

For your initial post, choose one contemporary issue or problem related to developmental psychology that is prevalent in today's news and research a minimum of one peer-reviewed article on this issue in the Ashford University Library. Evaluate the issue based on one of the theoretical perspectives (Freud's Psychosexual Theory, Erikson's Psychosocial Theory, Piaget's Theory of Cognitive Development, etc.) that we have studied across this course. Explain how the theory provides a deeper understanding of the contemporary issue. Propose one well-developed solution to address the issue or problem.

Quality of Life in School-Age Children with Obesity

Shannon Baker Powell, Martha Keehner Engelke, and Melvin S. Swanson

Childhood obesity is a multifactorial problem affecting the lives of 31.8% of children and adolescents in the United States, with higher rates among Hispanic and non-Hispanic Black youth (Ogden et al., 2016). Increased obesity rates are also higher in low-income households (Levine, 2011). Childhood overweight is defined as a body mass index (BMI) in the 85th to 94th percentile, and obesity as a BMI in the 95th percentile and higher (National Institutes of Health [NIH], 2012). Obese youth face many physical health problems associated with obesity, including type 2 diabetes, increased cholesterol, hypertension, asthma, orthopedic problems, and sleep apnea (Centers for Disease Control and Prevention [CDC], 2016; Pulgarón, 2013). Psychosocial concerns associated with childhood obesity include depression, low self-esteem and quality of life, behavioral problems, and difficulty in school (Morrison, Shin, Tamopolsky, & Taylor, 2015). The rate of childhood obesity among school-age children today is approximately 1 in 5 (Ogden et al., 2016). Recent evidence suggests the prevalence of obesity is stable although still a concern (Ogden et al., 2016). Childhood obesity is a complex problem that should be addressed in the school setting because youth spend a significant portion of their time in school.

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The purpose of the study was two-fold: to describe the self-reported physical and psychosocial quality of life of 37 school-age children (24 girls, 13 boys, grades 1 to 12) living with severe obesity and having difficulty managing their illness; and to examine the descriptive comments of school nurses providing case management to these students. Quality-of-life scores measured by the Pediatric Quality of Life Inventory Version 4.0 SF15 were lower among children with obesity compared to the healthy norm. School nurses' descriptive comments support physical and psychosocial health concerns reflected by quality-of-life scores, and demonstrate the key role of the school nurse in assessing the needs of students living with severe obesity. Comments by school nurses suggest a holistic approach, including environmental and psychosocial interventions might be the most effective strategy for nurses and other professionals working with school-age children with obesity.

Children and adolescents with obesity report a significantly lower level of quality of life when compared to those who are of normal weight (Morrison et al., 2015; Trevino, Pham, & Edelstein, 2013; Wallander et al., 2013). Components of health-related quality of life include both physical and psychosocial aspects. Children's physical health-related quality of life includes general limitations and children's ability to participate in physical activities. Psychosocial health-related quality of life includes emotional health and social functioning (Varni, Burwinkle, Seid, & Skarr, 2003).

Previous interventions targeting obesity have primarily focused on education related to diet and physical activity. These interventions have most often been implemented by classroom teachers, or occasionally, by other personnel, such as physical education teachers, school nurses, or research staff (Ickes, McMullen, Haider, & Sharma, 2014). School-based interventions by Wang and colleagues (2010) incorporated cooking classes, school gardens, changes in school meals, and food diaries. Other interventions have included recording dietary intake (Kanyamee, Fongkaew, Chotibang, Aree, & Kennedy, 2013), diet journaling, and exercise logs (Wong & Cheng, 2013). Classroom lessons and activities relating to healthy diet and increased physical activity

have also been implemented (Johnston et al., 2013; Llargues et al., 2011; Manger et al., 2012; Sachetti et al., 2013; Walther et al., 2009). Pbert and colleagues (2013) implemented a school nurse counseling intervention that centered on healthy eating and physical activity guidelines. School-based interventions have been successful, although most target the general population and lack a focus on the specific population of children living with overweight and obesity.

School nurses, who often interact daily with students, are in an advantageous position to assess and address quality of life in school-age children. The National Association of School Nurses (NASN) (2013) developed a position statement that specifically addresses the role of the school nurse in working with students who are overweight or obese. The position statement clearly articulates the important role of the school nurse:

It is the position of the National Association of School Nurses that school nurses have the knowledge and expertise to promote the prevention of overweight and obesity, and address the needs of overweight and obese youth in schools. The school nurse collaborates with students, families, school personnel, and health care providers to promote healthy

weight and identify overweight and obese youth who may be at risk for health problems. The school nurse can refer and follow up with students who may need to see a health care provider. The school nurse also educates and advocates for changes in the school and district that promote a healthy lifestyle for all students (NASN, 2013, p. 62).

Though school nurses are recognized as vital resources in efforts to decrease childhood obesity, school nurse practice varies greatly in this area; many school nurses have difficulty addressing the needs of school age children with obesity. A recent qualitative study found that whether school nurses were working in one school or covering several schools, they had difficulty addressing the needs of overweight and obese students because of time constraints and competing demands (Powell, Engelke, & Neil, 2017).

In summary, although a significant amount of literature exists on school-age children with obesity, there is a need to better understand factors that contribute to the lower quality of life of these students, particularly students who are severely obese. Interventions are likely to be more successful with this information, particularly for students struggling at school because of their obesity.

Purpose

The purpose of this study was to describe the self-reported physical and psychosocial quality of life of school-age children with severe obesity. A second purpose was to examine the qualitative, descriptive comments of school nurses providing case management to these students to gain insight related to students' needs. This mixed-method approach provides a unique perspective because it includes school nurses' perceptions in conjunction with self-assessment of students. The following research questions were examined in this study:

- What is the quality of life of school-age children with severe obesity as measured by the Pediatric Quality of Life Inventory Version 4.0 Short Form (SF15)?
- How does the quality of life of school-age children with severe

obesity compare to the healthy pediatric population?

- What are the problems and concerns of students with severe obesity as identified by school nurses while providing case management to students with severe obesity?

Methods

Design

The study used a mixed-method retrospective descriptive study design. Researchers obtained previously collected data that included quantitative data measuring quality of life in school-age children and descriptive comments made by school nurses providing case management to the students.

Participants

The sample consisted of students who were enrolled in a larger statewide case management project for students with chronic illness. School nurses enrolled students with chronic illnesses who were having difficulty at school because their illness was affecting their learning or behavior. Data analyzed in this study are reflective of the subset of students who were severely obese and experiencing trouble at school due to obesity issues.

Procedure

During the case management program, school nurses followed a protocol that included assessment, setting individualized goals with the student, nursing interventions, and evaluation of goals with the student (Engelke, Guttu, & Warren, 2009). The protocols were developed through collaboration with school nurses and based on the *Scope and Standards of School Nursing* (American Nurses Association [ANA] & NASN, 2005). Registered nurses who were employed by 21 school districts in North Carolina enrolled students. All nurses were direct care providers and served students in one to four schools. Data were collected during the 2009-2010 and 2010-2011 school years.

The original study was approved by the East Carolina University and Medical Institutional Review Board. Enrollment procedures, including ethical considerations and individual components of case management, are described in previous studies (Engelke, Guttu, Warren, & Swanson, 2008;

Engelke, Swanson, & Guttu, 2014; Engelke, Swanson, Guttu, Warren, & Lovern, 2011).

Nurses entered data on a secure server housed at the university. As a part of the protocol, students completed a Quality of Life Instrument at the beginning of case management. In addition, school nurses entered descriptive comments during the intervention phase of the case management. These data were used in this study.

Instrumentation

Quality of life for children with obesity was measured by the Pediatric Quality of Life Inventory Version 4.0 SF15, which is a shortened version of the 22-item PedsQL 4.0 Generic Core Scales (Varni, Seid, & Rode, 1999). The internal consistency of the SF15 was above the threshold of 0.7 and demonstrated consistently with the original instrument. Construct validity was demonstrated by the scale's ability to differentiate healthy children from children with a variety of health conditions, and its correlation with measures of morbidity and illness burden (Varni et al., 2003; Varni, Seid, & Kurtin, 2001). These findings were consistent in the abbreviated version (Chan, Mangione-Smith, Burwinkle, Rosen, & Varni, 2005) used in this study. This instrument measures health-related quality of life, and consists of physical health (5 items), emotional functioning (4 items), social functioning (3 items), and school functioning (3 items). Each subscale (except physical health) can be combined into a 10-item subscale called psychosocial health.

There are three versions of the instrument depending on the child's age (5 to 7 years; 8 to 12 years; 13 to 18 years). The instrument used a Likert-type format that asks the child to report if an item is a problem 0 (never), 1 (almost never), 2 (sometimes), 3 (often), or 4 (almost always). The instrument version for children from 5 to 7 years of age uses smiling faces rather than words, and responses are ranked 0 (not at all), 2 (sometimes), or 4 (a lot). For scoring, responses are transformed to 100, 75, 50, 25, and 0, resulting in a range of 0 to 100, with higher scores indicating better quality of life. As a part of instrument development, the authors of the instrument established norms for the healthy pediatric population that have been used in numerous studies to compare the quality of life

Table 1.
Characteristics of the Sample
(N=37)

Characteristic	n	%
Sex		
Female	24	65
Male	13	35
Race/Ethnicity		
Caucasian	21	57
African American	9	24
Other	7	19
Grade level		
1 to 5	20	54
6 to 8	9	24
9 to 12	8	22

of healthy children and adolescents to those with different chronic illnesses (Varni, 2018).

Data Analysis

Quantitative data were analyzed using Statistical Package for the Social Sciences (SPSS) version 23. Data from descriptive comments written by school nurses were analyzed qualitatively using content analysis to identify common themes. Krippendorff (2013)

defined content analysis as "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (p. 24). This type of analysis allows narrative data to be coded and grouped based on shared concepts to identify common themes. Sandelowski (2000) described that content analysis is an ideal analysis approach in qualitative descriptive research. Descriptive comments written by school nurses were reviewed in detail by the investigators. Steps of analysis in the study were that descriptive comments were read; codes, categories, and themes were identified; and analysis was validated by peer researchers. Three researchers independently read descriptive comments and coded data. After independent analysis, the group met to further develop categories and themes. Researchers discussed themes until consensus was achieved.

Results

The sample consisted of 37 students from 15 counties across the state receiving case management by the school nurse. The sample was primarily female (65%) and Caucasian (57%). Demographic characteristics of the sample are summarized in Table 1.

In this study, internal consistency reliabilities for quality of life total score (Cronbach's $\alpha=0.82$), physical health summary (0.79) and psychosocial health (0.77) were adequate for comparison to the established norms for the healthy pediatric population. The quality of life total mean score ($M=59.8$, $SD=17.2$) was significantly lower when compared to the established norms for healthy children ($M=86.2$, $SD=11.2$, effect size=0.235). Similar results were found for physical health ($M=61.0$, $SD=25.1$ vs. $M=91.7$, $SD=10.7$, effect size=0.287) and psychosocial health ($M=59.2$, $SD=17.5$ vs. $M=83.3$, $SD=13.7$, effect size=0.176). Effect sizes were calculated using Eta Squared. Each comparison was found to have a large effect size. Specific items related to physical health that were the lowest were difficulty participating in sports activity or exercise and difficulty running, while "worry about what will happen to me" was the most frequent psychosocial concern. Results are reported in Table 2.

As described in Table 3, there were no statistically significant differences in quality of life based on grade level, most likely due to the small sample size. However, each effect size was moderate, suggesting that students with obesity in grades 9 to 12 have lower physical, psychosocial, and

Table 2.
PedsQL Means, Standard Deviations, and Frequency of Problem (N=37)

Problem	Item		Frequently		Sometime		Rarely	
	M	SD	n	%	n	%	n	%
Physical Health								
It is hard for me to walk more than one block.	64.2	35.6	8	22	9	24	20	54
It is hard for me to run.	46.0	37.0	13	35	14	38	10	27
It is hard for me to do sports activity or exercise.	52.0	34.0	12	32	12	32	13	35
It is hard for me to lift something heavy.	64.9	33.6	7	19	10	27	20	54
It is hard for me to do chores around the house.	78.4	29.6	3	8	8	22	26	70
Psychosocial Health								
I feel afraid or scared.	68.2	23.3	2	5	16	43	19	51
I feel sad or blue.	60.1	28.5	6	16	17	46	14	38
I feel angry.	58.1	27.7	7	19	16	43	14	38
I worry about what will happen to me.	33.6	33.6	13	35	11	30	13	35
I have trouble getting along with other kids.	60.8	30.9	6	16	14	38	17	46
Other kids tease me.	52.7	32.7	9	24	7	19	21	57
It is hard to pay attention in class.	64.2	33.1	9	24	7	19	21	57
I forget things.	53.4	32.9	9	24	16	43	12	32
I have trouble keeping up with school work.	64.9	30.3	7	19	13	35	17	46

Table 3.
Quality of Life Scores per Grade Level and Total Sample (N=37)

Grade Level	n	Physical		Psychosocial		Total	
		M	SD	M	SD	M	SD
1 to 5	20	68.5	20.0	59.6	17.5	62.6	16.4
6 to 8	9	57.2	23.6	66.1	15.5	63.1	13.3
9 to 12	8	46.9	33.2	50.3	17.6	49.2	20.9
Total Group	37	61.0	25.1	59.2	17.5	59.8	17.2
p-Value		0.101		0.177		0.142	
Eta Squared		0.13		0.10		0.11	

Table 4.
Physical and Psychosocial Struggles

Physical Struggles	Psychosocial Struggles
"Has difficulties with physical tasks."	"She has been teased about her weight."
"Having leg/knee pain."	"Family laughed about him measuring his food."
"He often talks about sore legs and knees, and chest pains."	"Says other children make fun of her...and call [her] fat."
"Refer to cardiologist. Mom called about blood pressure and chest pain."	"Reports that she wants people to accept her as she is."
"Walking down the hall is tremendous exertion."	"Student seems sad a lot."
"She struggles climbing the two steps at the smart board."	"Reported he is afraid he will die due to all of his fat."
"He struggles to sit on the floor during class."	"A classmate has been teasing about her weight."
"On field trips, it is hard for her to keep up, especially on walking trips."	"Cries a lot. Kids call her fat. She eats a lot when not hungry."
"Tires easily but is willing to participate in physical activity."	"Very low self-esteem."
"Student has some problems keeping up physically with other students."	"At times this makes her very depressed."

total quality of life than students in grades 1 to 5 or 6 to 8.

Qualitative descriptive comments made by school nurses were coded and grouped into two themes that paralleled the subscales of the PedsQL. Themes were identified as physical challenges and psychosocial challenges. These findings are summarized in Table 4. Physical challenges were related to physical limitations of students during school activities. This included intolerance of activities during the school day and physical complaints of pain. School nurses noted that even simple tasks were a problem. These students experienced pain in their joints as well as chest pain. They had difficulty with daily school activities, such as climbing stairs and participating in exercise. Even a trip to the Smart Board to participate in class was difficult. One nurse noted that a referral to a cardiologist was in progress.

Psychosocial challenges included being teased, fear, sadness, desire for acceptance, low self-esteem, and depression. In some cases, not only peers but also family members teased students; in one instance, the nurse noted that family members made fun of a student who was measuring food intake. The qualitative descriptive data provided by school nurses support physical and psychosocial health concerns reflected by the quantitative data, and provide insight to interpretations of the quantitative measures.

Discussion

This study examined quality of life in school-age children with severe obesity. Children in this sample reported substantially lower quality of life when compared to the healthy pediatric population. This finding is consistent with previous research (Friedlander, Larkin, Rosen, Palermo,

& Redline, 2003; Kolotkin et al, 2006; Maher, Hesketh, Williams, Waters, & Wake, 2005; Modi et al., 2008; Morrison et al., 2015; Schwimmer, Burwinkle, & Varni, 2003; Swallen, Reither, Haas, & Meier, 2005; Trevino et al., 2013; Wallander et al., 2013). The large effect sizes suggest that observed mean differences in this study are noteworthy, and living with severe obesity is a burden for the children in this sample. There is some indication that quality of life is lower in students in high school compared to younger students. This finding is consistent with previous studies (Modi et al., 2008; Swallen et al., 2005).

Qualitative, descriptive comments of school nurses provide insight into the physical and psychosocial struggles affecting quality of life, and this has not been described previously. Because a school nurse is often the only health professional seen by stu-

dents on a regular basis, the school nurse is in a unique position not only to assess students in their natural environment, but to also provide interventions. Most health professionals who care for children and adolescents do so on an episodic basis. They are unlikely to observe the natural environment experienced by students at school. This finding supports the importance of including the school setting and school nurses in interventions that address severe obesity.

Limitations

The size of the sample was not large enough to test the effectiveness of the case management intervention; this needs to be addressed in future studies with larger samples. Although this study had a small sample size, students who were included represent a unique population in that these students are severely obese and struggling in school. We did not measure BMI; however, this measure would be useful in future studies to determine if the relationship between BMI and quality of life varies based on a heterogeneous sample of students who are overweight or obese. We know anecdotally from school nurses regarding the selection process for case management that our sample represents students who are severely obese and have co-morbidities that limit their physical activity and peer interactions, impacting their performance at school. Future studies should also collect more detailed information on co-morbidities, family support, and the school environment to determine the impact of these factors on quality of life.

Practice Implications

This study provides a better understanding of the quality of life in school-age children with severe obesity and gives insight into a day in the life of a student living with severe obesity. School-based interventions for obesity typically focus on aspects related to diet and physical activity (Ickes et al., 2014; Johnston et al., 2013; Kanyamee et al., 2013; Llargues et al., 2011; Manger et al., 2012; Pbert et al., 2013; Sachetti et al., 2013; Walther et al., 2009; Wong & Cheng, 2013). However, these students also struggle with simple physical activities, such as climbing stairs and walking down the hall, in addition to psychosocial struggles, such as being

teased about their weight. School personnel need to be aware of these issues and be sensitive to environmental interventions that might reduce barriers experienced by these students, such as creating a class schedule that recognizes their mobility issues.

Although the long-term goal is to increase physical activity, these students may be at a low level of physical health. This is important to acknowledge. School nurses and school personnel should build a caring relationship with the student, and then gradually increase physical activity. School nurses demonstrate their ability to not only assess quality of life at school, but they also have supportive, long-term relationships with these students. They are an important link between the school system and healthcare system. Group interventions may also be successful in helping students with obesity because peer support is critical in decreasing the bullying experienced by these students. If several students have severe obesity in a school, the school nurse can facilitate such an intervention. Teaching about diet and exercise without addressing the low self-esteem and physical challenges experienced by these students is unlikely to be as successful as when these issues are included in a more holistic program that includes the school nurse. Combining an evidence-based obesity intervention, along with environmental interventions previously discussed, may be a way to help severely obese students function optimally in school.

The school nurse has the skills and scope of practice to provide evidence-based interventions, but the intervention must be tailored to the complex role of the school nurse. The most effective interventions involving school nurses use a modular approach that can be delivered in short sessions to accommodate learning activities during the school day (Powell et al., 2017). One such intervention is the Let's Go 5-2-1-0 program that uses modules to teach the importance of diet and activity (Let's Go, 2016). This program has been used effectively by school nurses collaborating with nursing students to implement the school-based obesity intervention program (Tucker & Lanningham-Foster, 2015). One community-based obesity treatment using the Children's Obesity Treatment protocol improves the quality of life in children and adoles-

cents (Mollerup et al., 2017). The Children's Obesity Treatment protocol is family-centered and includes visits to the pediatrician with instructions influencing diet and sleep (Holm et al., 2011). In addition, although we were unable to test the effectiveness of case management or care coordination provided by the school nurse because of the small sample, this is another promising area for both research and practice.

Pediatric nurses and school nurses are in unique positions to identify and address daily challenges experienced by obese children, as well as leading obesity interventions in children's daily settings. A partnership between the school nurse, counselor, physical education specialist, pediatrician, pediatric clinic nurse, nutritionist, and other key professionals is likely to be more successful than an educational program that is only focused on diet and exercise. Involvement of the school nurse allows for direct observation of the student during the school day to recognize strengths and challenges of individual students, and the school nurse is a valuable asset to address the specific needs of students.

Conclusion

In summary, school-age children with severe obesity experience lower quality of life and deal with both physical limitations and psychosocial concerns daily. These students can benefit from tailored interventions that address psychosocial well-being, in addition to physical health interventions that improve quality of life. Pediatric nurses in acute care or clinic settings, in addition to school nurses, are well positioned to participate in collaborative efforts to provide school-based interventions for these students. ■

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