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Assess the Effect of Nutritional Status, Food Consumption, Physical Activity among School Children

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Abstract

- ***Background:-***

The present study aim to assess the effect of nutritional status, food consumption, physical activity among school children among school children with their selected demographic variables.

- ***Materials and Methods:***

A quantitative approach with descriptive research design was adopted for the current study and the study was conducted at S.M.S Vimal Matriculation Higher Secondary School, Arakkonam. A total of 80 students with both genders aged between 5 to 12 years were recruited by using convenience sampling technique and the data was collected by using a self-structured questionnaire.

- ***Results:***

In the present study, the demographic variable BMI (χ^2=73.420, p=0.0001) had statistically significant association with level of food practice among school children at p<0.001 level, the family size (χ^2=10.363, p=0.006) had statistically significant association with level of food practice among school children at p<0.01 level. The gender (χ^2=4.789, p=0.029) had statistically significant association with level of food practice among school children at p<0.05 level, the BMI (χ^2=76.673, p=0.0001) had statistically significant association with level of physical activity among school children at p<0.001 level. The gender (χ^2=12.256, p=0.002) had statistically significant association with level of physical activity among school children at p<0.01 level.

- ***Conclusion:***

The present study concluded that, though majority of our study participants had higher level of physical activity and there was also an higher level practices of unhealthy food habits among our study participants which resulted in development of obesity and overweight among school children.

Keywords:- *Food Consumption, Nutritional Status, Physical Activity , School Children.*

I. INTRODUCTION

For the human body to meet its nutritional needs and to maintain its basic physiology, a well-balanced diet is essential. When eating improperly, one consumes too many calories (over-nutrition) or receives insufficient amounts of one or more vital nutrients (under- nutrition) [1]. Nutrition can also be the process by which food is absorbed and utilised for the formation, creation, and proliferation of bodily cells. Necessary for reproduction and energy source for best results in activities related to maintaining a feeling of wellbeing [2]. According to the World Health Organization (WHO) 90% of the 1.8 billion children in this age range live in LMICs (5). Although children aged 5 to 10 are frequently referred to as "school-going children," there is no standard terminology used to represent children aged 5 to 15, which illustrates the restricted focus on younger children and neglect of this age group[3]. The coexistence of over nutrition and under nutrition at all levels of the population is the twin burden of malnutrition.

Under nutrition and over nutrition are co-occurring in different population groups in low- and middle-income countries. The causes of this shift are the rapid acceleration of economic development, globalisation, and urbanisation, which have resulted in enormous changes in lifestyle, primarily in diet and physical activity [4]. Insufficient dietary variety, incorrect food kinds, bad feeding techniques, insufficient attention or stimulation, and subpar hygiene and sanitation could all have an impact on children's nutritional condition. These can enhance pre-admission vulnerabilities even more, which would lead to worsened malnutrition, decreased nutrient utilisation, and a vicious cycle of greater susceptibility to diseases, which would then lead to further nutritional decline [5]. Reasonable eating, regular physical activity, emotional stability, and enough sleep are the cornerstones of a healthy lifestyle. Adolescents and youngsters most frequently make lifestyle mistakes related to improper nutrition and insufficient exercise [6]. Their dietary state as children is a crucial determinant of their adult health.

According to World Health Organization reports, more than half of primary school students are undernourished. About 20.8% of primary school students in poor nations like India suffer from protein energy deficiency [7]. School children's diets may be difficult to examine because of their short attention spans, memory problems, and cognitive

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limitations that make it difficult for them to give accurate answers. Therefore, when studying a group of interest that consists of younger children, researchers must typically rely on gathering information from the parents or caregivers. However, parents may occasionally be unaware of what older children ingest when they are away from home [8]. Growth is the most reliable global predictor of a child's wellbeing. Children's irregular development patterns are known to be an indication of underlying risk factors, such as low household income and resources, inadequate food consumption, an increase in the burden of diseases, especially infectious diseases, inadequate sanitation, and unhygienic environments [9].

Physical activity has a favourable impact on both physical and mental health, and there is substantial evidence that it also improves brain function and cognition. This in turn has a positive impact on academic achievement. Exercise is thought to improve cognition through a number of mechanisms, including increased blood and oxygen flow to the brain, elevated norepinephrine and endorphin levels, which reduce stress and improve mood, and elevated growth factors that support the formation of new nerve cells and synaptic plasticity [10]. The FAO develops FBSs from national accounts of the supply and use of foods. They are computed by dividing the amount of food produced in and imported into a country by the amount of food exported net of imports, food fed to animals, and other food not available for human use. FBS data include information regarding average availability per person, or just how much food is delivered to the consumer [11].

However, consumer behaviour researchers have not paid much systematic attention to food consumption behaviour. The complexity and diversity of the factors influencing food choice and consumption, as well as the fact that such research requires understanding of the concepts of and insights from a wide range of science and social science disciplines, including food science, nutrition, medicine, psychology, physiology, psychophysics, sociology, economics, marketing, and anthropology, all contribute to the challenge of conducting consumer behaviour research in this crucial area [12]. Non-communicable diseases (NCDs), like diabetes, are often caused by dietary and lifestyle choices. Physical activity, according to the World Health Organization (WHO), is any movement of the body made by the skeletal muscles that significantly increases the amount of energy expended. It could encourage fat loss, lower blood pressure, reduce visceral fat, and potentially delay the onset of type 2 diabetes [13]. The contemporary period has brought about changes in lifestyles and employment practises that are linked to decreasing levels of physical activity. The majority of individuals changed from a historically active lifestyle where physical fitness was required to manage everyday duties. Studies over the preceding four decades have shown a link between decreased levels of physical activity and changes in body composition [14].

Globally, childhood obesity is a severe public health issue that is accompanied by the buildup of extra adipose tissue, which could be detrimental to physical fitness. Mid-childhood, or between the ages of 6 and 11, is when preventive strategies like greater PA can be used to help prevent obesity and its negative impacts [15]. Physical inactivity is the fourth leading cause of death worldwide, according to the World Health Organization (WHO, 2010), so it is advised for kids and teenagers (5 to 17 years old) to engage in moderate physical activity for at least 60 minutes each day in order to maintain their health and prevent the development of various chronic diseases [16].

Physical activity has a favourable impact on both physical and mental health, and there is substantial evidence that it also improves brain function and cognition. This in turn has a positive impact on academic achievement. Exercise is thought to improve cognition through a number of mechanisms, including increased blood and oxygen flow to the brain, elevated norepinephrine and endorphin levels, which reduce stress and improve mood, and elevated growth factors that support the formation of new nerve cells and synaptic plasticity [17].The objectives of the current study was to assess the existing level of physical activity and food consumption practices among school children and to find the association between the level of physical activity and food consumption practices among school children with their selected demographic variables.

II. METHODS AND MATERIALS

Study Design: A quantitative approach with descriptive research design. Was adopted for the present study. ***Study Setting***:- The study was conducted at S.M.S Vimal Matriculation Higher Secondary School, Arrakonam. ***Ethical Approval:*** After obtaining the ethical clearance from the Institutional Ethical Committee (IEC) of Saveetha Institute of Medical and Technical Science and a formal permission from the Departmental head of Obstetrics and Gynaecology the study was conducted. ***Study Participants:-*** School children with both genders aged between 5 to 12 years, who are able to read, understand and speak Tamil and English and are willing to participate were included in the study. Students who are not willing to participate in the study and school students are not available during this study are excluded in the study. ***Sampling Technique:*** A total of 80 children were recruited based on the inclusion criteria by using convenience sampling technique. Informed Consent: The purpose of the study was explained clearly in depth to each of the study participant and a written informed content was obtained from them**.** ***Informed Consent:*** The purpose of the study was explained clearly in depth to each of the study participant and a written informed content was obtained from them**.** ***Pre-Assessment:*** **-**The demographic information and the impact of nutritional status, food consumption, physical activity among school children was collected by using a self-structured questionnaire.

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III. RESULTS

➢ *Demographic Characteristics*:

Among 80 study participants, with regards to age ,majority of school children 36 (45.0%) were between the age group of 5-7 years and 44 (55%) were between the age group of 7-9 years .With regards to gender 44(55%) were males and 36(45.0) were females. With regards to educational status 33(41.2%) were in nursery school, 47(58.8%) had primary school education. With regards to type of family, 35(43.8%) belongs to nuclear family, 33(41%) belong s to joint family and 35(43.8%) belongs to extended nuclear family. With regards to family size 37 (46.2%) belongs to small family size, 28(35.0%) belongs to medium family size, 15(18.8%) belongs to large family size. With regards to the family income were 4(5.0%) belongs to Below Rs. 5000 , 40 (50.0%) belongs to Rs.10000–15000 , 29(36.3%) belongs to Rs.15000 – 20000, 7 (8.8%) belongs to Above 20000. With regards to BMI level 20 (25.0%) belongs to normal, 12 (15.0%) belongs to Underweight, 35 (43.7%) belongs to Overweight, 13 (16.3%) belongs to Obese.

➢ *Assessment on Existing Level of Food Practices Among School Children:*

The current study identified that, the existing level of healthy food practice were 46 (57.5%) belongs to Unhealthy food practice (≤50%) and 34 (42.5%) healthy food practice (>50%) (as depicted in Table:1 and Figure:1)

Existing Level of Healthy Food Practice	Frequency	Percentage
Unhealthy food practice (≤50%)	46	57.5
Healthy food practice (>50%)	34	42.5

Table 1: Frequency and Percentage Distribution on Existing Level of Food Practice Among School Children: N = 80

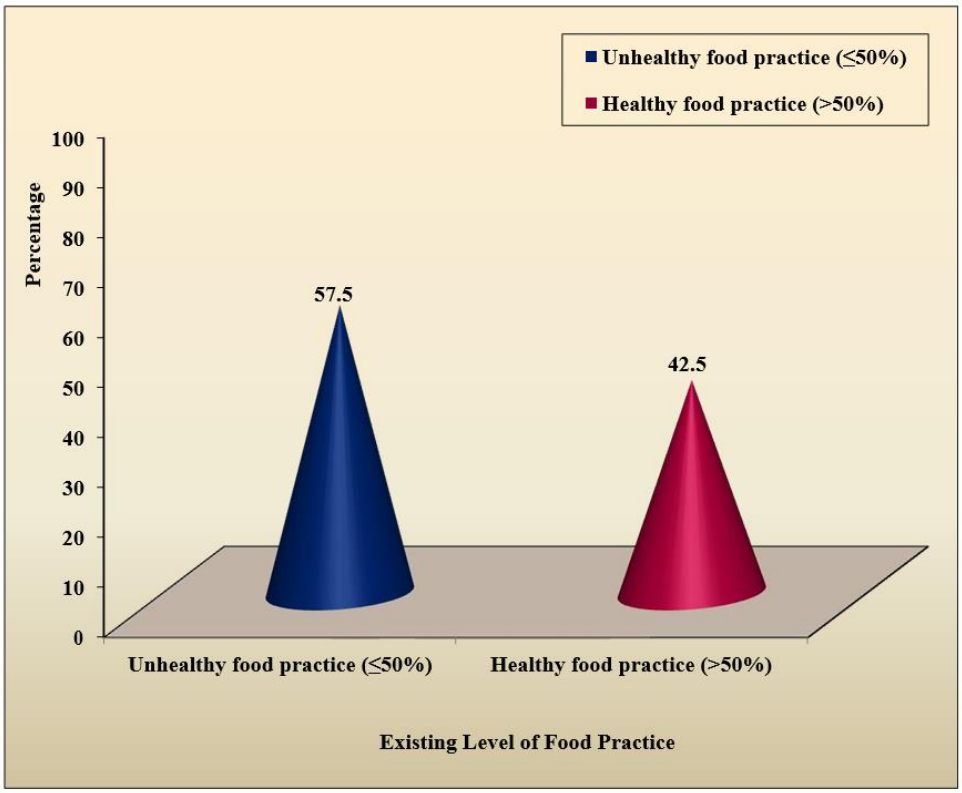

Fig 1:- Percentage Distribution On Existing Level Of Food Practice Among School Children

➢ *Assessment on Existing Level of Physical Activity Among School Children*

The current study identified that, the existing level of physical activity among school children 14 (17.5%) belongs to moderate level , 66(82.5%). belongs to the higher level and 0 (0%) none had mild level (as depicted in Table:2 and Figure:2)

Existing Level of Physical Activity	Frequency	Percentage
Mild (≤50%)	0	0
Moderate (51 – 75%)	14	17.5
High (>75%)	66	82.5

Table 2 : Frequency And Percentage Distribution On Existing Level Of Physical Activity Among School Children N = 80

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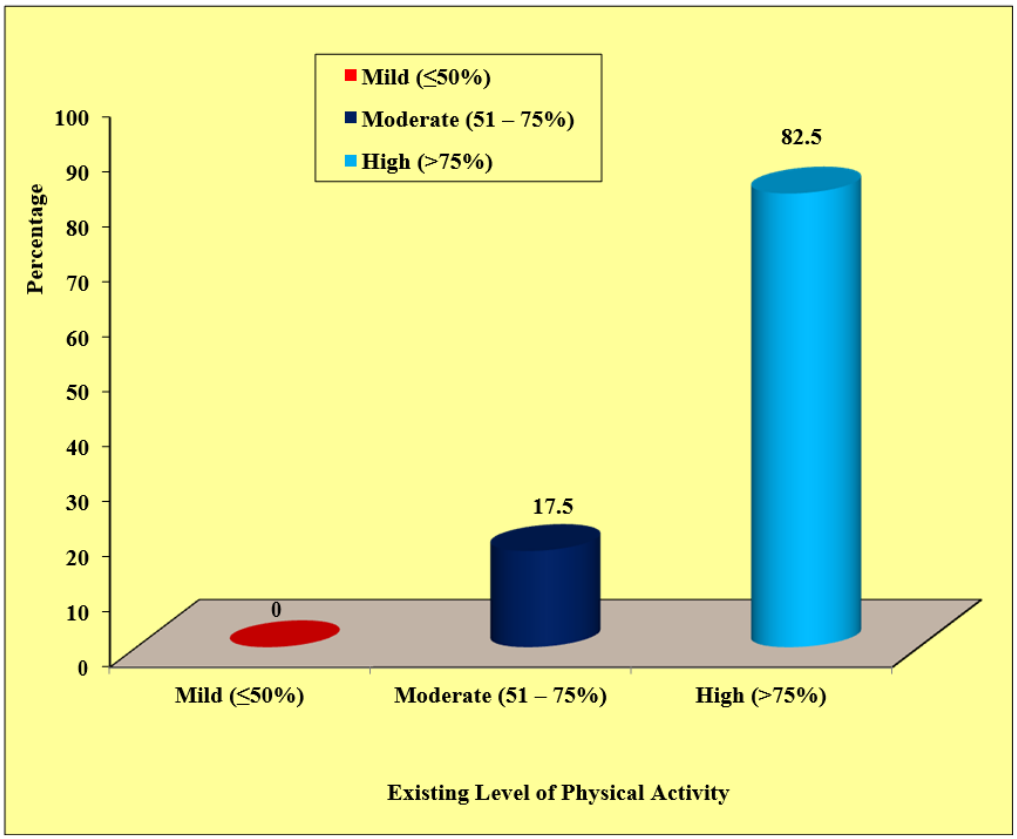

Fig 2:- Percentage Distribution of Existing Level of Physical Activity Among School Children

- *Association on existing level of food practice and physical activity among school children with their selected demographic variables.*

In the present study, the demographic variable BMI (χ^2=73.420, p=0.0001) had statistically significant association with level of food practice among school children at p<0.001 level. The demographic variable family size (χ^2=10.363, p=0.006) had statistically significant association with level of food practice among school children at p<0.01 level. The demographic variable gender had demographic variables gender (χ^2=4.789, p=0.029) had statistically significant association with level of food practice among school children at p<0.05 level. The other demographic variables had not shown statistically significant association with level of food practice among school children. It also shows that demographic variable BMI (χ^2=76.673, p=0.0001) had statistically significant association with level of physical activity among school children at p<0.001 level. The demographic variable gender (χ^2=12.256, p=0.002) had statistically significant association with level of physical activity among school children at p<0.01 level. The other demographic variables had not shown statistically significant association with level of physical activity among school children.

IV. DISCUSSION

In the current scenario of the world, it was identified and reported that, there is an increase in the level of overweight and obesity. Data during the year of 2000- 2016, children between 5 to 19 years there was a doubling in the proportion of overweight which is 10 times higher among girls and 12 times higher among boys. As children grow elderly they are exposed to unhealthy food practices and the researches have reported that 42% of school going children drink carbonated sugary soft drinks every day atleast once and 46% consume fast foods weekly once which results in overweight and obesity among school children[18]. A cross sectional study was conducted among 1701 children located in three various geographical areas aiming in investigating the level of nutritional status, food consumption and physical activity among school children and the outcome of the study results identified that obesity was higher among boys, the physical activity was higher among boys comparing with that of girls .The study concluded that , intake of energy dense foods serves as a contributing factor for the development of obesity among school children[19].

Hence the current study findings and the above supportive studies it was evident that, BMI level, family size and the gender of an individual is strongly associated with the level of food practices and physical activity of the school children.

V. CONCLUSION

The present study concluded that, though majority of our study participants had higher level of physical activity and there was also an higher level practices of unhealthy food habits among our study participants which resulted in development of obesity and overweight among these school children but the researcher failed to predict and identify the exact etiology for the occurrence of obesity among these study participants. As a medical health care professional, it is

the responsibility of nurses to promote and maintain good health of school children. So the knowledge on healthy food habits and physical activity can be imparted to these children by creating awareness programmes, health education and counselling to their mothers for the better development of their children.

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