

## LITERATURE REVIEW

### **Obesity and Contributing Factors**

The Center for Disease Control and Prevention describe obesity as an energy imbalance over a period of time which may result from a combination of factors including the environment, genetics, and individual behaviors. Obesity is a topic that has elicited wide debates and controversies and such debates extend even to its definition. The primary source of debate with regard to the definition of obesity is the manner in which it is measured and calculated among adults and among children and adolescents. While the measure of obesity in adults is the BMI, the shortcomings of BMI as a pediatric measure means that in children and adolescents BMI scores are considered in the context of percentiles by age and sex (Gilkey, 2017).

#### **Obesity**

Data collected from 2015-2016 shows that 1 in every 5 school going children have obesity (CDC, 2018). Obesity is a medical condition in whereby someone is said to have excess body fat. Obesity is commonly measured using BMI (body mass index). A person's BMI is calculated by dividing his/her weight in kilograms by his/her height in meters squared ( $\text{kg}/\text{m}^2$ ). A young person is said to be obese if his/her BMI is at or above 95% that of the same sex age mates. Someone who is overweight but not yet obese has a BMI of 85% -95% that of his/her age mates (CDC, 2018). Overweight and obesity in children is measured using age and sex percentile as opposed to the categories meant for adults. This is because the body of a young person is subject to change and this change varies between girls and boys.

#### **Causes of obesity**

Causes of obesity in children are similar to those of adults. Lifestyle issues such as diet and lack of exercise are the main obesity contributors. When some of these factors are combined,

a child is in greater danger of becoming obese. Junk foods are well-known for their high calories, making it easier to gain excess weight. Candy, sugary drinks, and desserts are also well-known culprits in obesity. Exercising enables children to burn accumulated calories, protecting them from becoming obese. Lack of exercise, therefore, can cause children to become obese since they are consuming calories without having an outlet for them. Children who spend most of their time involved in passive activities, such as watching television and playing video games, are much more likely to become obese.

There are other factors that cause obesity, among them, family factors, socioeconomic, and psychological factors. Family factors have to do with a child's upbringing. If a child comes from a family with the weight problem, chances are that he or she will become obese. This is especially true if the food available always has high calories and the family doesn't encourage physical exercise (Alli, 2018). Socioeconomic factors have to do with access and availability of healthy foods. Children who come from communities that have no access to healthy foods have a higher tendency of becoming overweight as compared to children who come from communities with easily accessible healthy foods. Psychological factors also tend to cause obesity in children. Children may tend to overeat when they are dealing with emotional problems. Thus, problems in the family, esteem issues, and poor parenting can lead to overeating and hence obesity.

### **Consequences of obesity**

Obesity in children is a serious health issue since it exposes children to health problems that were once termed as adult issues. These include diabetes and high blood pressure. Type 2 diabetes is a chronic disease that is mainly caused by obesity. High cholesterol and high blood pressure are factors mainly caused by poor diet and on or both of these factors causes plaques to build up in arteries, which leads to narrowing and hardening of arteries. This prevents proper

passage of blood, which can lead to stroke or even heart attack. Being overweight is very likely to cause sleeping disorders. Sleeping disorders vary in terms of intensity, where the more serious disorders, such as obstructive sleep apnea, can cause breathing to repeatedly stop and start again as a child sleep.

Obesity can be detrimental not just to one's health but also to one's academic ambitions, and even social life. Obesity is not to cause low self-esteem especially because of being bullied. Children often tease and even sometimes go to the extent of bullying children who happen to be overweight. This can lead to low self-esteem and even depression in worst case scenario. Bullying, low-self-esteem, and depression are among factors that make children not to perform well in class. Obese children often have anxiety issues, which lead to poor social skills. As a result, children have a hard time concentrating in class and may often disrupt class or withdraw completely from their peers.

Overweight students are also prone to be affected by the stigma surrounding them. Students with weight issues are regarded both by teachers and fellow students as less intelligent, less likely to complete assignments given, and also, they are expected to be more emotional and have less friends as compared with other students (Branigan, 2017). This victimization and bullying leads to poor performance in school. Poor health is also more likely to force a child not to do well in school. A study published in Journal of child development shows that there is a link between obesity and/or physical fitness and academic excellence (Ryabov, 2018). Poor social skills and emotional issues are more likely to cause an obese student to perform badly, rather than just the BMI.

### **Prevention of adolescent obesity**

Childhood obesity is a serious condition that deserves serious attention. Children who become obese are more likely to suffer from obesity as adults as compared to children with normal weight (Branigan, 2017). When obese children grow up to become obese adults, it becomes much more difficult for them to lose weight. Hence, prevention of adolescent obesity is way better than treating obesity. New technology and drugs that help treat weight issues have emerged, in a bid to deal with this monster called obesity (Pandita, Shama, & Kaul, 2016). However, these drugs and procedures can be quite expensive. They are also prone to complications and failure, which leaves prevention as the best option.

Childhood obesity prevention can only be done through a collection of efforts of the entire community. However, parents have an upper hand since it is from them that children pick up what to do and what not to care about. Making healthy eating and physical exercise a ‘thing’ at home can make it easier for the children to adapt it (Alli, 2018). Parents should avoid providing their children with so much high calorie foods. Instead, they should promote healthy eating by ensuring that healthy foods are always available in the house. Parents can also ensure that the family takes their meals together, to ensure that everyone eats something healthy. Parents should also restrict the amount of time that children spend in front of the television. Parents can encourage physical activity by involving them in family outdoor activities such as swimming, hiking, and outdoor games (Alli, 2018). Parents can also encourage students to take part in active activities in school.

Children spend 6 to 7 hours in school (CDC, 2018). This means that most of their waking hours are spent in school grounds. If childhood obesity is to be prevented, then schools should be on the frontline. The best approach that schools can use to prevent this condition is a comprehensive approach. This kind of an approach is better than any scientific approach. This is

because scientists do not really understand what can really work well in which school. A comprehensive approach involves not just the teachers and the students but also the parents, caregivers, baby sitters, pediatricians, and other community members (Ryabov, 2018). Involving everyone who relates with the children in one way or another ensures that all students are involved. It also ensures that cases of bullying and fat-shaming are reduced in schools.

Whole school, whole community, whole child (WSCC) is a model that school can use as a guide in dealing with obesity (Morse & Allensworth, 2015). This model encompasses all aspects of a child's life, namely, physical education, nutrition, health services, and family. Addressing all these areas can greatly help a child to eat well, exercise, maintain good weight, and even have the right attitude towards weight issues. This model keeps children at its center, ensuring that all students, with no exceptions become healthy, supported, and also that they feel protected. This model also allows students to take part in its implementation (Morse & Allensworth, 2015). This does not only help fight obesity, it also helps the students to gain confidence and become decision makers, traits that are needed a lot as they grow up to become mature, intelligent, and healthy adults.

### **Physical activity and obesity**

In very simple terms, physical activity basically means body movement that uses energy. Activities such as walking, cycling, playing football, and dancing are among the activities that are regarded as physical activities. Physical activities can be moderate, such as walking or dancing, and they can also be more vigorous, such as jogging, swimming, and aerobics (Ryabov, 2018). Physical education is physical activity that is meant to be part of students' curriculum. Physical activity is very paramount when it comes to preventing diabetes. Adolescence is an age where both boys and girls experience tremendous growth changes. As a result of these changes,

adolescents are prone to becoming obese (Ryabov, 2018). Young people who are physically active are less likely to suffer from diabetes as compared to those who are physically inactive.

Sedentary activities such as television watching and video gaming have taken the place of physical activity (McManus & Mellecker, 2012). With the less and less physical activity taking place, children are prone to lead less healthy lives as compared their parents. Physical education in schools is one of the best ways to promote physical activity and discourage sedentary activities in children. This is because physical education is part of the curriculum, making sure that it is available for all students. However, physical education has not been as effective as it ought to be. This is because it is always taught by general teachers who have limited or no knowledge about the physical health. This means that physical education (PE) has little impact on the students. Some schools in USA allocate very short time for PE. Thus, school administrators have little to no incentive to encourage PE. If administrators do not give PE the attention it deserves, then it means that students also find no reason to engage in it, thereby encouraging passive activities.

Researchers have found very little evidence suggesting that PE in school has done anything to prevent children from becoming obese. Study done by Telford et al. (2012) shows that there is a difference between PE taught by specialized teachers and PE taught by generalized teachers. When teaching vigorous activities, generalized teachers were found to involve students in activities such as walking, running, and other known traditional games. Specialized teachers however tend to work with small groups and introduce minor games which are not so widely known. This ensures that students are well engaged and interested in the activity. The study showed that specialized PE teachers tend to ensure that students learn how to maintain a good posture, balance, and even how to control breathing through activities such as yoga (Hawkins,

Oken, & Gillman, 2017). In summary, the study shows that well designed PE programs taught by specialized PE teachers have the ability to help reduce children obesity.

### **Theoretical framework**

It is safe to say that obesity is caused by poor diet and a sedentary life. To prevent obesity then, it would require children to eat well and involve themselves in physical activities (Hawkins, Oken, & Gillman, 2017). Since this study is aimed at evaluating the impact that physical education has when it comes to preventing childhood obesity, it is important to have a conceptual framework since it helps act as a guide to answering the research questions. The study utilized two models: a Pender's health promotion model and life-course model.

Pender's model is a model that is mainly used when it comes to planning and changing unhealthy behaviors (Khodaveisi, Omid, & Soltanian, 2017). This model has been proven to be quite effective since it is based on the social cognitive theory. The model suggests that factors such as benefits and barriers to something influence how engaged one becomes in it. Modifying factors such as environment and one's behavior work together "to influence cognitive perceptual processes" (Khodaveisi, Omid, & Soltanian, 2017). The model suggests that children's nutrition behaviors can be changed by increasing their knowledge concerning benefits of maintaining healthy life.

Life-course model is another model that is quite effective when it comes to dealing with childhood obesity. It becomes hard to understand childhood obesity unless we understand the complexity that comes with factors that contribute to obesity since a child is small (Khodaveisi, Omid, & Soltanian, 2017). A good approach towards preventing obesity takes into account not only the immediate factors but also the underlying causes, among them genetics and epigenetics. A good approach aims at not just taking them to account but also tries to understand the role they

play since the birth of a child (Hawkins, Oken, & Gillman, 2017). Taking them into account plays a great role in understanding what can be done to change them and ensure that children are protected from obesity. Understanding the root causes of obesity provide clear guidelines on how to deal with obesity.



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