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## **Childhood Obesity: A Survey of the Nutrition and Physical Activity Components of the Coordinated School Health (CSH) Program in Rural Tennessee**

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**Abstract.** With the rise in childhood overweight and obesity rates in the United States, understanding the issue has become of mainstay importance. This study provides insight into the nutritional knowledge and related health perceptions of parents' whose children have participated in a Coordinated School Health (CSH) program in rural Tennessee. Surveys were distributed between two elementary grade level school systems in Washington County, Tennessee, to serve the need of interpreting the knowledge, values, and ideas on childhood health regarding CSH program effectiveness. While our findings across both schools revealed moderate levels of parental knowledge on health and nutritional issues, we also identified several disparities surrounding knowledge about the childhood overweight and obesity issue. Based on these results, we conclude that schools in rural areas may benefit from the implementation of a periodic assessment gauging parental knowledge and attitudes. In turn, understanding where these gaps exist may help CSH program administrators identify possible program modifications, provide targeted resource support to parents, and, ultimately, address stalling body mass index improvement rates among students who live in rural areas.

**Keywords:** childhood overweight, childhood obesity, nutritional issues, CSH program, rural social work

### **Introduction**

Childhood overweight and obesity is a significant public health problem that is associated with various diseases and increases the chances of obesity in adult life (Center for Disease Control and Prevention, 2017; Freedman et al., 2007). Increasingly, children are diagnosed with chronic diseases previously associated with adulthood such as diabetes and hypertension due to obesity (Lakshman et al., 2012). In 2012, it was estimated that over 30% of children in the United States (U.S.) are either overweight or obese (Center for Disease Control and Prevention, 2017). Additionally, the prevalence of childhood obesity has more than doubled in children and quadrupled in adolescents in the past thirty-years (National Institute of Diabetes and Digestive and Kidney Diseases, 2017). As a result, the report *Healthy People 2020* aims to stop the increasing trajectory of childhood overweight and obesity through programs and policies such as increased screening, education, and enhanced dietary guidelines (Office of Disease Prevention and Health Promotion, 2016).

In this respect, there is an urgent need for interventions to address childhood overweight and obesity in high prevalent areas including solutions involving both children and parents (National Center for Chronic Disease Prevention, 2012). While obesity is a national problem, it is not equally distributed across individual states and county/city localities (Wolch et al., 2011). Specific rural regions in the Midwest and South have much higher rates of obesity than other parts of the country. With this in mind, it is urgent to address childhood weight issues in areas afflicted with a high prevalence of childhood weight disparity, which is ultimately connected

with the more extensive epidemic in the U.S. (Moreno et al., 2013). Importantly, while knowing that rural areas are suffering from worse health outcomes, social workers should also be keenly aware of this distinction (Daley, 2015; Ginsberg, 2011). Inter-professional collaboration could then persist with the hope of improving issues such as childhood obesity.

The purpose of this study is to provide an examination of the effectiveness of the Coordinated School Health (CSH) program, a program meant to reduce childhood health disparity in school systems. This is accomplished by examining parental knowledge and perceptions of childhood obesity in rural, Northeast Tennessee. Parents are a contributing factor to childhood weight issues through both their eating behaviors and hereditary dispositions (e.g., blood cholesterol) (Huffman et al., 2010). Parental knowledge matters as the choices they make shape their child's behavioral and nutritional habits, meaning that those who are obese in childhood are more likely to continue being obese into adulthood (Gruber and Haldeman, 2009). Based on this information, this study seeks to understand the parental engagement and knowledge in the CSH programs with a focus on childhood nutrition and health.

Surveys were distributed between two elementary schools in Washington County, Tennessee (Grandview Elementary and Jonesborough Middle School), to serve the need of interpreting the knowledge, values, and ideas on childhood health regarding CSH program effectiveness. The sample was randomly chosen based on elementary schools participating in CSH programs and resources available to conduct the study. We used the survey as a tool to specifically discover health behaviors at home which, in turn, may affect CSH effectiveness. Additional socioeconomic factors are considered throughout the paper to consider other geographical impacts on childhood obesity.

## Background

The risk factors for overweight and obesity range from individual genetic characteristics to maternal behavior, and socioeconomic, psychosocial, and environmental factors (Faith & Kral, 2006). On a physical level, weight problems in children can develop into non-communicable diseases such as diabetes and cardiovascular disease at a much younger age than originally observed. On a psychological level, social and emotional well-being can be altered, academic performance can be lower, and overall poorer quality of life experienced by a child is associated with weight issues (Sahoo et al., 2015). Additionally, psychological problems like depression and eating disorders are far more likely to develop in the future (Dietz, 1998). Because of these ensuing issues, weight related issues have brought forth a greater use of social services (James, 2004).

Various policies and programs have been developed and implemented at the federal, state, and local levels in the U.S. to address the underlying risk factors for overweight and obesity in order to stop the increasing trend (Meade, 2014). A key school-based program to address childhood overweight and obesity is the CSH program (Tennessee Coordinated School Health, n.d.). This program has eight components: health education, physical education, health services, nutrition services, counseling, psychological support, health promotion for staff, and community involvement (Tennessee Coordinated School Health, n.d.).

While many studies have demonstrated the effectiveness of school-based programs in changing the behavior of school-going children towards better nutrition and physical activity, including the CSH, little is known about the effectiveness of CSH in rural communities such as those in Northeast Tennessee (Vander Ploeg et al., 2014). It is important to be aware that although parents and schools may value children's health overall, there may be other contextually dependent factors inhibiting the success of the programs in rural areas. These barriers may include access to care, poverty, among other socioeconomic influences (Sobo et al., 2006; Wang & Luo, 2005).

Moreover, because an integral part of the CSH program is community involvement which enables healthier norms to manifest and persist (Carman et al., 2013; Karasek, Ahern et al., 2012; VanderEnde et al., 2012), it is essential to understand and gauge parental knowledge of childhood obesity issues and identify effective community engagement strategies. Many factors in the community setting play a role in childhood health such as the people within, the built environment, and values of the overall geographic boundary (Wolch et al., 2011). Specific to childhood weight and health, communities aid in encouraging physical activity, providing recreational opportunities, and setting food supply choices with healthy options (Kraak et al., 2005). To fill the gap in the existing literature, we conducted an investigation into childhood overweight and obesity in rural communities in Northeast Tennessee.

Overall, Tennessee has the fifth highest rate of childhood obesity in the U.S. with 20.5% of children in the state being obese (Nashville Public Television's Children's Health Crisis, n.d.). Trending in line with other states across the nation, rural areas in Tennessee tend to mirror worse childhood health. To aid in this issue, CSH was implemented in Tennessee in 2001 (Tennessee Coordinated School Health, n.d.). While a dearth of research examines obesity and CSH programming in rural communities, this study seeks to further our understanding of parents' education and knowledge about their children's health and how it could lead to better selection of lifestyle choices for them.

As mentioned previously, the CSH program is broken down into eight major components at the school-level (Tennessee State Government, 2007). A component of the CSH is the involvement of parents, families, and community (Tennessee State Government, n.d.). In the beginning stages of the CSH program, there was an initial decrease in BMI (years 2007-08 to years 2013-14), but the numbers have stalled since for many counties. Perhaps the decrease is, in part, associated with lower parental knowledge in a given area (Tennessee State Government, 2016).

Parental and family knowledge is a key factor in promoting their child's health. Aside from being one of the major eight components, parental knowledge can serve to reinforce and promote each of the other seven areas. This study is important because parents' education and knowledge about their children's health could lead to better lifestyle choices being made for them. As such, this study aims to provide insight into parents' involvement in the CSH program and to inform national, state, and local policies geared towards addressing overweight and obesity through school-based programs. By identifying these areas, schools may be able to better address the stall in progress by using their inter-professional resources, such as social services and the CSH program.

## Methods

Across 141 school districts during the 2015-16 school year, 312,386 students were enrolled in Tennessee public schools, grades Kindergarten, second, fourth, sixth, eighth, and first year grade levels in high schools participated in CSH programming. Focusing on rural school districts, this study examines two schools in Washington County, Tennessee. Recent statistics show that Washington County has made considerable progress in reducing childhood obesity. However, improvement in student Body Mass Index (BMI), like in many other Tennessee school districts has leveled-off. While obesity in this district dropped from 40.7% in 2007-08 to 35.6% in 2013-14, BMI levels have hovered around this mark. To better understand this stall, we seek to gauge baseline levels of parental knowledge and awareness of the primary determinants of childhood obesity. By identifying areas of strong and/or weak areas of parental knowledge and awareness contributing to CSH outcomes, stakeholders may be in a better position to identify additional obesity-reducing programs.

Two-specific schools, Jonesborough Middle School and Grandview Elementary school, were selected for this study for two reasons. First, previously established relationships with officials at those schools helped to facilitate data collection for this study. Second, both schools contain relatively similar demographic profiles to the 13 other schools within the Washington County school district. In 2015, Jonesborough Middle School (JMS) contained 428 students while Grandview Elementary (GE) contained 599 students (Public School Review, 2016a; Public School Review, 2016b). After obtaining site permission from school district officials, we distributed survey questionnaires to 70 randomly selected sixth-grade students exposed to CSH programming within each school. Although a sample from all participating grades would have been optimal, we chose sixth graders since many were likely exposed to available CSH programming over multiple years of implementation (since kindergarten). Among sixth-grade populations at JMS and GE, 105 (93.3%) and 67 (95.5%) were Caucasian, respectively.

To obtain parental permission, selected students were asked to take surveys home, which were then voluntarily completed by their parent/guardian within two weeks and returned to either the school nurse or their homeroom class teacher. All instructions were clearly communicated in the informed consent form that was attached to the questionnaire. In all, there were three school visits by the research group: the first visit was to gain administrative approval from the school nurses and principals, the second visit was to distribute the questionnaires, and the third visit was to collect the completed surveys.

The survey consists of 20 questions with a mixture of both multiple choice and ranking type questions. The questionnaire explores parental perceptions, awareness, and attitudes towards the subject of childhood obesity, the role played by physical activity, and the qualitative aspects of food and nutrition. The survey also included questions designed to capture parental evaluation of the role schools plays in combating childhood obesity. Table 1.1 provides the survey questions that were utilized. Surveys were fully completed by 18 (17.1%) parent/guardians at JMS and 18 (26.9%) parent/guardians at GE.

Table 1  
Survey Questions

<b>1. Please indicate the number of children you have living in your home in the following age brackets:</b>	
Number of children between 0 to 2 years	
Number of children between 3 to 7 years	
Number of children between 8 to 12 years	
Number of children between 13 to 15 years	
Number of children between 16 to 18 years	

**2. How concerned are you about children becoming overweight or obese?**

- Very concerned
- Concerned
- Not really concerned
- Not concerned at all

**3. How concerned are you about childhood obesity as a community issue?**

- Very concerned
- Concerned
- Not really concerned
- Not concerned at all

**4. Nutrition versus Physical Activity: Which do you think is more important for a child's health and well-being?**

- Nutrition
- Physical Activity
- Nutrition and Physical Activity are equally important

**5. How concerned are you about the amount of "screen" time (eg. playing video/computer games, television, internet) today's children are engaged in?**

- Very concerned
- Somewhat concerned
- Not really concerned
- Not concerned at all

**6. Should schools have a greater role in combating childhood obesity?**

- Yes
- No

**7. Are you currently looking for solutions (eg. products, services and information) for providing a healthier lifestyle for you and/or your family?**

- Yes
- No

<i>Please indicate whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statements:</i>			
<b>8. Some people are born to be fat and some thin; there is not much you can do to change it.</b>			
<input type="radio"/> Strongly agree	<input type="radio"/> Somewhat agree	<input type="radio"/> Somewhat disagree	<input type="radio"/> Strongly disagree
<b>9. What you eat can make a big difference in your chance of getting a disease, like heart disease or cancer.</b>			

<input type="radio"/> Strongly agree	<input type="radio"/> Somewhat agree	<input type="radio"/> Somewhat disagree	<input type="radio"/> Strongly disagree
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<b><i>Please indicate the level of importance for all of the following:</i></b>				
<b>When you buy food, how important is each of the following?</b>				
10. How safe the food is to eat	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
11. Nutrition (how healthy the food is)	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
12. Price	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
13. How well the food keeps	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
14. How easy the food is to prepare	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
15. Taste (whether the child likes the food)	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
<b><i>In your opinion, how important are the following things are to a child's present and future health?</i></b>				
16. What a child eats	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
17. How much a child eats	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
18. How much exercise a child gets	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant
19. What the child weighs	<input type="radio"/> Very important	<input type="radio"/> Somewhat important	<input type="radio"/> Unimportant	<input type="radio"/> Very unimportant

**20. Please include your general demographic information. It will help us make better sense of our results. This is optional.**

State: \_\_\_\_\_  
 County: \_\_\_\_\_  
 City: \_\_\_\_\_  
 Zip Code: \_\_\_\_\_  
 Age: \_\_\_\_\_  
 Gender: \_\_\_\_\_  
 Ethnicity: \_\_\_\_\_

### Results

Our survey questionnaire generated both nominal and ordinal data. For the purposes of data analysis, a transformation of the descriptive responses to quantitative data was completed by awarding relative points based on the appropriateness of response to the question asked. For

instance, if a parent was asked how important the role of nutrition and physical activity play in childhood obesity, a response such as “very important” was awarded four points, “somewhat important” was awarded three points, “unimportant” was awarded two points, and “very unimportant” was awarded one point. Results from 36 distinct households revealed that parents at both schools held relatively similar views regarding CSH programming.

All parents from both schools (n=36) indicated that their ethnicity were Caucasian and that their sex was female. Although any generalizations from this data are limited, overall results suggest moderate to strong parental knowledge and concern about issues related to nutrition and physical activity from both schools (See Table 2). While this study’s small sample size precluded testing to determine statistically significant school differences in parental knowledge, descriptive data does suggest several moderate to large divergences.

The first notable school difference in knowledge and attitudes was through the question asking parents if food safety was an important issue when buying food. All the parents from JMS (100%) thought food safety was very important, compared to 83% of parents from GE. Another difference in responses between the two schools was evident in the question on the importance of nutrition, where the majority of parents from JMS (72%) rated nutrition as very important, compared to 39% of GE parents who felt similarly. Similar alignment with this sentiment was captured when parents were asked to what extent they believed food could affect the chance of developing a disease. While 72% of JMS parents strongly agreed with this statement, only 50% of parental respondents at GE reported similar perceptions.

Accordingly, parents at JMS also tended to complement their nutritional knowledge and attitudes through their reported healthy behaviors. Whereas only 22% of GE parents noted that they were looking for healthier solutions at home, half of parental respondents (50%) at JMS were. However, one counterintuitive finding did emerge when parents were asked to gauge their belief that people were predisposed/born fat or thin. Surprisingly, 44% of GE parents responding to this survey strongly disagreed with this view, while only 22% of parental respondents at JMS felt the same. While our sample limits our ability to draw any causal connections to this discrepancy, we suggest a potential explanation in the following discussion section.

Ultimately, numerous similarities seem to exist between the two schools in terms of parental knowledge, attitudes, and beliefs concerning childhood obesity. However, responses also diverge in several areas. These differences may point not only to several immediate areas of improvement on CHS health indicators, but may help lead to an explanation of the current stalling of BMI rates observed in rural areas.

## **Discussion**

This study provides information on the knowledge and awareness of several key determinants of childhood and adolescent obesity in parents of elementary school children in two elementary schools in Washington County, TN. As mentioned, health behaviors develop early in life. As such, schools have been identified as a potential site for monitoring and advocating healthy behaviors (Moreno et al., 2013). Additionally, it is paramount to assess the views of the parents since they act as both the gatekeeper of the family food supply and the child’s first role



model of a healthy lifestyle (Howard, 2007). Given that the CSH program has a strong family and community involvement component, it is necessary to assess the degree of understanding of parents in relation to health behaviors such as encouraging physical education and providing nutritious meals. Furthermore, we want to ensure that health education information is being

Table 2  
Survey Responses

#	Question	Schools	Responses				
			0 to 2	3 to 7	8 to 12	13 to 15	16 to 18
1	Number of children living in your home by age	GE	0	4	28	5	2
		JMS	3	9	26	9	3
		Total	3.37%	14.61%	60.67%	15.73%	5.62%
2	Concern that child may become overweight/obese		Very Concerned	Concerned	Not Really	Not at all	
		GE	2	8	5	3	
		JMS	1	8	6	3	
Total	8.33%	44.44%	30.55%	16.66%			
3	Concern about childhood obesity in the community		Very Concerned	Concerned	Not Really	Not at all	
		GE	6	9	2	1	
		JMS	3	13	2	0	
Total	25%	61.11%	11.11%	2.77%			
4	More Important-Nutrition or Physical Activity		Nutrition	Physical	Equal		
		GE	0	2	16		
		JMS	1	1	16		
Total	2.77%	8.33%	88.88%				
5	Concerned about the amount of "screen" time		Very important	Somewhat	Not Really	Not at all	
		GE	6	9	1	1	1 N/A
		JMS	8	9	1	0	
Total	38.88%	50%	7.42%	3.7%			
			Yes	No			

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6	Should schools have greater role in preventing obesity	GE	11	6			1 N/A
		JMS	11	7			
		Total	61.11%	36.11%			
			Yes	No			
7	Are you looking for healthier solution at home	GE	4	14			
		JMS	9	9			
		Total	36.11%	63.88%			
			Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly disagree	
8	Some people are born to be fat and others to be thin	GE	0	4	6	8	
		JMS	1	4	9	4	
		Total	2.77%	22.22%	41.66%	33.33%	
			Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly disagree	
9	Can what you eat affect chance of disease	GE	9	6	1	2	
		JMS	13	5	0	0	
		Total	61.11%	30.55%	2.77%	5.55%	
			Very important	Somewhat important	Unimportant	Very Unimportant	
10	How safe the food it's to eat	GE	15	3	0	0	
		JMS	18	0	0	0	
		Total	91.66%	8.33%	0%	0%	
			Very important	Somewhat important	Unimportant	Very Unimportant	
11	How healthy the food is	GE	7	10	1	0	
		JMS	13	5	0	0	
		Total	55.55%	41.66%	2.77%	0%	
			Very important	Somewhat important	Unimportant	Very Unimportant	

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12	Price	GE	11	5	0	2
		JMS	9	8	1	0
		Total	55.55%	41.66%	2.77%	0%
			Very important	Somewhat important	Unimportant	Very Unimportant
13	How well food keeps	GE	7	10	1	0
		JMS	11	7	0	0
		Total	50%	47.22%	2.77%	5.55%
			Very important	Somewhat important	Unimportant	Very Unimportant
14	How easy to prepare	GE	2	10	3	3
		JMS	6	8	4	0
		Total	22.22%	50%	19.44%	8.33%
			Very important	Somewhat important	Unimportant	Very Unimportant
15	Taste of the food	GE	9	8	0	1
		JMS	13	5	0	0
		Total	61.11%	36.11%	0%	2.77%
			Very important	Somewhat important	Unimportant	Very Unimportant
16	What a child eats	GE	14	4	0	0
		JMS	15	3	0	0
		Total	80.55%	19.44%	0%	0%
			Very important	Somewhat important	Unimportant	Very Unimportant
17	How much a child eats	GE	12	6	0	0
		JMS	13	5	0	0
		Total	69.44%	30.55%	0%	0%
			Very important	Somewhat important	Unimportant	Very Unimportant
18	How much exercise	GE	11	7	0	0
		JMS	14	4	0	0

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		Total	69.44%	27.77%	0%	0%
			Very important	Somewhat important	Unimportant	Very Unimportant
19	What the child weighs	GE	5	12	1	0
		JMS	6	10	2	0
		Total	30.55%	61.11%	8.33%	0%

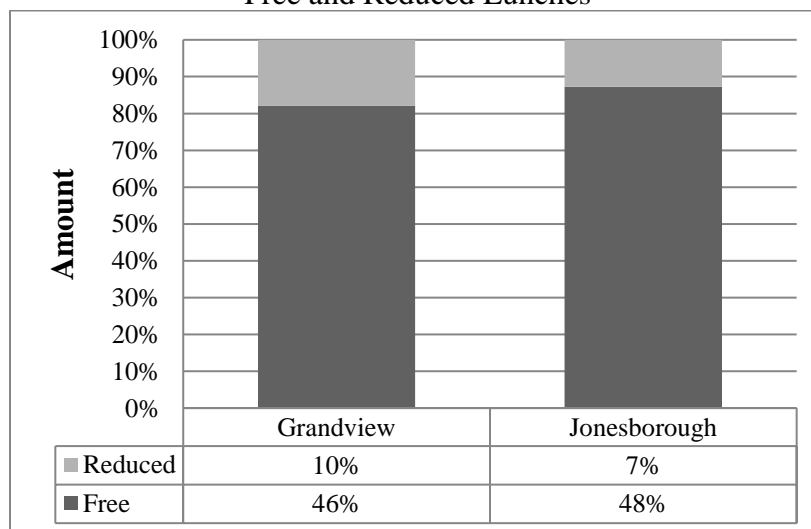
transitioned from the child to the parent by gauging parental involvement and knowledge in the two components we are measuring. This periodic assessment is critical for assessing the success or failure of the CSH program and identifying possible program modifications.

Results from our survey indicate that parents are aware of the determinants of obesity and are informed of the importance of proper nutrition and physical activity. We found that 100% of the parents who completed the survey found that what a child eats, how much a child eats, and how safe the food is to eat as either very important or somewhat important. Furthermore, parents also reported a concern about the amount of “screen time” their child uses and indicated that how much a child eats is also important. The survey results also indicated that parents were generally concerned about the prevalence of obesity in the community (86% reported very concerned/concerned). Parents were evenly divided on their concerns that their child might become overweight or obese with 52% indicating very concerned/concerned.

Moreover, results showed major confluence to the question of “Should schools have a greater role in preventing obesity?” Both schools responded with 61% yes to the question while JMS had a higher amount of want for healthier solutions for the home compared to GE (50% to 22%). It is clear that there is increased awareness for *better* nutrition between the schools; however, there still lies a significant difference in the answers regarding how it will occur. The question is: what is driving these differences?

Other main conclusions stem from the differences in survey answers between the two different schools (GE and JMS). The data suggest that these answers may have been driven by socio-economic statuses between the schools; however, our findings indicated otherwise. As an indicator, we used the school's overall eligibility for reduced or free lunches. Reduced and free lunches are based on household size and income. Figure 1 shows GE, with approximately 657 students, and JMS, with approximately 531 students, and the amount of students were eligible for free or reduced lunches (Public School Review, 2016a, 2016b). Therefore, the result was only a 1% difference between the schools.

Figure 1  
Free and Reduced Lunches



Given that JMS parents tend to regard nutrition, food safety, and health as more important, they may also be more aware of obesity stemming from genetic or hereditary factors (whether indirectly through seeking out educational resources, or directly through their own experiences at home). For a direct example, parents at JMS may have taken a more active role in their child's health, particularly if s/he was overweight. If those same parents engaged in healthy behaviors, yet their child remained overweight, they may logically conclude that additional factors outside of their control (e.g., genetics) may also be influencing their child's obesity levels. This same finding for GE may be counterintuitive, but it is also encouraging. Although GE parents tended to regard nutrition, food safety, and health as less important than their JMS counterparts, they do believe that people are not predisposed (or born) to become obese. Again, generalizations to the broader geographic region notwithstanding, the stalling in current obesity rates may not be because parents do not think they can change it, but because they simply do not know how. Connecting more broadly, there may be cultural, educational, and moral ties to the parents' knowledge base.

The study has several limitations. First, the sample size of completed questionnaires (n=36) limits the power of our study to generalize to other rural school districts. Second, the survey data is only representative of one point in time; leaving us unable to assess the parents' prior knowledge with regards to nutrition and physical activity, or how parental knowledge and attitudes have impacted obesity over time. Third, despite a predominantly white rural population, the data presented is only representative of white female parents. Assumptions should not be made as to the knowledge of male parents or parents of other ethnic backgrounds. Finally, we did not validate if the responses were indeed made by the parents/guardian of the child. Future programs must, however, continue to engage parents to help drive home the message of the health risks of childhood obesity. Nevertheless, data suggest that gaps in parental knowledge and attitudes of childhood health factors exist and should be addressed. Replication of this study could lead to the development of a broader understanding of the parents' knowledge associated with childhood obesity in rural areas.

## Conclusions

Childhood obesity and other weight issues are a major public health concern that is in need of intervention. Although this study explores some of the issues in the Northeast Tennessee region, the obesity problem is a consistent theme nation-wide. With the growing issue of weight gain in children, many other harmful effects can manifest. The role of CSH along with parental guidance, school systems, and social services play a major role in the education to children and parents about healthy nutrition and the need to be physically active. Health behaviors are developed at an early age; thus, it is necessary for all limbs of the body to be going forward in the same direction. In this case, it is the effectiveness of CSH programs as well as parental education. Intervention strategies such as those from CSH are influenced and sustained with the support of family, community, and other professionals such as social workers. The purpose of this study is to provide insight into parents' involvement in the CSH program by using a survey instrument in a rural area. Ultimately, findings from this study suggest that parents are aware of what causes obesity as well as the underlying issue of obesity in the community around them. Based on these findings, periodic assessment is suggested as a means to interpret the effectiveness of CSH programs and ways it can be improved.

## References

- Carman, K. L., Dardess, P., Maurer, M., Sofaer, S., Adams, K., Bechtel, C., & Sweeney, J. (2013). Patient and family engagement: a framework for understanding the elements and developing interventions and policies. *Health Affairs (Project Hope)*, *32*(2), 223–31. <https://doi.org/10.1377/hlthaff.2012.1133>
- Center for Disease Control and Prevention. (2017). Childhood Obesity Facts. Retrieved May 1, 2017, from <https://www.cdc.gov/obesity/data/childhood.html>
- Daley, M. R. (2015). *Rural social work in the 21st century*. Lyceum Books. Retrieved from <http://psycnet.apa.org/record/2014-35521-000>
- Dietz, W. (1998). Health consequences of obesity in youth: childhood predictors of adult disease. *Pediatrics*, *101*(Supplement 2), 518–525.
- Faith, M. S., & Kral, T. V. E. (2006). Social Environmental and Genetic Influences on Obesity and Obesity-Promoting Behaviors: Fostering Research Integration. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK19935/>
- Freedman, D. S., Ogden, C. L., Flegal, K. M., Khan, L. K., Serdula, M. K., & Dietz, W. H. (2007). Childhood overweight and family income. *MedGenMed : Medscape General Medicine*, *9*(2), 26.
- Ginsberg, L. H. (2011). *Social work in rural communities*. Council on Social Work Education.
- Gruber, K., & Haldeman, L. (2009). Using the family to combat childhood and adult obesity. *Prev Chronic Dis*. Retrieved from [https://www.cdc.gov/pcd/issues/2009/Jul/08\\_0191.htm](https://www.cdc.gov/pcd/issues/2009/Jul/08_0191.htm)
- Howard, K. R. (2007). Childhood Overweight: Parental Perceptions and Readiness for Change. *The Journal of School Nursing*, *23*(2), 73–79. <https://doi.org/10.1177/10598405070230020301>
- Huffman, F. G., Kanikireddy, S., & Patel, M. (2010). Parenthood--a contributing factor to childhood obesity. *International Journal of Environmental Research and Public Health*, *7*(7), 2800–10. <https://doi.org/10.3390/ijerph7072800>
- James, P. T. (2004). Obesity: the worldwide epidemic. *Clinics in Dermatology*, *22*(4), 276–80. <https://doi.org/10.1016/j.clindermatol.2004.01.010>
- Karasek, D., Ahern, J., & Galea, S. (2012). Social Norm, Collective Efficacy, and Smoking Cessation in Urban Neighborhoods. *American Journal of Public Health*. <https://doi.org/10.2105/AJPH.2011.300364>
- Kraak, V., Liverman, C., & Koplan, J. (2005). *Preventing childhood obesity: health in the balance*. National Academies Press.



- Lakshman, R., Elks, C. E., & Ong, K. K. (2012). Childhood obesity. *Circulation*, *126*(14), 1770–9. <https://doi.org/10.1161/CIRCULATIONAHA.111.047738>
- Meade, M. S. (2014). Medical Geography. In *The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society* (pp. 1375–1381). Chichester, UK: John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118410868.wbehibs204>
- Moreno, G., Johnson-Shelton, D., & Boles, S. (2013). Prevalence and prediction of overweight and obesity among elementary school students. *The Journal of School Health*, *83*(3), 157–63. <https://doi.org/10.1111/josh.12011>
- Nashville Public Television’s Children’s Health Crisis. (n.d.). Obesity: Childhood Obesity Rates in TN. Retrieved June 12, 2016, from <http://www.nptinternal.org/productions/chcv2/obesity/rates.html>
- National Center for Chronic Disease Prevention. (2012). Overweight and Obesity -Tennessee State Nutrition, Physical Activity, and Obesity Profile. Retrieved from <https://www.cdc.gov/obesity/stateprograms/fundedstates/pdf/tennessee-state-profile.pdf>
- National Institute of Diabetes and Digestive and Kidney Diseases. (2017). *Overweight and Obesity Statistics*. Retrieved from <http://www.niddk.nih.gov/health-information/health-statistics/Pages/overweight-obesity-statistics.aspx>
- Office of Disease Prevention and Health Promotion. (2016). *Nutrition and Weight Status. HealthyPeople.gov*. Washington D.C. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/nutrition-and-weight-status>
- Public School Review. (2016a). Grandview Elementary School Profile. Retrieved March 19, 2016, from <http://www.publicschoolreview.com/grandview-elementary-school-profile/37690>
- Public School Review. (2016b). Jonesborough Elementary School Profile. Retrieved March 19, 2016, from <http://www.publicschoolreview.com/jonesborough-elementary-school-profile>
- Sahoo, K., Sahoo, B., Choudhury, A. K., Sofi, N. Y., Kumar, R., & Bhadoria, A. S. (2015). Childhood obesity: causes and consequences. *Journal of Family Medicine and Primary Care*, *4*(2), 187. <https://doi.org/10.4103/2249-4863.154628>
- Sobo, E. J., Seid, M., & Reyes Gelhard, L. (2006). Parent-identified barriers to pediatric health care: a process-oriented model. *Health Services Research*, *41*(1), 148–72. <https://doi.org/10.1111/j.1475-6773.2005.00455.x>
- Tennessee Coordinated School Health. (n.d.). Coordinated School Health. Retrieved March 19, 2016, from <http://www.tennessee.gov/education/topic/coordinated-school-health>
- Tennessee State Government. (n.d.). CSH Background and History - TN.Gov. Retrieved June 5,

2017, from <http://www.tennessee.gov/education/article/csh-background-and-history>

Tennessee State Government. (2007). *Tennessee Coordinated School Health*. Nashville, TN. Retrieved from [http://www.tennessee.gov/assets/entities/education/attachments/csh\\_flyer.pdf](http://www.tennessee.gov/assets/entities/education/attachments/csh_flyer.pdf)

Tennessee State Government. (2016). *Tennessee Public Schools: A summary of weight status data, 2015 - 16 school year*. Nashville, TN. Retrieved from [http://www.tennessee.gov/assets/entities/education/attachments/csh\\_bmi\\_school\\_summary\\_2015-16.pdf](http://www.tennessee.gov/assets/entities/education/attachments/csh_bmi_school_summary_2015-16.pdf)

Vander Ploeg, K. A., Maximova, K., McGavock, J., Davis, W., & Veugelers, P. (2014). Do school-based physical activity interventions increase or reduce inequalities in health? *Social Science & Medicine* (1982), 112, 80–7. <https://doi.org/10.1016/j.socscimed.2014.04.032>

VanderEnde, K. E., Yount, K. M., & Dynes, M. M. (2012). Community-level correlates of intimate partner violence against women globally: A systematic review. *Social Science & Medicine*, 75(7), 1143–1155.

Wang, F., & Luo, W. (2005). Assessing spatial and nonspatial factors for healthcare access: towards an integrated approach to defining health professional shortage areas. *Health & Place*, 11(2), 131–146.

Wolch, J., Jerrett, M., Reynolds, K., McConnell, R., Chang, R., Dahmann, N., & Berhane, K. (2011). Childhood obesity and proximity to urban parks and recreational resources: a longitudinal cohort study. *Health & Place*, 17(1), 207–14. <https://doi.org/10.1016/j.healthplace.2010.10.001>