursing students who read about a normal weight child, \( t(100)=-5.317, p<.005 \). The mean number of weight-related topics for the normal weight child was 2.5 (SD=1.11), and for an overweight child, the mean number of topics was 4.02 (SD=1.66). The gender of the child was not significantly related to the number of weight related topics, boys M=3.26, (SD=1.5) and girls M=3.26, (SD=1.66). Likewise, mother’s weight \( [X(7)=7.213, p=.407] \), normal weight M=3.11, SD=1.51, overweight M=3.43, SD=1.66] and child’s physical activity \( [X(7)=6.088, p=.530]; \) active M=3.07, SD=1.41, not active M=3.5, SD=1.76] were not significantly related to the number of weight-related topics.

The same analyses were done for the adolescent vignettes. There was no significant difference in mean number of topics related to adolescent weight, \( t(95)=-1.297, p=.198 \). The mean number of weight-related topics for a normal weight adolescent was M=3.25 (SD=1.3), while for an overweight adolescent the mean was, M=3.66
(SD=1.72). There was no significant effect of mother’s weight on the number of weight-related topics introduced for an adolescent [$\chi^2(7)=3.709, p=.813$; normal weight $M=3.24$, $SD=1.48$, overweight $M=3.27$, $SD=1.59$]. However, gender of the adolescent was significantly related to the number of weight-related topics introduced, $\chi^2(7)=19.201$, $p=.008$. Fewer topics were mentioned for males, $M=3.13$, (SD=1.56) than for females, $M=3.76$, (SD=1.48). Similarly, the physical activity level of the adolescent was significantly related to the number of weight-related topics introduced, $\chi^2(7)=15.098$, $p=.035$. Fewer topics were mentioned for active ($M=3.29$; SD = 1.54) than for not active adolescents ($M=3.63$; SD=1.54).

**Other topics in the health promotion answers in segment one.** From the 102 students who responded to the five-year-old vignette, 52 responses were about topics other than nutrition or physical activity. Thirty-one students who read about a normal weight five-year-old included at least one other topic besides nutrition or physical activity, while 21 students who read about an overweight child had one or more topics in addition to a nutrition or physical activity. These responses included safety (21), growth and development (60), other (10).

From the 98 students who responded to the adolescent vignette, 88 responses were about other topics than nutrition or physical activity. Forty students who read about a normal weight adolescent included other topics and 43 students who read about an overweight adolescent included other topics. The responses included growth and development (117), family (5) and health (4). The highest number of growth and development responses included sleep (29), mental health/depression (21), social/peer relationships (21), puberty/sex (21).
Research Question Two

This research question investigated whether a child’s or adolescent’s weight influenced information-seeking by nursing students. The responses to the question, “What other information would you want to know about the child/family to plan health promotion?” were analyzed for topics related to weight, nutrition, or physical activity.

Children’s weight and information sought. When the five-year-old was normal weight, 48% of the responses were related to nutrition and when the child was overweight, 55% were related to nutrition. See Table 2 for the number of coded responses within categories when the child was normal weight or overweight.

Table 2.

Comparison of Information Seeking Responses by Weight of the Child

<table>
<thead>
<tr>
<th>Category</th>
<th>Normal Weight</th>
<th>Overweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition (Total)</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>Typical intake</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Eating habits</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Meal Preparation</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Knowledge</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Growth and development (Total)</td>
<td>31</td>
<td>26</td>
</tr>
<tr>
<td>School related</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Developmental benchmarks</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Immunizations</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Safety</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Dental/eye</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Health (Total)</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>Health history</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Family history</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Family history of obesity</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Health concerns</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Parent Height/Weight</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Chi square analyses were conducted to see if there were differences in the six categories of information sought based on children’s weight. There were no differences in information sought between nursing students who read about normal weight and overweight children in responses about: (1) nutrition, $\chi^2(1) = .163, p = .697$; (2) growth and development, $\chi^2(1) = 2.142, p = .143$; (3) health, $\chi^2(1) = .849, p = .357$; (4) physical activity, $\chi^2(1) = .316, p = .574$; (5) family, $\chi^2(1) = .219, p = .639$; and (6) socioeconomic, $\chi^2(1) = .308, p = .579$.

Although there were no differences in information sought at the category level, there were indications qualitatively that students wanted information about slightly different topics within some of these categories. For instance, students who read about overweight children were more interested in eating habits and meals than students who read about normal weight children. Some students who read about an overweight child specifically sought information about whether the family eats together or eats in front of a TV. There were no similar responses when the child was normal weight.
In the growth and development category, when the child was overweight, more students wanted to know about psychosocial information, such as bullying, depression, peer relationships and behavior at home. In contrast, when the child was normal weight, only two responses were about psychosocial issues. For normal weight children, most responses (58%) were about school (10) and immunizations (8).

Although the number of responses in the health category was similar for the two groups, the types of information students asked about differed slightly. When the child was normal weight, responses were more focused on the health history of the child and the family health history. When the child was overweight, responses included seeking information about a family history of obesity. In the family category, there were slightly more responses related to family structure such as how many other children in the home or parent’s marital status when the child was overweight than normal weight.

**Adolescent’s weight and information sought.** Forty-eight students read and responded to a vignette with a normal weight adolescent and 51 students responded to a vignette with an overweight adolescent. See Table 3 for categories of responses sorted by weight.

Table 3.

Comparison of Information Seeking Responses by Adolescent Weight

<table>
<thead>
<tr>
<th>Category</th>
<th>Normal Weight</th>
<th>Overweight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Nutrition</td>
<td>25</td>
<td>38</td>
</tr>
<tr>
<td>Typical intake</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Eating habits</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Meal Preparation</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
Chi square analyses were conducted to see if there were differences by the six major categories of information sought based on adolescent’s weight. There were no differences in information sought between nursing students who read about normal weight and overweight children in responses about: (1) nutrition $X(1)=.470, p=.493$; (2) growth and development, $X(1)=.055, p=.815$ (3) health, $X(1)=.634, p=.426$; (4) physical
activity, $X(1)=.151$, $p=.698$; (5) family, $X(1)=.456$, $p=.50$; and (6) socioeconomics, $X(1)=1.254$, $p=.263$.

Although none of the values were statistically significant, there were small differences. In the nutrition category, nurses focused more on eating habits and meal preparation when the adolescent was overweight than normal weight. In the growth and development category, nursing students who read about overweight adolescents wanted more information about school and peer relationships, safety and psychosocial issues than did nursing students who read about normal weight adolescents. In the physical activity category, more students asked about activity level and participation in after school activities when the adolescent was overweight (13) compared to normal (8). Exercise was also asked about more often when the child was overweight (7) compared to normal weight (2). Screen time was mentioned in both groups but in the overweight group, the responses often were focused on limiting screen time rather than asking for more information about screen time. The subthemes of responses in the family and socioeconomic categories were similar across both groups.

**Research Question Three**

This question investigated whether the child’s or adolescent’s weight, activity level, or parent’s weight affected the risk for obesity as identified by the student. Analyses of open-ended responses to the question, “What are the factors that you would identify as contributing to this child being at risk for childhood obesity?” were done for the child and the adolescent separately. Responses related to activity or screen time were the most frequent.
**Risks factors for children.** When the target character child in the vignette was five, physical activity was described in the vignette as one hour or four hours of screen time. When the child was reported to have only one hour of screen time daily, screen time was identified as a risk factor 25 times, with some students indicating one hour was too much time. When screen time was described as four hours, it was listed as a risk factor 24 times. Chi square analyses indicated there was not a significant difference when screen time as a risk factor was analyzed by activity level of the child, $X(1)=.137, p=.712$. Other open-ended responses identified as risk factors included *a sedentary lifestyle* or *low activity*; when screen time was one hour these were mentioned 44 times, compared to 32 times when screen time was four hours.

The child’s weight was significantly related to low activity being identified as a risk factor for childhood obesity, $X(1)=5.53, p=.019$. Overweight children were more likely to have low activity identified as a risk factor regardless of the activity level described in the vignette. Nursing students perceived that low activity contributed to risk for childhood obesity regardless of reported activity in the vignette. Gender was not significantly related to low activity identified as a risk factor, $X(1)=2.352, p=.125$.

Mother’s weight elicited different risk factors being identified, $X(1)=48.33, p=.000$. When the mother was described as overweight, 24 responses included parent weight as a risk factor for childhood obesity, and genetic factors were identified 11 times. In contrast, mother’s weight was mentioned 23 times when the mother was normal weight and genetic factors only twice. In addition, 16 responses identified risk factors related to parental behavior, and these responses were divided equally among normal weight and overweight children. Examples of these responses included *mother is*
reserved, mom seems passive, mother not wanting to upset their child, they want to be their child's friend instead of a parent, and doesn't have a good role model in parents.

Risk factors for adolescents. A similar analysis for the adolescent found that the neither the adolescent’s weight \([X(1)=1.17, p=.279]\) nor activity level \([X(1)=.253, p=.615]\) were significantly related to physical activity being identified as a risk factor. When the adolescent was described as playing a school sport, a sedentary lifestyle or inactivity was listed as a risk for childhood obesity 27 times compared to 35 times when the adolescent was portrayed as a member of a video gaming club. Gender was also not significantly related to physical activity level being identified as a risk factor, \(X(1)=.009, p=.940\). Male adolescents had inactivity as a risk for childhood obesity listed 30 times and females, 34 times.

There was not a significant relationship between activity level in the vignette and whether screen time was identified as a risk for obesity \((X(1)=.857, p=.355)\). Likewise, the adolescent’s weight was not significantly related to whether screen time was identified as a risk factor for childhood obesity \(X(1)=1,157, p=.282\). When the adolescent was normal weight, of the 46 responses, 30 included low physical activity, 28 had the amount of screen time, and 5 had nutrition-related answers. Of the 50 responses for an overweight adolescent, there were 29 responses about low physical activity, 35 about the amount of screen time, and 13 had nutrition-related answers.

When the mother was overweight, there was a statistically significant association between parent weight in the vignette and parent weight or genetics identified as contributing to a risk for childhood obesity, \(X(1)=35.84, p=.00\). When mothers were described in the vignettes as overweight, 27 of 46 responses include the mother’s weight
as a risk factor for the adolescent and 4 responses included genetics. There were no responses with genetics or parent weight when the vignette included a normal weight parent.

**Research Question Four**

This question addressed attitudes toward obese children and adolescents. The original intention was to address this research question by conducting analysis of variance tests. The unexpectedly small sample size precluded being able to do this, however. Instead, independent-samples t-tests were analyzed for the independent variables in the vignettes.

**Attitudes toward overweight children.** Attitudes about a five-year-old were not significantly different between normal weight (M=25.09, SD=4.54) and overweight children (M=23.49, SD=5.16), t(99)=1.62, p=.10. However, there was a significant difference in attitudes when students read about an active child (M=25.35, SD=5.28) and a non-active five-year-old (M=23.09, SD=4.12), t(99)= -2.61, p=.020.

For five-year-old patients, there were no difference in attitudes when the parent was normal weight (M = 24.17, SD = 5.41) or overweight (M = 24.48, SD = 4.32), t (99)= -.316, p=.753. There also was no significant gender difference for five year olds (boy M=23.75, SD=5.35, girl M=24.81, SD=4.42; t (99) = -1.038, p=.302).

**Attitudes toward overweight adolescents.** No significant differences were found for attitudes when students read about a normal weight (M=24.23, SD=5.8) and overweight adolescent (M=23.38, SD=5.26), t(99)=.760, p=.45. However, there was a significant difference in attitudes toward active (M = 25.79, SD = 4.83) and non-active adolescents (M = 21.84, SD = 5.49), t(95)= -3.76, p=.00. Attitudes toward the adolescent
patient also were significantly different based on parent’s weight; adolescents portrayed as having normal weight mothers were seen more positively (M = 25.12, SD = 4.97) than adolescents with overweight mothers (M = 22.33, SD = 5.78), $t(95)=2.558, p=.012$.

Finally, no significant gender differences were noted, boy (M=23.91, SD=5.71) or girl (M=23.69, SD=5.4), $t(95)=.201, p=.841$.

**Research Question Five**

This research question about nursing students’ attitudes toward mothers was going to be addressed with analysis of variance (ANOVA) tests. Sample size limitations dictated that independent-sample t-tests be conducted instead. Independent sample t-tests were done using the child’s weight, parent’s weight, and activity level as the grouping variables for each vignette.

**Attitudes toward mothers of obese children.** No significant differences in attitudes toward mothers were found between a five-year-old of normal weight (M=26.44, SD=4.93) or overweight (M=25.89, SD=5.77), $t$-test $(99) = .510, p= .611$. Likewise, no differences were found in attitudes when compared by child’s level of activity (active M=26.58, SD=5.53; not active M=25.69, SD=5.11; $t$-test $(99) = .409, p= .409$). There were no differences in attitudes towards mothers of boys or girls, (boys M=25.91, SD=5.37; girls M=26.42, SD=5.34; $t$-test $(99) = -.473, p= .637$). However, there was a significant difference in attitudes toward mothers based on her weight, $t$-test $(99) = 2.109, p=.037$. Normal weight mothers (M=27.23, SD=4.44) were perceived more positively than overweight mothers (M=25.02, SD=6.01).

**Attitudes toward mothers of obese adolescents.** The same analysis was done for the attitudes toward mothers from the 15-year-old vignette. Attitudes were not affected
by adolescent’s weight (normal M=28.79, SD=5.20; overweight M=28.82, SD 4.76), t-test (94) = -.029, p=.977. Similarly, there were no differences in attitudes toward mothers when adolescents were active (M=29.09, SD=4.52) and not active (M=28.53, SD=5.38), t-test (95) = -.546, p=.587. Gender was also not significant, male, (M=28.58, SD=5.16), female, (M=29, SD=4.81), t-test 94)=-.415, p=.679. Attitudes toward mothers of adolescents were affected by parent weight, however; t-test (94) =4.479, p=.000. Again, normal weight mothers (M=30.75, SD=4.31) were perceived more positively than overweight mothers (M=26.6, SD=4.75).

**Research Question Six**

At the end of each vignette, students were asked to respond on a Likert scale (0-10) about how confident they were that they could work effectively with the family they read about and responded to in the vignettes. The original intention was to address this question conducting analysis of variance tests. The unexpectedly small sample size precluded being able to do this, however. Instead, independent-samples t-tests were analyzed for the independent variables in the vignettes. The dependent variable was the response to the single question about self-efficacy.

**Self-efficacy in working with children and mothers.** Nursing students’ self-efficacy in working with a mother and child did not differ by any of the variables presented in the vignettes. When the child was five, mean self-efficacy did not differ by child weight (normal weight M=7.19, SD=1.75; overweight M=7.35, SD= 1.30), t (99) =-.502, p = .617. Self-efficacy scores also did not differ by parent weight, normal weight (M=7.19, SD=1.42), overweight (M=7.35, SD=1.68), t (99)=-.537, p=.593., or by child activity levels, active (M=7.38, SD=1.64), not active (M=7.13, SD=1.424), t(99)= -.815,
Self-efficacy scores were also not different by gender of the child, boy (M=7.20, SD=1.59), girl (M=7.33, SD=1.51), \( t(99) = -0.398, p = 0.691 \).

**Self-efficacy in working with adolescents and mothers.** Similarly, when the vignette was about an adolescent, self-efficacy scores did not differ by adolescent weight, normal weight (M=6.64, SD=1.61), or overweight (M=7.02, SD=1.81), \( t(94) = 1.093, p = 0.277 \). Scores were also not significantly different by parent weight, normal weight (M=6.98, SD=1.82), overweight (M=6.67, SD=1.59), \( t(94) = -0.873, p = 0.385 \) or by physical activity, active (M=7.0, SD=1.66), not active (M=6.67, SD=1.77), \( t(94) = -0.952, p = 0.344 \). Scores were not significantly different by adolescent gender, male (M=7.04, SD=1.78), female (M=6.65, SD=1.65), \( t(94) = 1.135, p = 0.259 \).

**Research Question Seven**

This question investigated what factors students identified as contributing to whether weight would be addressed as part of health promotion. This question was not tied to the vignette scenarios, but was asked near the end of the survey as a general question. See Table 4 for the most common themes and the number of responses that fit in each category. There were 97 responses to this question. Many responses had more than one theme. The percentages in the table are the percentages of all responses that included the theme. The most frequent response was related to the weight of the child, yet only one-third of the students indicated that the child’s weight would be a factor in whether they would address weight as a health promotion topic. One fourth of the students indicated the level of physical activity would be a factor in whether they address weight, and a similar number identified nutrition.
Table 4. Themes and responses for factors contributing to addressing weight as a health promotion topic.

<table>
<thead>
<tr>
<th>Theme</th>
<th>N (%)</th>
<th>Examples of statements</th>
</tr>
</thead>
</table>
| Weight status of child           | 32(33)| “When they are over their weight percentile.”  
                                 |       | “The weight of the child.”  
                                 |       | “if the child is overweight”  
                                 |       | “their BMI”  
                                 |       | “Obesity” |
| Physical Activity                | 24(25)| If the child has a sedentary lifestyle”  
                                 |       | “how much physical activity they get each day”  
| Nutrition                        | 24(25)| “bad eating habits regardless of the weight of the child”  
                                 |       | “if their description of a typical meal is lacking nutritional value” |
| Effect of weight                 | 23(24)| “before they show signs of a potential problem associated with obesity”  
                                 |       | “if it’s affecting their everyday life”  
                                 |       | “if their weight is affecting them in a negative way”  
                                 |       | “Do they feel left out?” |
| Awareness of problem by child or parent/desire to change weight | 13(13)| “whether both parents and children are interested in changing their habits”  
                                 |       | “If they realize they are overweight”  
                                 |       | “what interventions are being done to control weight?” |
| Parent or family weight          | 11(11)| “parents are obese”  
                                 |       | “parent’s weight”  
                                 |       | “family hx of obesity” |
| Socioeconomic                    | 9(9)  | “Low SES, poor living conditions”  
                                 |       | “family resources”  
                                 |       | “if they can’t afford to buy healthy food” |
| Student-Nurse Related.           | 9(9)  | “I would address it with families with children that are inactive and lazy”  
                                 |       | “I grew up as an obese child. That influences me greatly to address a weight problem as a health problem.”  
                                 |       | “I would talk about it if the parent or the child brought up the subject.” |
“My own views of weight issues.”

Screen time 7(7) “how much screen time they get each day” “increased screen time”

**Research Question Eight**

For the final research question, which was focused on nursing education and student perception of preparedness and how they were taught. Two questions were asked. The first question asked students to rate their preparedness to address weight as a health problem on a scale of 1=very unprepared, 5=very prepared. Ninety-seven students responded to this question, the mean score was 3.39, SD= .836. Students perceived themselves to be more prepared than not to address childhood obesity.

The second question was an open-ended question, “Describe your educational preparation as a student nurse to address weight as a health problem?” provided narrative data about student perceptions of preparation. Ninety-four students responded to this question. Thematic analysis of the responses identified some common themes. Nutrition was the most common theme, with the majority focused on the importance of healthy food choices. The health-related effects of obesity were also commonly mentioned, with students identifying the potential consequences of obesity beyond childhood. Some (n = 16) students indicated that that they had not been taught how to address weight, that they had been taught importance of managing weight but not how to help children and families manage weight as a health problem. Themes and frequencies are listed in Table 5.

Table 5
Themes of Educational Preparation Responses
<table>
<thead>
<tr>
<th>Theme</th>
<th>No.</th>
<th>Examples of statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td>29</td>
<td>“what healthy eating habits are”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“promote nutrition”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“use myplate.gov and eat a balanced diet filled with fruits and vegetables”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“talk about ways to eat healthy”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“teach good/bad foods”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“as health care workers we need to promote healthy eating”</td>
</tr>
<tr>
<td>Health related effects of obesity</td>
<td>27</td>
<td>“taught the risks of obesity and the negative side effects”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“how being overweight can cause health problems”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“long term effects of obesity”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“how big of an impact it has on other aspects of health”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“obesity can contribute to almost every disease in a bad way”</td>
</tr>
<tr>
<td>Activity/Health lifestyle</td>
<td>20</td>
<td>“promote healthy lifestyle changes, not just diet”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I have learned to emphasize exercise and limited screen/phone time.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Lifestyle of the parent will make it harder for children to change.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Educating is huge especially on diet and exercise”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“explain extra ways to exercise, decreasing TV”</td>
</tr>
<tr>
<td>Not Taught</td>
<td>16</td>
<td>“We have not directly covered how to address obesity in children or with their parents.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I don’t think we have ever really been taught, to be honest…”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“We have not been taught how to address weight as a health problem.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“From school, it was never really taught how to address other people’s weight problem.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I studied ways to reduce obesity on my own more than I learned in the classroom.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I don’t think we have ever really been taught……We have always just learned “encourage teachings on good diet and physical activity” but never in detail for specific populations or in detail as to what advice to give”</td>
</tr>
<tr>
<td>Communication</td>
<td>15</td>
<td>“be forward but not condemning, be honest and truthful about changes that need to occur”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“we were taught therapeutic communication”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“be therapeutic and do not accuse”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“make non-judgmental conversation”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“we didn’t focus on communication, just the risk factors of obesity and what obesity is a risk factor for”</td>
</tr>
</tbody>
</table>
“It’s best to start out asking what the normal routine is for the patient. From there, a nurse can identify risk factors and hopefully address them first.”
“Obesity is a major health problem in America so we are taught what to say and how to address it in a child/adult patient.”

While the nutrition and health effects of obesity categories had the most responses, only 31% of the students described being taught about nutrition related to obesity, 29% described being taught health effects of obesity. Seventeen percent reported not being taught and 16% reported being taught only about communication. There was no single response which included all the categories of themes, that is, no student identified that they were taught about nutrition, health effects of obesity, physical activity, and communication related to weight.

**Summary of Key Findings**

Although the study encompasses multiple data points and analysis, synthesis of the findings highlighted some key findings. The first key finding is that students saw that children, adolescents, and parents, regardless of weight, needed health promotion about nutrition and physical activity and they were confident that they can provide that information to families. The weight of children, however, was related to the number of weight-related health promotion topics identified. Curiously, adolescent gender, but not weight, was related to the number of weight-related topics identified.

Another key finding is that the weight of the child/adolescent did not change information-seeking from nursing students. Students sought out similar amounts of information regardless of the weight of the child or adolescent. Although there were some differences in the types of information sought, those differences were positive in that
students recognized the potential psychological impact of obesity and sought information about that.

A third point is that a parent’s weight influenced the attitude of nursing students towards the adolescent and the parent. Adolescents who had overweight parents were viewed more negatively and overweight mothers were perceived more negatively than normal weight parents. The impact of parent weight was also noted in the identification of risk factors for childhood obesity. Parent weight was also identified as a factor in whether weight would be addressed as a health promotion topic.

A fourth point is that the nursing students regarded physical activity as important in preventing or reducing childhood obesity. Slightly over half of the responses to the first health promotion question had physical activity as a topic before the level of physical activity was provided in the vignette. Physical activity was identified as a health promotion topic by more than three-fourths of the students when the child was five and nearly two-thirds of the time when for the adolescent. A lack of physical activity was identified as risk factor for childhood obesity as well.

Lastly, the students’ perceptions of how they had been prepared to address childhood obesity identified some challenges for nursing education and potential barriers to children and families receiving nursing care which addresses weight as a health topic. Although students were confident they could work effectively with children and families, they did not describe themselves as well-prepared to address childhood obesity.
Chapter 5

Discussion

The study results provide some insight into senior BSN students’ attitudes, knowledge, and self-efficacy about childhood obesity. Although this study has limitations, it has the potential to contribute to nurse educators’ understanding of BSN students’ preparedness to address childhood obesity and student attitude about overweight children.

Limitations

One limitation of the study is the sample, which included students recruited via an online invitation shared with the students by the head of the program or a designated faculty member in the program. There is no way of knowing whether students who responded to the survey are different or similar to students who did not respond to the survey.

A second limitation was the low number of respondents. Given the potential pool of senior BSN students in the three states selected, the response rate was about 10%. An effort had been made to increase the response rate by offering an incentive lottery of a $10 e-gift card, but the incentive appeared to be insufficient to motivate students to complete the survey. The smaller sample size also meant that there were insufficient numbers to complete planned analysis for some of the research questions.

Another limitation is the difficulty in interpreting what some answers meant. For example, in response to the question about what factors would influence whether weight is addressed as a health promotion topic, when students wrote “parent weight” it is unclear whether they would address if the parent was overweight or they would not
address it. Similarly, in response to the question about other information, when students wrote “family dynamics,” it is not clear how that information would help them address weight as a health problem.

**Knowledge about Child and Adolescent Obesity**

Despite these limitations, the study results have value. Student responses reflect that students have knowledge about the effects of obesity on health and can identify health promotion topics that are related to reducing or preventing obesity such as nutrition and physical activity. Students identified the need to increase physical activity for children through active play and increasing activity for the family as a whole as well as decreasing screen time. Increased physical activity for adolescents was addressed through encouraging decreased screen time and increasing involvement in activities with peers and family. The recognition that screen time has a potential impact on physical activity and should be addressed with parents is positive and is supported in the literature as related to risk for childhood obesity (Siddarth, 2013).

Students recognized the potential psychological impact of obesity in both age groups and sought out information regarding mental health and self-esteem. These findings are consistent with other evidence that obesity may have an impact on peer relationships and mental health (Puhl, Luedicke, & Heuer, 2011). This may be related to the number of students in the sample who had above normal BMI’s and who may have had personal experience or knowledge of the emotional impact of obesity on peer relationships.

**Attitudes Toward Obesity**
On a less positive note, the student attitude towards obese children was more negative than positive. While not overwhelmingly negative, the findings are consistent with other evidence of negative attitude toward obese children in the general public (Sikorski et al., 2012) and with nursing students at a single institution in the midwest (Sneatheth, Treisman, Buseh, & Kelber, 2014). The exact effect of a negative attitude on nursing care provided is unclear. However, it is possible that students who describe themselves as not being taught and who hold negative attitudes towards obese children and parents will be less effective at addressing weight as a health problem. One student in the study, when answering the question about factors influencing whether weight would be addressed as a health problem, responded with “I would address it to families with children that are inactive and lazy.” While it is not clear from the study how it would be determined whether a child was inactive or lazy, the negative judgement implied by the label lazy is consistent with the attitudes identified by the study.

The influence of parent weight on attitudes towards adolescents is also important. Parent weight was described as a factor in whether weight would be addressed as a health promotion topic. Parent weight has been identified in the literature as a barrier when addressing childhood weight (Edvardsson, et al., 2009; Isma et al., 2012; Small et al., 2009). When students listed parent weight as a factor, it is not clear whether that means if the parent is overweight they would address it or if the parent was overweight, they would not address it. However, in this study, students consistently identified that nutrition and physical activity were important to be addressed and parent weight was not significantly related to whether topics were introduced or not. What is not known still is whether the topics of nutrition and physical activity would be addressed differently if the
parent was overweight and the influence of the attitude about the parent on how the information is presented.

**Reported Self-Efficacy**

Students are for the most part confident they can work with children and families where childhood obesity occurs. The single measure of self-efficacy—“how confident are you that you can work effectively with this family” encompassed the totality of self-efficacy—knowing what to do and believing that one has the skills and ability to do what needs to be done—may not reflect the reality of practice in the clinical setting. However, when the data about how students perceived they were prepared to address weight as a health problem in children is considered, their reported level of self-efficacy may be misleading.

**Nursing Education**

The study results provide some insight into opportunities within nursing education. Fifteen percent of students reported that they had not been taught to address weight as a health problem. However, within the responses that students indicated they had been taught, 28 responses included focusing on the health impact of weight. Other responses reflected a student perception of emphasis in their education on therapeutic communication and being non-judgmental but did not include education about what knowledge would be necessary to address weight as a health concern. However, other students responded that they had been taught “what to say and how to address it in a child/adolescent patient.”

Although knowledge about the health impact of obesity is important, that information alone is not likely to assist a family or a child/adolescent to lose
weight. It is possible that nurse faculty themselves do not feel prepared to teach students about principles of weight management for children and families. The literature has indicated that nurse educators see a gap in the curriculum related to childhood obesity and weight management (McCarthy & Wyatt, 2014) and the findings from this study reflect that gap.

Within the answers to questions themselves, it is not clear whether students really know what to teach children and families about nutrition. One student who read about a child in the 60th percentile (normal weight) indicated that this child needed supplemental nutrition to promote weight gain. When a student responded with what they would teach as health promotion with the words “nutrition” or “diet,” it is not clear what the student actually knows about the topic.

**Future Research**

Future research regarding nursing students and childhood obesity should include a more diverse study population, other geographic regions and include some form of interviewing a subset of students who respond to a survey. Expanding the geographic areas would allow for an increased diversity of students and culture within the study population. It is very possible that students in areas outside the upper Midwest have different perceptions of obese children and their families. A second population of students that could be incorporated into future research includes associate degree nursing students. This population may be very different from baccalaureate students in terms both in terms of characteristics as well as attitude and self-efficacy.
Future research should also include some form of interviewing. Exploring student answers such as nutrition, diet, eating habits, or exercise would allow greater discernment regarding whether students have a strong grasp of the essential knowledge for children related to these topics. Additionally, interviews would allow for greater exploration of answers such as socioeconomic status and parent weight in the context of whether students would address weight as a health problem.

Another focus of research could be nurse educators. Although a study of baccalaureate programs identified a gap in content addressing childhood obesity, the attitudes of nurse educators towards obese children and families, and their self-efficacy in addressing weight or teaching about weight management are not known. Simultaneously surveying nurse educators and students from the same institutions may provide insight about both populations.
BSN STUDENTS AND CHILDHOOD OBESITY

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Appendix A

**BSN Students and Childhood Health Survey**

I would like to ask you to participate in a study that involves research. Participation is voluntary and your decision not to participate will not involve any penalty or loss of benefits. For this study, participants will complete an online survey which has questions about health promotion in children and their families and nursing students’ perceptions of children, parents and their preparedness to address health concerns. The survey should take approximately 15 minutes to complete.

The purpose of the study is to investigate nursing students’ knowledge about and attitudes towards health promotion in populations of children. We are asking approximately 400 subjects to participate in this study. Participation in this study includes none to minimal risks for participation. Minimal risks may include emotional or mental distress regarding the topic of some questions. You should discuss these with the investigator.

If you agree to take part in this study, there are no benefits to individual participation. You may expect to benefit from taking part in this research to the extent that you are contributing to nursing knowledge. Completing the survey indicates consent. If you choose to participate, your responses to survey questions will be kept confidential. You will not be asked to provide any personal identifying data in the survey such as your name or address. There are no expenses associated with the study participation.
There is a random drawing for 100 $10 e-gift cards which study participants may submit an e-mail address to a link separate from the study data. The odds of receiving a gift card are dependent on the actual number of students who participate in the study but are approximately 25%. At the end of the survey, there is a link which you may use to enter an e-mail address to placed in the drawing for an e-gift card.

It is not the policy of the University of Missouri to compensate clinical research subjects in the event the research results in injury. The University of Missouri, in fulfilling its public responsibility, provides medical, professional, and general liability insurance coverage for any injury in the event such injury is caused by the negligence of the University of Missouri, its faculty or staff. The University of Missouri also will provide facilities and medical attention to subjects who suffer injuries while participating in research projects at the University of Missouri.

If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Health Sciences Institutional Review Board (which is a group of people who review the research studies to protect participants’ rights) at (573) 882-3181. If you have any problems or questions, you may contact Shar Georgesen at [402-404-1133].

I would be happy to answer any questions that you may have.
Vignette A

The vignette is designed in two segments, the first segment has child’s weight (60th percentile, 95th percentile) as the independent variable and the second segment has two independent variables, physical activity as described by amount of screen time, and parent weight (normal weight, overweight).

Segment One: (Independent Variable: child’s weight status)
A mother has brought her 5 year old son/daughter to a clinic for a well-child visit. As the nurse, you assess the child to be in the 60th percentile/95th percentile for weight. The child is quiet and stays seated as you talk to the mother.

1. What are the health promotion topics you would address during this interaction?  
   Text Box

2. What other information would you want to know about the child/family to plan health promotion?  
   Text box

Segment Two: (Independent Variables: physical activity, parent weight)
During your interaction with the family, the mother states, “I hope my child will become more active when school starts.” She also states that the child spends about 4 hours of screen time every day and plays outside occasionally. During the interaction with the child and the mother, you notice that the mother is polite but reserved, and appears to be normal weight.

3. Based on this interaction, what are the health promotion topics you would address?  
   Text box

4. What are the factors that you would identify as contributing to this child have a risk for childhood obesity?  
   Text box

5. What are your first impressions of this mother as a parent?  
   She is:
   Good – bad
   Weak – strong
   Active- passive
   Secure - insecure
   Unhealthy – healthy
   Well informed – poorly informed
6. What are your first impressions of the child?
Bad-good
Strong-weak
Active - passive
Insecure-secure
Low self-esteem – high self-esteem
Good self-control – poor self-control
Lazy-industrious

7. How confident are you that you could work effectively with this parent to address the child’s issues?
Not at all               Extremely
Confident                Confident

1  2  3  4  5  6  7  8  9  10

Vignette B

The vignette is designed in two segments, the first segment has adolescent’s weight (60th percentile, 95th percentile) as the independent variable and the second segment has two independent variables, physical activity as described by amount of screen time, and parent weight (normal weight, overweight).

Segment One: (Independent Variable: child’s weight status)
A mother has brought her 15 year old son/daughter to a clinic because the adolescent has been complaining about being tired a lot. As the nurse, you assess the adolescent to be in the 60th percentile/95th percentile for weight. He/she looks bored and stares at the wall while you talk to the mother, but when you talk to the adolescent directly, he/she responds politely but briefly.

1. What are the health promotion topics you would address during this interaction?
   
   Text Box

2. What other information would you want to know about the child/family to plan health promotion?

Segment Two: (Independent Variables: physical activity, parent weight)

During your interaction with the family, the mother complains about the teen-ager’s energy level around the house, stating, “I can't get him to look up from her computer to
do anything to help me. He is on the phone or computer all of the time.” The adolescent rolls his eyes at this, and tells you that he has homework to do on the computer, and then either texts friends or plays games. The adolescent rides the bus to school, is on the school basketball team, and does not work part-time during the school year. During the interaction with the adolescent and the mother, you notice that the mother appears to be normal weight.

3. Based on this interaction, what are the health promotion topics you would address? 
   Text box

4. What are the factors that you would identify as contributing to this child have a risk for childhood obesity? 
   Text box

5. What are your first impressions of this mother as a parent? 
   She is: 
   Good – bad 
   Weak – strong 
   Active - passive 
   Secure - insecure 
   Unhealthy – healthy 
   Well informed – poorly informed 
   Competent - incompetent

6. What are your impressions of the adolescent? 
   Bad-good 
   Strong-weak 
   Active - passive 
   Insecure-secure 
   Low self-esteem – high self-esteem 
   Good self-control – poor self-control 
   Lazy-industrious

7. How confident are you that you could work effectively with this parent to address the child’s issues? 
   Not at all                 Extremely 
   Confident                Confident 
   1  2  3  4  5  6  7  8  9  10
B. The following questions are related to nursing students and childhood obesity

B1. When considering whether you would address weight as a childhood health problem, what factors influence whether weight is addressed as a health problem?

Text box

B2. The following questions ask you to consider your nursing education and whether you feel prepared to address obesity or weight as a health problem.

Using a scale of 1-5, 1=very unprepared, 3= somewhat prepared, 5=very prepared, rate your preparedness to address weight as a health problem.

Very unprepared 1 2 3 4 5 Very Prepared

B3. When considering your nursing education experience, describe how you have been taught to address weight as a health problem:

Text box

F. Demographic data:

F1. Age in years

F2. Gender: Male, female

F3. Height: Feet, inches

F4. Weight: pounds

F5. State of nursing school attended: Iowa, Nebraska, South Dakota

F6. Nursing School attended: Drop down menu of schools

Thank you for completing the survey. If you would like to participate in a random drawing for $10.00 e-gift card, click on the link here which will take you to a screen in which you are asked to enter a contact e-mail. All e-mail contacts will be placed in a random drawing for 100 e-gift card. There is no connection to the e-mails provided and the survey responses. Only participants who are to receive an e-gift card will be contacted.
VITA

Sharlene Georgesen was born in South Dakota, received her undergraduate education at Augustana College, Sioux Falls, SD. She graduated with a bachelor’s degree in nursing in 1986 and began her career as a professional nurse at St. Luke’s Regional Medical Center, Boise, ID.

Her career as a registered nurse began the postpartum unit, providing care for mothers and newborns. During the first four years of her career, she practiced in the areas of mother-baby care, pediatrics, and the neonatal intensive care unit. In 1990, she enrolled in the masters program at the University of Missouri-Columbia and completed a masters degree in nursing with an emphasis in nursing administration in 1992. Following completion of her master’s degree, she began working as a nurse manager of the obstetric and pediatric units at Mercy Medical Center, Sioux City, IA.

In 2000, Sharlene began teaching at Morningside College, Sioux City, IA and continues to teach there full time. Her primary areas of content are maternal-child and NCLEX success. She is a tenured faculty and has attained the rank of associate professor. In 2016, she completed the requirements for a doctoral degree from the University of Missouri-Columbia. Her research focus was childhood obesity and baccalaureate nursing students attitudes towards, knowledge about and self-efficacy in addressing childhood obesity as a health problem.