

Preventing Obesity In Junior High Schools, Its Consequences And Lessons Learnt

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Abstract

Objective: To evaluate the factors leading to the prevalence and secular trends for overweight and obese among the adolescents in junior high schools.

Methods: A qualitative study review of literature was conducted on facilitating factors to the prevalence and secular trends, obesity prevention in junior high schools. Theoretical sources of information relevant to obesity (idea-based) were used. Primary, secondary and tertiary sources were used to have a broader overview of obesity. The general approach was a combination of chronological thematic and conceptual concepts. A descriptive analysis of the objectives was done

Results: The obesogenic prenatal environment or the physical form of our community play a vital role and that can also promote obesity in young people through epigenic effects

Conclusion: It was found that high-fat and energy dense diet has tremendously increased in the 21st century while most young population have increasingly lead sedentary lives. The life style of fast foods and little physical activity have increased the prevalence of obesity among school going children, adolescent and adults too. The related obesity and chronic disease risk factors have become major public health concerns. Multilevel model is related to local ecological model on the principal of preventing obesity. Therefore multilevel is a good model to prevent obesity in school. The risk regulations–health behaviour–genetic factors model approach laid a good ground for strategic prevention of obesity and evaluation of multilevel model practices, food intake, production and physical activities.

Key words: Obesity, Junior high schools, Obesogenic prenatal environment, Multi-level model, Risk regulators-Health behaviour-Genetic factors.

1. Introduction

1.1 Background

The problem of childhood obesity is a public health challenge that is global and increasingly extends into the developing world (Puksa, 2004 page 1). Obesity currently affects 25% of children in developed countries like the United States (Troiano, 1995, page 1085-1091).

Obesity in Africa especially in North Africa and Middle East is quite another notable issue. Unhealthy life styles are associated with risk factors that increase obesity, overweight, diabetes, cardiovascular diseases and cancer due to elevated consumption of energy–dense nutrient-poor foods that are high in fat, sugar, salt and reduced physical activity at home and at school (World Health Report 2002, page 2).

Table: 1.1.1 Classification of overweight and obesity in adults according to body mass index

Classification	BMI (kg/m ²)	Sex - Waist Circumference			
Underweight	<18.5		Risk metabolic complications	Men	Women
Normal Range	18.5-24.9		Increased	94	80
Over weight	>25				
Pre -obese	25.0-29.9				
Obese class I	30.0-34.9		Substantially increased	102	88
Obese class II	35-39.9				
Obese class III	>or equal 40				

Source: WHO

We live in an obesogenic environment or society having many factors making it challenging to maintain reduced overweight and obesity (Relly,2007 page 82).The obesogenicity of an environment has been defined as the “sum of influences that the surroundings, opportunities or conditions of life have on promoting obesity in individuals or populations”.

This report seeks to understand the best practices to prevent and control obesity in junior high schools in Zambia.

1.2 Rationale

Schools are an important player in the battle with childhood obesity. It is important that educators are aware of the health risks and that they learn what they can do to change the situation either through strengthening the school policy or curriculum. Education should involve both transmission and transformation of knowledge about physical activity cultures of society and pattern of food children should eat (Tinning, 1990 pages 90). Schools need to work in partnership with the parents and the community so that there is a shared understanding and purposes around physical activity and food eaten to minimise or reduce obesity.

The plan for this paper is as follows: First section provides the background to obesity. Section II describes the objectives of the study where focused question will be clearly stated. Section III presents the methods to be undertaken for the study. Section IV details the review of literature. Section V details general discussions of the results on multilevel model to address obesity, level of determinants and the social-ecological model of obesity in adolescents. Section VI, provides the conclusion in light of original problem statement and supporting the theory to solve the original problem.

1.3 Purpose of the study

The purpose of this review study is to discover the important factors to the prevention of obesity and its consequences and lessons learnt. Obesity in adolescents and children has become a serious public health issue with many social and health consequences that have continued in adulthood be in developed or developing countries. Implementation of public health programs and comprehensive understanding for adolescents has been described to be very important in prevention and control of obesity in junior high schools.

2. Objectives

General objective

- a. To find a good model to reduce obesity and review literature on the prevalence of associated risk factors for obesity in junior high schools in order to come up with preventive and promotion measures.

Specific objectives

1. Review literature on historical development of obesity in adolescents and discover important practices and activities that enable easy monitoring and evaluation of obesity in schools.
2. Determine to what extend the practices for physical activity are applicable in schools.
3. To understand about the obesity model
4. To know the causes of obesity in school children
5. To describe how obesity can be prevented in schools

3. Methodology

3.1 Study design and methods

The review of literature looked at the previous theoretical sources of information relevant to obesity, theoretically (idea-based). Primary, secondary and tertiary sources were used in order to have a broader overview of obesity. The review has been put in the context of what is already known in obesity to identify gaps, concepts and issues. The general approach was a combination of chronological, thematic and conceptual concepts.

In order to achieve the study objectives, a descriptive analysis of the objectives was done. The review is more of qualitative study.

This is a scholarly paper and the project acts as a culminating experience for the PhD program in public health.

3.2 Research question

“How can adolescent obesity be prevented and interventions sustained in junior high schools in order to promote healthy adolescents and subsequent healthy adults”.

3.3 Theoretical frame work of the multilevel model to address obesity

This paper`s Theoretical Frame Work focuses on three variables: **Risk Regulators, Health Behaviours and Genetic Factors.**

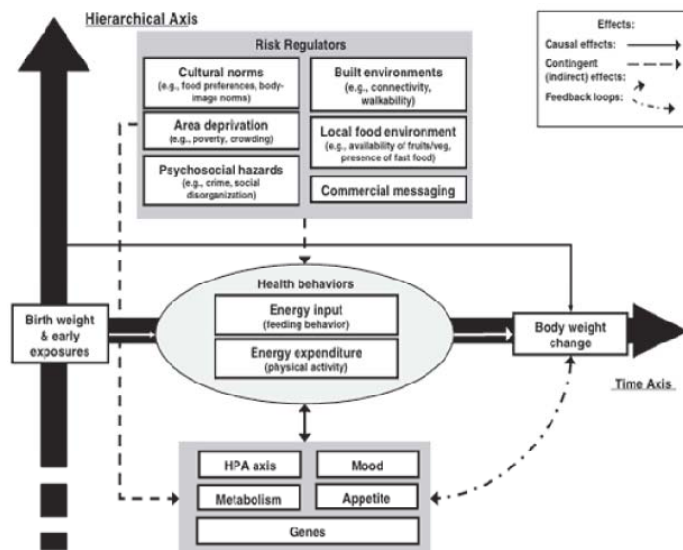


Figure 1. A systems multi-level model of obesity

4. Results

This chapter presents the findings from the model; that are on the cultural norms, built environment, area deprivation, local food environment, psychological hazards and commercial messaging and finally on the energy input and energy expenditure and the genetic factors as having influences on obesity. The concepts of the model stems from the social-ecological theories that are new in public health and emphasizes the importance of environmental and social factors that determine human behaviour and health out-comes(McIeroy et al,1988, 351-77).One of the biological view of obesity is the intake of energy(increased) and its expenditure(decreased) that overtime become discordant.

When high-fat and high sugar foods are readily available in the environment these raise the threshold for metabolic tolerance that has been found to promote obesity(Levin, 2005 pages 633-9).It has been found that failures in losing weight attempts are in part as the result of very strong biological drivers to store and maintenance of energy in the bodies.

The obesogenic prenatal environment; the built environment or the physical form of our community to play a vital role and that can also promote obesity in young people through the epigenetic effects (Whitaker, 2004 pages 29-36). The factors that trigger the biological response to food to make people eat in the way that increases weight gain are the elements of physical and social environment (Frank et al., 2003 pages 87-96). To prevent obesity one has to understand the built environment and the way it influences the increase in the Body Mass index (BMI).

The elements of the built environment are land, use patterns, the way activities are located across space and the system in place for transportation, the services and facilities' that link one station from the other. These elements determine together access to opportunities for healthy eating and physical activity that influences in turn nutrition behaviour and physical activity that have implications for obesity. Recent studies have shown a link between obesity and suburban sprawl (Ewing et al., 2003, pages 47-57).There exists also a relationship between the absence of community infrastructure and obesity for both health eating and physical activity(Catlin et al,2003 pages 249-258).

The social-ecological model of the behaviour applied in the health of the community is mostly part of the influences at community level on health matters especially obesity (Sallis et al., 2006 pages 297-322). The ecological approaches usually shift the focus from the individual to the environment with the objective of making healthy food choices and physical activity more accessible to community members.

The influences to increase in BMI in adolescents.

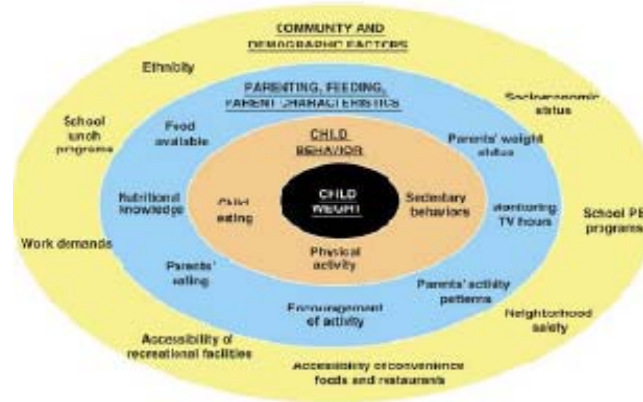


Figure 2. An ecological model for the aetiology of childhood overweight
Adapted from Davidson and Birch 8

A model showing the relationship among influences, behaviours and Health Outcomes

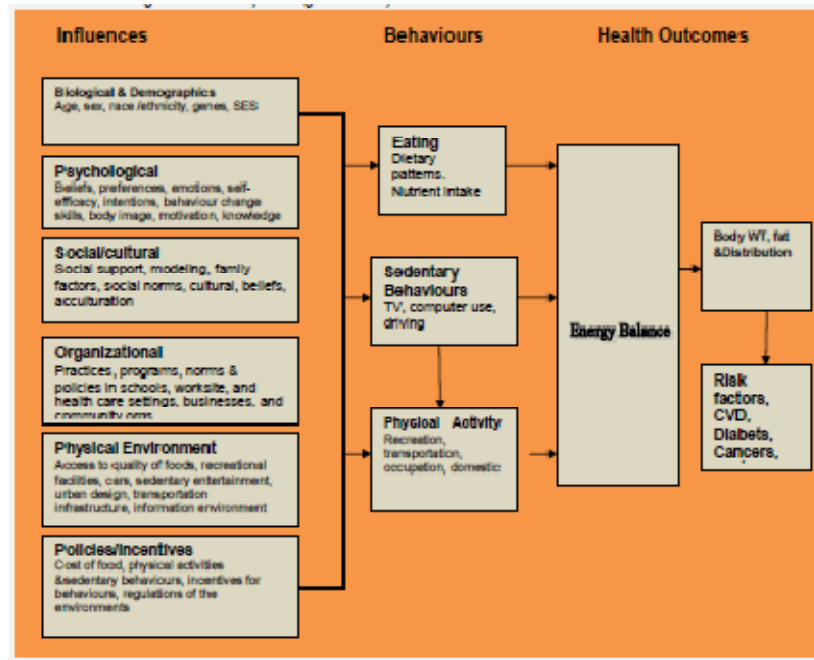


Figure 3. An ecological model of diet, Physical Activity and Obesity

The availability, accessibility and subsequent marketing of general foods contribute to the world consumption pattern either by enabling or restricting food choices or by modulating the biological processes that affect eating. The marketing of foods that have high calorie food contents through packaging and retailing and use of the media to children has increased the influence on purchasing and the way this food is consumed (Mc Gunnis, 2006 pages 30-40). Physical activity improves glucose haemostasis, insulin sensitivity and the metabolic profiles (Jones 2007, pages 394-408). These in turn have an impact on adiposity (Johnson 2001 pages 3182-7). The reduction in sedentary activities such as television viewing, computer utilization in children reduces obesity and is usually mediated through reduction in energy intake than an increase in physical activity (Epstein et al., 2008 pages 239-45).

Neurologic responses also act as mediators between obesity and sedentary activity. Obesity is also influenced by varying norms on food and physical activity behaviours and body image ideals. In some places overweight is viewed as a symbol of health by some cultures (Adams 2005, pages 146-52). Culture forces have been barriers to the prevention of obesity. In order to overcome such fundamental aspects of this socio-political culture long term interventions to obesity prevention must be considered.

Most foods adolescents eat have high proportions of dietary fats, refined grains and sugar their cost has steadily reduced while the supply has increased steadily in the last forty years (Drewnowski, 2005 page 82). Energy poor and nutrient rich diet have much higher costs per calories.

Then supply part of food chain has been found to be influenced by the agricultural policies on farming out-put, while the demand side has been influenced by variables such as availability, income and pricing. The current interventions for obesity should start at community level, including multiple stakeholders that connect people, families, governments, partners, the private sector and schools.

Policy factors at all levels that have influence on the prevalence of obesity.

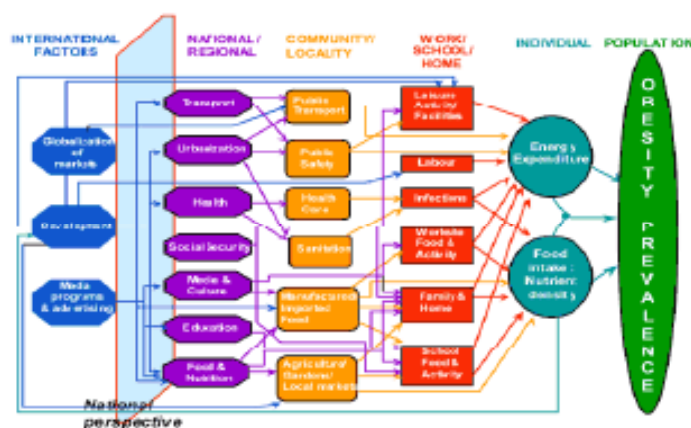


Figure: 4 Societal policies influencing the population prevalence of obesity

5. Discussion

This report brings together all known records of obesity in the 21st century. There is an increase of adolescent obesity in most schools both in developed and developing countries. In the introduction section an overview on influences to increase in Body Mass Index such as the risk regulators, health behaviours and genetic factors was given. Adolescents are susceptible to obesity because of their decline in physical activity and availability of fast foods that are void of nutritional value.

The current obesity levels reflect the complex social-cultural changes and biological susceptibilities and their interactions particularly during the past forty years. Eating and physical activity as individual behaviour does not just happen in a vacuum but is usually influenced by biological processes. The change in behaviour can not only be sustained if the drivers for behaviour have not been considered.

Adolescent obesity more in -depth

Children today are more obese in schools as the problem of obese is growing both in adults and children. Those who have adiposity changes in early child hood also tend to be fatter. This problem is world over. The problem has to be addressed in all nations. The most associated health condition with adolescent obesity is the non insulin dependence type 2 diabetes (diabetes mellitus) leading into more serious health complications. Obese children have more chances of having risk factors associated with cardiovascular diseases including high cholesterol levels and high blood pressure, greater risk of bone and joint problems, sleep apnoea, social and psychological problems.

Obese children have further risks of social and psychological problems such as poor self-esteem and stigmatization. These children are likely to remain obese in adulthood. Diet and exercise have been the major factors. Children of the current generation no longer eat health foods as children of the past generations. Today's children eat more and more and exercise less due to wide availability of food and computers, television and video games.

The problem of obesity

Obesity is no longer a problem of the developed world but now cuts across all nations. The world has built a society that wants things to be done quickly. The consumption of fast food by the school going children has an adverse effect on the dietary quality in the way that could plausibly increase the risk of obesity.

Most of these foods are high in calories, fats and sugars. The general problem is nutrition. The more combination of a diet high in calories and fats coupled with sedentary lifestyle has doomed many adolescents and adults. Before the problem of adolescent obesity can be addressed there is an urgent need to overcome the many barriers. These barriers are: **Children's parents, education, school systems, money and culture**

Parents- Every parent believes is doing his/her best for their child. Most the beliefs lead to barriers to physical activity and type of food the child eats. A parent may give reasons against increasing physical activity like "lack of time, competing interest, perceived lack of motor skills and fearing the child might get injured and active health living: prevention of obesity through increased physical activity. Those decisions made by parents are usually without proper education

Education-Parents need education and sensitization. They lack proper education on the right quality and quantity of food for their children.

The school systems

Children no longer receive proper nutrition and the physical exercises are no longer reinforced in schools. Physical education and physical activities are no longer being implemented in schools. Schools hire restaurant owners who focus in business with food high in calories, fats, sugars and with a lot of unhealthy preservatives.

Money-In developed countries money is not a constraint for foods but for physical activity. In developing countries parents fear they cannot afford to deal with the injuries arising from physical activity.

Culture-The American culture is all about doing what feels good. It has been taken that those high foods in fat taste good. The culture of advertising food has affected the adolescents and also adults. There is a lot of advertising on unhealthy foods.

School Systems-During the duration of the stay of the child schools should develop psychological, social, physical and intellectual skills. Schools should play an important role not only improving academics but also improving children's health and social outcomes. The schools should have a wellness policy.

6. Major findings

The study has shown that the risk regulators-health behaviours-genetic factors relationships are important in preventing obesity. The findings suggest that a systems-oriented, multilevel is a good model to implement in junior high schools to prevent obesity. Good multi-level model requires knowledge about data on the health of school children. The school policy governing the implementation of wellness activities work together synergistically.

7. Limitation of the study

First, the review relied on published secondary data. The most significant limitation lies in the fact that although there is huge body of literature on obesity in schools, there is no literature on obesity from the Zambian health care system.

8. Recommendation

The review of literature recommends that further research can be done on cost-effectiveness of implementing the systems-oriented- multi-level model to the study of obesity. Physical activity has to be promoted in schools to prevent obesity. It is not straight forward as the promotion of physical activity involves a lot of complex issues such as knowledge requirements, including physiological activities, behavioural environment, legislative and cultural. Various partnerships should be strengthened including school authority, the government, educators, parents, community, industries and trading organisations, mass-media and professional organisations.

9. Conclusion

Multilevel model is related to social ecological model on the principles of preventing obesity. Therefore multilevel model is a good model to prevent obesity in schools. The risk regulators-health behaviours-genetic factors model approach lay a good ground for strategic prevention obesity, evaluation of Multilevel model practices, food intake, production and physical activities.

The most important effective strategies could be theory-based and the involvement of the community and that the significance of family involvement. There seem to be no culturally appropriate and relevant designed programs for the diversity of adolescents regarding the elements.

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