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STRATEGIES FOR MANAGING CHILDHOOD OBESITY IN PRIMARY SCHOOLS IN THE CAPE COAST METROPOLIS OF GHANA

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ABSTRACT

Childhood obesity is a critical global public health issue due to its association with psychological, social, economic and health problems. This study explored the potency of using teachers in managing childhood obesity among primary school pupils in a Ghanaian Metropolis, Cape Coast. Structured questionnaire were used for data collection. A multi-stage sampling procedure was used to select 133 teachers as respondents for the study. Analyses were done using descriptive statistics (frequencies, percentages, means and standard deviations. The study revealed that teachers were appreciably aware of and had useful perceptions of childhood obesity which could be built upon by way of interventional strategies to curb obesity among the school pupils.. These included physical activity-based strategies and dietary-based strategies such as: children being allowed to play and run around during break periods (91.7%); no foods, sweets and drinks being allowed in the classroom during lessons (84.1%); and existence of a school policy that guides the type of foods sold on school premises (72.0%). However, the teachers needed to be supported to effectively manage the phenomenon in the school environment. School authorities could develop policies on sale of food and snacks on school premises and ensure adherence to the policies through strict enforcement.

Contribution/ Originality: The paper's primary contribution is the finding that teachers were appreciably aware of and had useful perceptions of childhood obesity which could be built upon by way of interventional strategies to curb obesity among primary school children.

1. INTRODUCTION

Childhood obesity occurs when a child is well above the normal weight for his or her age and height. Obesity in children is a serious medical condition which has negative effects. It is usually characterized by the abnormal accumulation of excess fat stored in the body to the point where it impedes the health of the child and causes diseases and death that could be prevented (Mayo Clinic Foundation for Medical Education and Research, 2000). Globally, the prevalence rates of childhood obesity are growing into a pandemic among high, middle, and low income countries with an estimated 42 million children classified as obese or overweight (World Health Organisation, 2012).

Obesity in children has been found to be a very serious nutritional challenge since it leads to the development of health complications such as high cholesterol, early signs of high blood pressure, breathing difficulties (asthma),

early markers of cardiovascular diseases (metabolic syndrome), sleep disorders and others (Biritwum, Gyapong, & Mensah, 2005; Truswell, 2003). Obesity has shown to have effects on grades of students, attendance, illness in the school setting, and high rates in school dropout (Taras & Potts-Datema, 2005). In recent years, schools are increasingly becoming more populated with overweight students and school leaders are tasked with educational concerns that are linked with the incidence of obesity (Aceves-Martins, Llauradó, Tarro, Solà, & Giralt, 2016). The use of several strategies by schools to support academic excellence and general wellbeing has been an on-going process in many countries, including Ghana.

Research on obesity recently focused more on school-age population and investigated its trends regarding how youth and teens appear to be managing their health (Budd & Volpe, 2006). As the rate of obesity keeps increasing among adults with its numerous health consequences, questions on its effect on children have been prompted. Research indicates that in 2003 and 2004, 18.8% of children, aged six to eleven years old, and 17.4% of adolescents, aged 12-19 years old were considered obese (Thompson, Yaroch, Moser, Finney Rutten, & Agurs-Collins, 2010). Literature has highlighted some strategies that have potentials for schools to address childhood obesity: physical activity and nutrition through a Coordinated School Health Program (CSHP) approach, maintaining an active school health council, strengthening the school's nutrition and physical activity policies, increasing opportunities for students to engage in physical activity, encouraging healthy choices in foods and beverages provided within the school and outside the school. Additionally, many teachers now provide students with opportunities for physical activity in the classroom as part of planned lessons that teach mathematics, language arts, and other academic concepts through movement (Kohl, Noble, & Hunter, 2001).

Another strategy used to reduce this nutritional challenge is by educating the children on healthy alternatives rather than put a negative connotation on the choices they are currently making (Benjamins & Whitman, 2010). Some of these strategies used by schools have indicated unquestionable results by showing significant increases in grade point average, academic involvement, attendance, improving self-image, and reducing dropout rates (Okunade, Hussey, & Karakus, 2009), but teachers' strategies in managing childhood obesity in basic schools in Ghana is inadequately researched.

In Ghana, the government introduced some programs such as the School Feeding Program to provide meals to children on a daily basis supervised by teachers. This program was initiated as a tool to keep children in school but alternatively it has effectively served as a strategy to provide healthy choice of food to the children, thus helping to reduce their intake of calorie dense foods. Teachers, act as initiators, questioners, recorders, observers, instructors, facilitators, model guides and evaluators. These roles played by teachers provide them with the opportunity to interact with children. Therefore, they can be empowered with possible strategies to act as tools in their respective roles played in schools to help them facilitate the rampant growth of childhood obesity. Since a large chunk of children's time today is spent with their teachers in school, they (teachers) can ensure that children spend most of their time being physically active as well as ensuring that foods children consume during school hours are healthy and nutritious.

The potential role played by teachers in the developmental stages of children has been an issue requiring insight particularly on the challenges of obesity. Additionally, it seems parents tend to be pleased with their children being overweight which makes many individuals in our society comfortable with obesity. This nutritional challenge is therefore not taken up as a serious issue to be tackled even though reports from the Ghana Health Service indicate that childhood obesity has grown at an alarming rate of 3.1% (The Ghana Demographic and Health Survey (GHDS), 2014). According to the GDH, regions which reported high levels of the incidence of childhood obesity were Greater Accra 5.2%, Central 4.6%, and Volta 4.2%.

A visit by the lead researcher to some health and fitness centres (gyms) around the Cape Coast Metropolis of the Central Region of Ghana in 2016 showed that parents who visited the place came there with their children from basic school levels. The researchers thus made some interactions with the gym instructors and it was revealed

that the parents wanted to keep their children physically active to help reduce their weight and burn the calories they normally consume. This simple explanation inspired the researcher's interest in finding out how best this nutritional challenges' rapid growth among children could be reduced with the help of their teachers. Since experience and literature indicate that teachers in their capacity have more influence on children as they spend more time with them than their parents. Moreover, socially and psychologically school children with obesity are affected and suffer low self-esteem, bullying, depression and also behaviour and learning problems (Benjamins & Whitman, 2010). It could therefore be said that this situation has the potential of causing a decrease in grade point averages, attendance, quality of life, and body self-image across the nation. Again, obesity in children could affect their levels of participation in school activities leading them to display a lack of interest in school and the motivation to form social relationships.

Whilst teachers have direct interaction with the children in the classroom, with about 90% of the classroom activities to interact with them, it gives them the opportunity to support their emotional and psychological needs. Furthermore, in directing and instructing them, children mostly tend to listen and obey what their teachers tell them other than their parents. This creates a sound environment for teachers to support obese children to improve academic achievement, achieve higher self-motivation, and increase in school attendance among others. In view of these lapses, it is necessary to investigate the potential intervention strategies that could be used by teachers to support school children to reduce the on-going growth rate of obesity.

The general objective of the study was to investigate the potency of using teachers in managing childhood obesity among primary school pupils in the Cape Coast Metropolis. The study specifically sought to:

1. Ascertain the perception of teachers about childhood obesity.
2. Explore teachers' level of awareness about causes of obesity among primary school children in Cape Coast.
3. Identify possible intervention strategies teachers can use in supporting children with obesity.
4. Identify challenges teachers face in managing children with obesity in primary schools.

The paper is organized into five sections. Following the introduction, the rest of the paper is organized as follows: the next section focuses on review of related literature. Section three describes the methodology used while the fourth section presents results and discussion. The final section deals with conclusion and recommendations.

2. REVIEW OF RELATED LITERATURE

This section presents literature reviewed to offer a comprehensive overview of the concepts and theories used in the study to give both the researcher and readers a sense of focus as to which direction the paper is headed. Two theories reviewed were: behavior-change theory and social-ecological theory. The conceptual review covered obesity, factors influencing obesity, teachers' perception on childhood obesity, intervention strategies used by teachers to manage childhood obesity and challenges faced by teachers in helping to reduce childhood obesity.

3. BEHAVIOR-CHANGE THEORY

Behavior-change theory of obesity suggests that a change or modification in a child's lifestyle (positive change) could be used to manage child obesity (Martin, Chater, & Lorencatto, 2013). Historically, interventions for obesity prevention have predominantly used behavior-change theoretical frameworks to both understand what causes weight gain and to guide the models for healthy eating and physical activity behaviors in order to address the imbalance that leads to weight gain (Baranowski, Cullen, Nicklas, Thompson, & Baranowski, 2003). The most popular and often applied behavior-change theory is the Trans Theoretical Model of Health Behavior Change (TTM) (Prochaska & Velicer, 1997).

The TTM describes the sequential behavior change in an individual from an unhealthy behavior to a healthy one. It is a model of intentional change predicting the possible outcomes during the adaptation process of the 'new' acquired behavior (Mastellos, Gunn, Felix, Car, & Majeed, 2014). Studies have shown that the TTM stages of

change can be used to plan dietary interventions for short-term weight loss amongst overweight and obese individuals over a minimum of three months. Prochaska. (2013) identified two main underlying assumptions for TTM: the majority of people that are not ready to change their behavior and will therefore not be helped by traditional action-oriented prevention programs, and, the complexities of behavioral change which may unfold in a sequence of stages. Individuals typically adapt these different processes of change according to the progress they make towards changing their behavior.

Furthermore, the TTM has been applied to obesity management through an intermediary strategy namely, physical exercise. For example, in one study (Dallow & Anderson, 2003) demonstrated significant and positive changes on a measure of processes of change when obese women were engaged in a program that aimed to change the way they thought and behaved in relation to physical activity. A meta-analysis of empirical studies that applied the TTM to physical activity and exercise revealed that membership in a particular stage of readiness for change was correlated with different levels of physical activity.

4. SOCIAL-ECOLOGICAL THEORY

Childhood obesity has a multifactorial etiology, involving both individual and environmental factors (Boonpleng et al., 2013). In view of this, Bronfenbrenner (1979) postulated in his ecological systems theory that human development, especially psychological and social aspects were influenced by a reciprocal relationship between the individual and the social system. An individual's surroundings tend to shape his or her attitudes, beliefs, and behaviors while those factors are also affecting their environment. In the context of physical activity, health behaviors occur within and are influenced by the multiple systems individuals reside within. Bronfenbrenner (1979) social ecology framework comprised four systems: (1) microsystem; (2) mesosystem; (3) exosystem; and (4) macrosystem Figure 1.

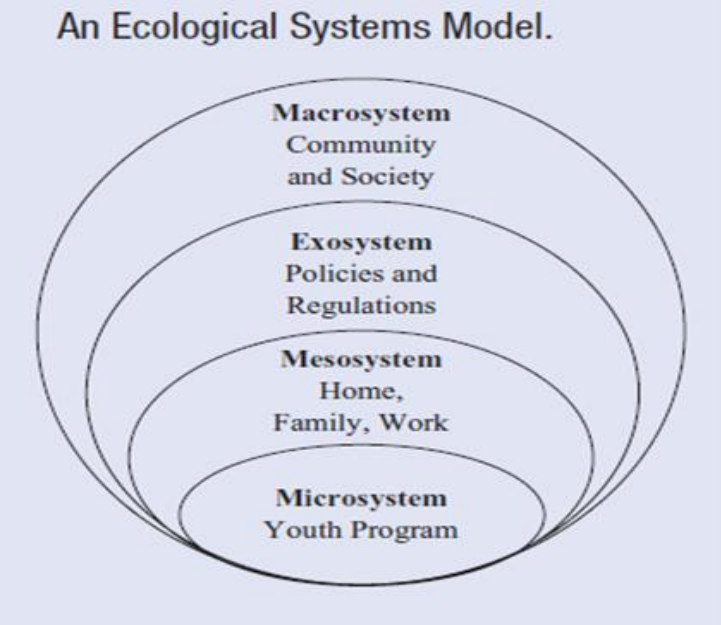

Figure-1. Ecological systems model.
Source: Bronfenbrenner (1979).

Microsystem: every individual is influenced by his or her interconnections with the environment. The ecological systems theory proposes that individuals exist within a variety of settings and are directly and indirectly influenced by environmental entities, such as home, school, work, community, and society (Penhollow & Rhoads, 2013). These multiple layers, starting at the individual level and extending outward, affect individual health behaviors.

Mesosystem: youth play a role in a variety of influential contexts each day, including home, school, work, youth programs, and other free time peer settings, which constitute their mesosystem (Boonpleng et al., 2013). The mesosystem includes the interaction between two microsystems. In other words, when two or more contexts within a microsystem connect, then a mesosystem has been created.

Exosystem: composed of factors external to the individual in which the individual is not directly involved, but these factors still affect the individual. For example, if a parent had a long day at work and was too tired to take the child to the park to play, the parent's work environment will indirectly influence the child's home setting (Penhollow & Rhoads, 2013). This could lead to the possibility of a child accumulating fat due to lack of the required physical activity. In a broader perspective, the funding and budget cuts public school systems experience do not directly involve the children in those schools, but the children are influenced when physical education programs are cut; this makes funding issues as well as school lunch regulations factors that compose children's exosystems. Macrosystem encompasses all the other systems and includes the culture of the systems. Culture is a broad concept that includes, but is not limited to, attitudes, behaviors, beliefs, knowledge, lifestyles, norms, and values. More specifically, cultural attitudes and beliefs surrounding eating habits and body shape can increase childhood obesity (Boonpleng et al., 2013). For example, lack of knowledge regarding proper portion sizes and underlying cultural norms of children having to finish all the food on their plate or eating second helpings of food only stand to increase the amount of food youth are consuming.

5. OBESITY

Obesity is a medical condition in which excess body fat accumulates in the body to a point where it has negative effect on health, which leads to reduction in life expectancy and/ or increase in health problems such as; cardiovascular diseases, type 2 diabetes, sleep apnea, among others. Obesity may be also described as a physical condition characterized by excessive deposition or storage of fats in the adipose tissues. People are considered obese when their body mass index (BMI), a measurement obtained by dividing a person's weight by the square of the person's height, exceeds 30kg/m^2, with the range 25-30kg/m^2 defined as overweight. Obesity is one of the leading causes of preventable death worldwide, with increasing rates in adults and children. Authorities view it as one of the most serious public health problems of the 21st century. As a result, the American Medical Association in 2013 classified obesity as a disease.

5.1. Childhood Obesity

Many pediatricians classify an obese child as one who falls above the 95th percentile in weight for height. However, if the child's BMI for age percentile is greater than 85% and less than 95% then it is classified as overweight (World Health Organisation, 2012; World Health Organisation (WHO), 2016). Children considered to be affected by obesity are 70% more likely to continue being affected by obesity into adulthood. In addition, they are at greater risk for high cholesterol, high blood pressure, diabetes, sleep apnea and cancer (Biritwum et al., 2005). Aside the clinical perspectives, children who are affected by obesity face social discrimination leading to bullying, low self-esteem, depression and also behavior and learning problems (Benjamins & Whitman, 2010).

6. FACTORS INFLUENCING CHILDHOOD OBESITY

Although the causes of childhood obesity are many, certain factors are targeted as major contributions to this epidemic. The include the environment, lack of physical activity, hereditary and family genetics, dietary pattern and socio-economic status among others (Sahoo et al., 2015). Eating too much and drinking lots of beverages such as soda or juice boxes are contributing factors to obesity in children. Concerning lack of physical activity, studies show decrease in overall physical activity, due to the growing use of computers, increased time in watching television and decreased physical education in schools. This increase in the amount of time used in sedentary activities has

decreased the amount of time spent in physical activities. In times past, most children walked or rode their bikes to school. However, a review on the physical activity of children today indicated that most parents drive their children to school with reasons such as living far away from the schools coupled with the absence of safe walking routes. Heredity and family genetics play a role in obesity but it mostly needs to be coupled with other environmental and behavioral factors in order for it to affect weight (Sahoo et al., 2015). Genetic factors such as lepton deficiency or hypothyroidism a medical condition as well as side effects of drugs (example, steroids) and genes accounts for less than 5% of cases of childhood obesity, (Dehghan, Akhtar-Danesh, & Merchant, 2005). Dietary patterns: food portions, the prevalence of "super-sized" portions and "all you can eat buffets" create a trending in over eating (Biritwum et al., 2005). Foods served at fast food restaurants most often are high caloric foods with less nutritional values. Therefore the intake of large portions of high caloric foods and not using it results in the energy imbalance that leads to obesity. With respect to socio-economic status, children from high income families usually have high purchasing power and most often their parents do less cooking at home. They are more likely to consume outside foods which tend to be high in calories. High consumption of energy dense foods are major causes of obesity.

7. PERCEPTION OF TEACHERS ABOUT CHILDREN WITH OBESITY

In light of the greater emphasis on childhood obesity prevention, schools are increasingly viewed as potential sites for preventive interventions (Neumark-Sztainer, Story, & Harris, 1999). Teachers and health care providers working in schools have continual contact with students. School staff, therefore, have the potential to have discussions and provide information regarding the prevention of both obesity and weight-related stigmatization through formal interventions and informal interactions with students. The teachers' perception, beliefs, and attitude towards the childhood obesity or children suffering from the condition, however, affect their efficacy in using their influence to help control childhood obesity. In view of this, a number of studies have been carried out to evaluate teachers' perceptions about children with obesity since it is thought of as the most important predictor to childhood obesity. For example, Price, Desmond, and Ruppert (1990) assessed elementary school physical education teachers' perceptions of obesity and the schools' role in dealing with the challenge. The results indicated that respondents were almost unanimous (93%) in their beliefs that normal weight was an important indicator to the health of children.

Wilson et al. (2016) recently evaluated teachers' perceptions of youth with obesity in the classroom. Teachers rated children with asthma as more likely to be accepted by their peers than children with obesity. Additionally, teachers reported children with obesity as more burdensome to have in their classroom. A study found that junior and senior high school teachers believed persons with obesity were less tidy, more likely to have family problems, and less likely to succeed than persons who were not obese (Neumark-Sztainer et al., 1999). Additionally, a study examining the beliefs of physical education (PE) students, training to become PE teachers, found that these students had significantly higher levels of anti-fat bias than psychology students (O'Brien, Hunter, & Banks, 2007). In a separate study, physical education teachers of elementary through college students expressed beliefs that the youth of healthy weight had better physical, social interaction, cooperation, and reasoning abilities than their peers who were overweight (Greenleaf & Weiller, 2005).

8. CHILDHOOD OBESITY INTERVENTION STRATEGIES USED IN SCHOOLS

A number of intervention strategies have been employed in schools by teachers and other health professionals to help manage child obesity. In their study, Shaya, Flores, Gbarayor, and Wang (2008) identified, in total, 15 of the intervention students that exclusively utilized physical activity programs, 16 students exclusively utilized educational models and behavior modification strategies, and 20 students utilized both. In addition, 31 students utilized exclusively quantitative variables like body mass indices and waist-to-hip ratios to measure the efficacy of the intervention programs, and another 20 students utilized a combination of quantitative and qualitative measures

that included self-reported physical activity and attitude toward physical activity and the tested knowledge of nutrition, cardiovascular health, and physical fitness. A total of 40 students achieved positive statistically significant results between the baseline and the follow-up quantitative measurements. Similarly, in an editorial, Durant, Baskin, Thomas, and Allison (2008) identified other strategies used in schools to manage child obesity. For example, the following strategies and efficacy were reported:

- Nutrition and physical activity interventions resulted in significantly reduced weight compared with control conditions (standardized mean difference, SMD=−0.29, 95% CI=−0.45 to −0.14, random effects model).
- Reduction in TV viewing, on the basis of one study, as a treatment also showed equivalent efficacy (SMD=−0.35, 95% CI=−0.63 to −0.06).
- Weight reduction was also induced in trials that included parental or family involvement (SMD=−0.20, 95% CI=−0.37 to −0.04).
- Combined nutrition and physical activity interventions were not, on average, significantly more effective than the one nutrition intervention that did not include physical activity (SMD=−0.39, 95% CI=−0.56 to −0.23).
- Interventions aimed at increasing physical activity without any effort toward dietary intervention did not significantly reduce body weight.
- 'The robustness of these findings was limited since because of high degree of heterogeneity.'

Another quite comprehensive study which discussed a number of school-based intervention has been reported by Budd and Volpe (2006). These authors reported studies with a primary aim of reducing BMI, had significant findings. The most successful and best known intervention, according to them, is the "Planet Health" intervention, an interdisciplinary classroom curriculum implemented by existing teachers in the sixth-to-eighth grade classes of 10 randomized schools in Boston, MA. The intervention used in Planet Health consisted of lessons incorporated into Mathematics, Science, English, Social Studies, and Physical Education classes. The objectives focused on classroom education and behavioral modification to: (1) decrease television viewing and computer time to less than 2 hours/day, (2) increase overall moderate to vigorous physical activity (MVPA) through behavior choice techniques of self-assessment, goal setting, and fitness testing, (3) reduce the consumption of high-fat foods, and (4) increase overall fruit and vegetable intake. This multicomponent intervention met state curriculum standards and consisted of one lesson on each objective in each specific subject class during two school years. Specially trained regular classroom teachers taught the lessons. After two years, the overweight prevalence for girls participating in the intervention decreased from 23.6% to 20.3%, pre to post intervention, respectively (odds ratio ¼ 0.47, p ¼ .03); however, no significant reduction in BMI was found for the boys in the intervention group when compared to controls. Other findings included a reduction in television watching for both boys and girls and improved dietary patterns among the girls.

In the implementation of school-based childhood obesity intervention programs, a number of challenges have been reported by some earlier authors. For example, Bolton et al. (2014) reported lack of engagement and insufficient implementation time as challenges to the implementation of child obesity control programs. Lack of funds, and policy change are other challenges to the successful implementation of intervention programs (Fagen et al., 2014). Intervention programs needed monitoring of progress and sustenance, training teachers, providing infrastructure and facilities to provide physical activities all of which is costly and challenging in today's world full of economic problems.

9. METHODOLOGY

The study was conducted in the Cape Coast Metropolis Figure 2. Cape Coast is located on latitudes $5^0$07 North and $5^0$20 North and between longitudes $1^0$11 West and $1^0$41 West. The Metropolis was selected for the

study because it is the cradle of education in the country and has one of the highest prevalence rates of obesity among the regions in Ghana. The Metropolis is bounded to the West by the Komenda-Edina-Eguafo-Abrem Municipality, to the East by the Abura-Asebu-Kwamankese District, to the North by the Twifu-Hemang-Lower Denkyira District and to the South by the Gulf of Guinea. The Metropolis covers an area of 122 square Kilometres (Cape Coast Metropolitan Assembly [CCMA], 2014). Cape Coast is also the capital of the Central Region of Ghana. According to GSS 2014, the population of the Cape Coast Metropolis stands at 169,894. The population comprises 48.7 percent males and 51.3 percent females, among which the proportion of children below 15 years is 28.4 percent. The Cape Coast Metropolis has a lot of schools ranging from basic to tertiary. Records obtained from the Cape Coast Metropolitan Education office, shows 120 primary schools (80 public and 40 private) in the metropolis with about 661 teachers.

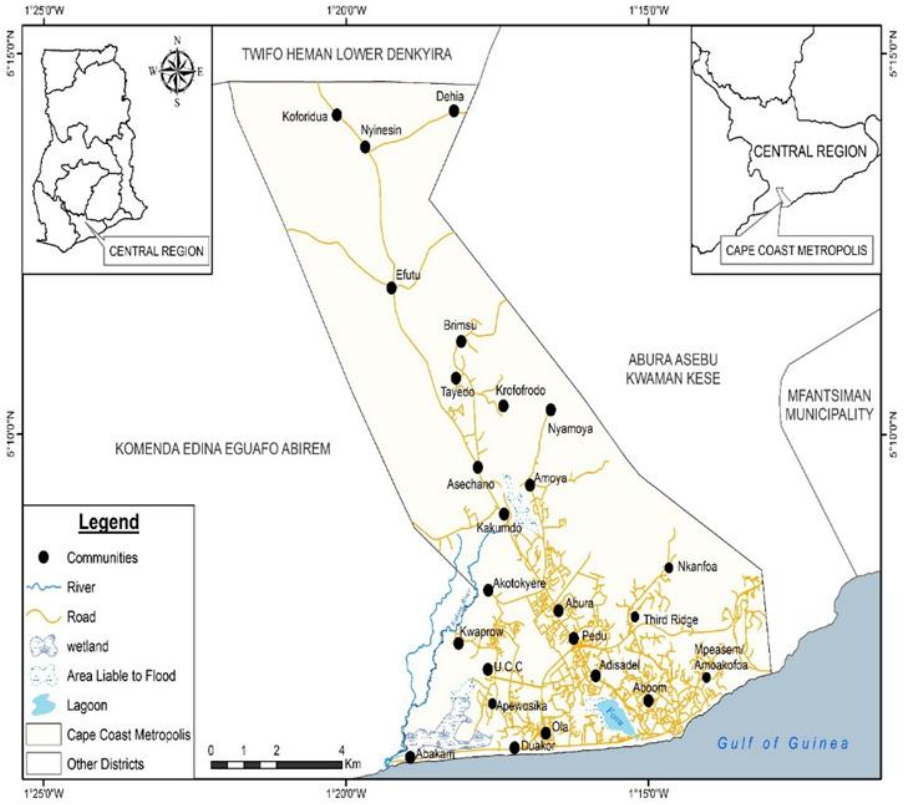

Figure-2. Map of Cape Coast Metropolis.
Source: Cartography Unit, Department of Geography and Regional Planning, UCC (2018).

The study used the descriptive survey design. According to Cohen, Manion, and Morrison (2007) the choice of design for a particular study must be based on the purpose of the study. Since this study sought to find out the potential of using teachers in basic schools to help reduce childhood obesity, the survey design was found appropriate. One major advantage of this design is that, it has the ability of obtaining information from a large sample of respondents using a carefully designed questionnaire.

The population for this study comprised all teachers in primary schools in the Cape Coast Metropolis totaling 661 teachers. A multi-stage sampling procedure was used to select teachers as respondents for the study. Firstly, the total number of all teachers in primary schools in the Metropolis was obtained from the Ghana Education Service's Metropolitan Directorate Office. Secondly, a representative sample was obtained using Nwana (1992) recommendation for sample size determination which is based on the size of the population of the study. He recommended that if the population is a few hundreds, (between100-500), a 40% or more sample size is representative enough. If many hundreds (over 500 but less than a 1,000), 20% sample size can be enough; if the population is a few thousands (up to 10,000), a 10% sample is recommended and if the population

is several thousands (10,000 or more), five percent or even less is recommended. In line with Nwana (1992) recommendation, a sample size of 132 was obtained based on the population of the study (20% of 660=132). Due to possible non response resulting from fieldwork uncertainties, 140 respondents were targeted. Thirdly, 70 schools out of the 120 in the Metropolis were randomly selected. Fourthly, two teachers were randomly selected from each of the selected schools using the lottery method. However, 134 questionnaires were retrieved but one was not usable. Therefore, 133 (95%) questionnaires were used for the analyses. Even though the response rate was 95%, it exceeded the calculated sample size (132) by one.

A structured questionnaire was designed and used for data collection since it provided the investigators the opportunity to sample the perceptions of a large population. Specifically, it helped to obtain the opinions of the teachers on the strategies that could be employed to help reduce the growing challenge of childhood obesity in the schools. Two research assistants were recruited and trained to assist in the data collection. The instrument (questionnaire) was pre-tested in three schools (three teachers per each school) after which the Cronbach Alpha was used to test the reliability of the instrument, which showed a reliability coefficient of 0.89. Permission for the study was obtained from the school authorities while the consent of the selected teachers was obtained through signed informed consent. The Sections of the questionnaires included background data of respondents, teachers' awareness of child obesity, Perception of teachers about childhood obesity, strategies for managing childhood obesity, as well as challenges of managing obesity in primary schools. The data were hand-coded and analyzed using the Statistical Product and Service Solutions software (SPSS version 21.0) to generate descriptive statistics (frequencies, percentages, means and standard deviations).

10. RESULTS AND DISCUSSION

The findings and discussion focus on the background characteristics of the respondents, perception of teachers about childhood obesity, teachers' level of awareness about causes of obesity among primary school children in Cape Coast, intervention strategies teachers can use in supporting children with obesity and challenges teachers may face in supporting children with obesity in primary schools

11. BACKGROUND CHARACTERISTICS OF RESPONDENTS

The demographic characteristics of respondents are important to put the study into context. The results show that most (53%) of the respondents were males while 47 percent were females. Fifty one percent were selected from public schools and 49 percent were from private schools. The highest percentage of the respondents (teachers) fell between the age cohorts 31 to 49 years.

12. PERCEPTION OF TEACHERS ABOUT CHILDHOOD OBESITY

To ascertain the perception of teachers about childhood obesity, the respondents were asked to express their opinions about child obesity. Table 1 presents a summary of their perception about the childhood obesity.

The teachers indicated that, they all needed to be involved in helping to reduce the challenge of childhood obesity (mean = 3.968) This is in line with the study by Price et al. (1990) which indicated that they believed that as teachers, they were the school personnel who were supposed to play a major role in helping to reduce childhood obesity. Another area teachers had a good perception about was the issue of considering obesity as a serious medical condition that needed immediate attention (mean= 3.392). Obesity was widely seen as one of the most serious health problems in the 21st century. Woodhouse (2008) agreed to the assertion and added that it mostly leads to stigmatization.

Table-1. Teachers' perception about childhood obesity.

Variable	N	Mean	Standard deviation
Child obesity is a common nutritional challenge in Ghana	133	2.376	1.266
Child obesity is a condition where a child's BMI is above the normal weight and height for his/her age	133	2.798	1.325
Knowledge about child obesity can be found in books, journals, on social media	133	3.332	1.332
One can identify a child as obese by appearance, dietary practices, physical activity level	133	3.388	1.138
It is a serious medical condition that needs immediate attention	133	3.392	1.004
Obesity in children is perceived as normal and is accepted by society	133	2.975	1.263
As teachers we should all be concerned and involved in helping reduce this challenge	133	3.968	0.919
Total		2.692	1.178

Source: Fieldwork, 2017.

Teachers also had the perception that, obese children could be identified based on their appearance, dietary practices, as well as their level of physical activities. This is in line with studies conducted by Greenberg, Fournier, Sisitsky, Pike, and Kessler (2015) and Malik, Pan, Willett, and Hu (2013) where they all identified obese children with excess consumption of high calorie foods such as sugar sweetened beverages and chocolate-candy. Cutler, Glaeser, and Shapiro (2003) also associated with frequent snacking in the dietary practices of obese children. Additionally, Baranowski et al. (2003) indicated in their study that, one of the causes of obesity is physical activity behaviors that address the imbalance that leads to weight gain. In line with this, Mastellos et al. (2014) suggested that individuals change their behaviors towards physical activities as a guide towards the achievement of sustainable weight loss. Further analysis on the teachers' perception about childhood obesity was done to indicate gender disparities in the perception of teachers about childhood obesity as presented in Table 2.

Table-2. Perception of teachers about childhood obesity based on gender classification.

Gender	Statistic			Bootstrap	BCa 95% CI		Interpretation of mean
Male			Bias	Std error	Lower	Upper	Good perception
	N	63	0	0	-	-	
	Mean	3.27	.00	.08	3.12	3.45	
	Std. dev.	.66	-.05	.05	.57	.74	
Female	N	70	0	0	-	-	Good perception
	Mean	3.16	.01	.09	2.97	3.34	
	Std. dev.	.78	-.00	.06	.67	.89	

Source: Fieldwork, 2017.

The results indicate that both male and female teachers had good perception about childhood obesity. However, more males had a good perception about childhood obesity with a mean of 3.27 than the females who had a mean of 3.16. The data was analyzed and bootstrapped to give a clearer and more concise picture of the information obtained. The table showed that based on a 95% confidence interval, the males had a lower (3.12) and upper (3.45) sample means. The actual statistic mean obtained fell between the lower and upper confidence interval. This implies that, the mean obtained was a true and concise picture of the data obtained. Also, the females also had a lower (2.97) and upper (3.34) confidence interval sample mean. That also was within the range of the actual mean obtained of 3.16 indicating that the results obtained was true and correct.

13. TEACHERS' LEVEL OF AWARENESS REGARDING FACTORS THAT CAUSE OBESITY AMONG PRIMARY SCHOOL PUPILS

The respondents were made to indicate their level of awareness against factors that cause obesity among the primary school pupils Table 3 presents the summary of distributions of the factors and the teachers' level of awareness.

Table-3. Teachers' level of awareness on factors that cause childhood obesity.

Factor	N	Mean	Standard Deviation	Level of awareness	Mean Rank
Dietary	133	3.87	0.94	Much aware	1
Biological	133	3.10	1.41	Fairly aware	2
Socio-demographic	133	2.52	1.25	Fairly aware	3
Physical activity	133	2.26	1.23	Less aware	4

Source: fieldwork 2018.

The results indicate that, the mean for the respondents' level of awareness of dietary factors as a cause of obesity was 3.87 and ranked as the highest factor that teachers were aware of. This implied that teachers were much aware that pupils' dietary behaviors and practices led to the prevalence of obesity among the primary school pupils. The table also shows that the other factors such as the; biological (mean= 3.10) and socio-demographic (mean= 2.52), teachers were fairly aware of them being causal factors of obesity among primary school pupils. Whiles the table also showed that they were less aware of the level of physical activity to be a factor causing child obesity.

These findings are consistent with a study by Sahoo et al. (2015) which identified dietary patterns, genetics and socio-economic factors as causes of obesity among children. Biritwum et al. (2005) also identified a trend in over-eating because of 'super-sized' portions of food sold in fast foods. The WHO in their global strategy on diet, physical activity and health program, identified low intake of fruits and vegetables and low level of physical activity as contributing factors towards the development of obesity among children. The WHO however, suggested that children increase their physical activities and also limit the intake of sugars to help decrease accumulation of fat. Hancox and Poulton (2006) also in their study, identified lack of physical activities to be due to the growing use of computers and increased time spent watching television as a risk factor to the development of obesity among children.

Table-4. School-based intervention strategies to control childhood obesity.

Strategy	Yes		No		Sometimes	
	N	%	N	%	N	%
Playing ground for children	114	85.6	19	14.4	-	-
Children are allowed to play and run around during break periods	117	91.7	16	8.3	-	-
Existence of qualified physical education teachers	53	39.8	80	60.2	-	-
Existence of periods for physical education lessons	109	81.8	24	18.2	-	-
Teachers who use physical education periods for other lessons	48	35.6	51	38.6	34	25.4
Existence of teaching periods for teaching Healthy eating habits and eating healthy foods	32	24.1	67	50.4	34	25.6
Existence of school policy that guides the type of foods sold on school premises	96	72.0	37	28.0	-	-
Foods, sweets and drinks are allowed in the classroom during lessons	12	9.1	111	84.1	10	6.8
Existence of stores or snack bars in the school that sells sweets and beverages	89	67.4	44	32.6	-	-
The school have regulation regarding the sale of foods	82	61.8	36	26.7	15	11.5

Source: Field survey, (2017) **N** = Frequency **Note:** Multiple responses

14. INTERVENTION STRATEGIES TEACHERS CAN USE IN MANAGING CHILDHOOD OBESITY

To ascertain the intervention strategies that teachers can employ in schools to help manage child obesity, respondents were made to indicate either 'yes' or 'no' to strategies that they employ. Table 4 presents the summary of the school-based intervention strategies that teachers can adopt in supporting childhood obesity.

The results showed there were various school-based intervention strategies to control childhood obesity. They ranged from physical activity-based strategies to dietary-based strategies. According to Khambalia, Dickinson, Hardy, Gill, and Baur (2012) intervention components in the school setting associated with a significant reduction of weight in children included long-term interventions with combined diet and physical activity. Eighty-five percent of the teachers indicated that there is a playing ground that allows the children in the primary school to engage in physical activities. This is corroborated by the majority (91.7%) of the teachers interviewed who indicated that children are allowed to play and run around during break periods. This strategy can be effective in controlling childhood obesity because Durant et al. (2008) report that physical activity interventions resulted in significantly reduced weight compared with control conditions. They however argued that interventions aimed at increasing physical activity must be done concurrently with dietary intervention to significantly ensure reduction in body weight. In a similar vein, majority (81.8%) of the respondents indicated that there was the existence of periods for physical education lessons in their school. However, there is the need to appoint physical education professionals. This is due to the fact that 60.2% of the respondents indicated that the school lacked qualified physical education professionals to ensure the effectiveness of physical education lessons, therefore, 35.6%of the teachers use these periods to teach other lessons.

Other school-based intervention strategies to control childhood obesity may be classified under nutrition-based strategies. The impact of school-based policies on controlling childhood obesity cannot be overemphasized. Seventy-two percent of the respondents agreed that there was the existence of school policy that guided the type of foods sold on school premises. This implies that majority (72%) of teachers believe that this policy will ultimately ensure that the school have regulation regarding the sale of foods. This will result in the sale of foods that only controls obesity in children rather that encourage it. This finding is consistent with the assertion by Bray and Popkin (1998) who posit that many strands of evidence suggest a causal link between the consumption of high-caloric foods containing high levels of fat and/or sugar and the development of obesity.

Although, 67.4% of the respondents indicated that there were stores or snack bars in the school that sold sweets and beverages, majority (84.1%) of them agreed that no foods, sweets and drinks were allowed in the classroom during lessons. This strategy helped to control the amount of food taken by these primary school children as a means of controlling childhood obesity. This is due to the fact that, according to Blundell and MacDiarmid (1997) passive over-consumption of high-fat foods and sweets, in particular, has been linked with a higher frequency of obesity. About, 50.4% of the respondents indicated that there were no teaching periods for teaching healthy eating habits and eating healthy foods.

15. CHALLENGES TEACHERS FACE IN MANAGING CHILDHOOD OBESITY AMONG PRIMARY SCHOOL PUPILS

In the implementation of school-based child obesity intervention programs, teachers face a number of challenges. Respondents were asked to indicate the challenges they encounter in implementing school based strategies aimed at supporting primary school children with obesity. Table 5 presents the summary of the challenges teachers face in managing childhood obesity.

Table-5. Challenges teachers face in supporting childhood obesity.

Challenges	Frequency	Percent
Parental financial constraints	24	18.7
Time Constraints	2	1.5
Lack of cooperation from parents and children	75	56
Opposition from food and beverage vendors	15	11.2
Uncooperative attitude of school authorities	4	3
Inadequate appropriate recreational facilities for physical education lessons	13	9.7
Total	133	100.0

Source: Field Data, 2017.

The results indicate that more than half (56%) of the respondents indicated lack of cooperation from parents and children with obesity as a major challenge in supporting children with obesity in primary school. This, according to them, is due to the fact that some parents buy sweets for their wards. Again, some primary school pupils may themselves buy from outside, sweets and carbonated drinks that are banned from being sold in the school. Some of the pupils do this before reporting to school, whereas others do it on their way home after school. Similarly, 18.7% of the teachers stated that parental financial constraint was another challenging factor faced by teachers in supporting childhood obesity in primary school. According to them, some of the parents may not be able to pay for foods that contain all the right amount of nutrients for the children. This finding is consistent with Fagen et al. (2014) who document that lack of funds and policy change are some of the challenges to the successful implementation of obesity intervention programs.

Also, opposition from food and beverage vendors is another challenge. About 11.2% of the teachers confirmed this. This is in line with the assertion by the social ecological theory where it identified in the exosystem, an individual's external environment such as the availability of unsafe foods (high calorie foods and beverages) as a factor that can directly or indirectly affects the individual's choices and pose as a barrier in the control of obesity. Boonpleng et al. (2013). Time factor (9.7%) is another constraint to the successful implementation of the various school-based strategies in support of child obesity in primary schools. About 9.7% of the teachers opined that if the time periods for physical education should be increased the challenge would be the extension of time spent in school. This may result in more tiredness on the part of the kids and teachers. This finding is consistent with Bolton et al. (2014) who reported that lack of engagement and insufficient implementation time was a challenge to the implementation of childhood obesity control programs.

Furthermore, minor challenges militating against strategies by teachers in managing children with obesity in primary schools were uncooperative attitude of school authorities (3%) and lack of recreational facilities for physical education lessons (1.5%). This is due to the fact that some school authorities may be more interested in finding students with special abilities and not checking students with obesity. Again, they may not be willing to forgo the earnings that accrue to the school from the sale of such obesity-enhancing foods. This finding is consistent with the findings of Penhollow and Rhoads (2013) where they identified the school, peer groups, family and others as external factors that play a major role in the individual's development of obesity. They indicated that the relationship between the individual and what is found in their social system, more specifically the surroundings and the attitude and beliefs of those around, can greatly influence the possibility of developing obesity.

16. CONCLUSION AND RECOMMENDATIONS

16.1. Conclusion

The study concluded that teachers had a good perception about childhood obesity. This could facilitate their willingness to implement intervention strategies in managing childhood obesity. However, teachers needed to be supported to manage childhood obesity. The results indicate that, the mean for the teachers' level of awareness of dietary factors as a cause of obesity was 3.87 and ranked as the highest factor that teachers were aware of. It was also revealed that more than half (56%) of the respondents indicated lack of cooperation from parents and children

with obesity as a major challenge in supporting children with obesity in primary school. The results show there were various school-based intervention strategies to control childhood obesity. They ranged from physical activity-based strategies to dietary-based strategies. These included: children being allowed to play and run around during break periods (91.7%); no foods, sweets and drinks being allowed in the classroom during lessons (84.1%); and existence of school policy that guides the type of foods sold on school premises (72.0%). However, teachers identified challenges that they were likely to encounter in trying to support children with obesity. These included opposition from food and beverage vendors and inadequate appropriate recreational facilities for physical education lessons. This would affect the effective implementation of intervention strategies. Therefore, there may be a need to involve parents and school authorities in the support for reducing child obesity.

16.2. Recommendations

Based on the findings of the study and the conclusions drawn, the following recommendations were made:

1. The school authorities should collaborate with the Metropolitan Directorate of Education and the Metropolitan Health Directorate to equip teachers in the Metropolis with strategies to manage obesity in the schools.
2. The school authorities should ensure that in developing the academic calendars' for the school, they include periods for teaching healthy food choices and eating habits.
3. The school authorities could develop and ensure adherence to policies on sale of food and snacks on school premises through strict enforcement. This will send better signals to the pupils as to the choices they make on foods and snacks.
4. Parents and teachers should collaborate to reduce risk factors that lead to obesity among primary school children. This can be done when parents agree and enforce interventions laid down to help curb obesity by the schools or teachers.
5. The schools can organize education campaigns or set up educational fun clubs that enlighten children on healthy living, good food choices or dietary behaviors and also importance of keeping physically active.

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