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RESEARCH ARTICLE

PREVALENCE AND RISK FACTORS OF CHILDHOOD OBESITY: A COMMUNITY SURVEY IN KERALA

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Abstract

Introduction: Childhood obesity is a growing health problem around the world. More and more children are becoming overweight or obese, and this trend has increased a lot over the past few decades. The latest World Obesity Atlas was published by the World Obesity Federation in March 2024 to coincide with World Obesity Day. The Atlas estimates that as of 2020, there are 33 million children in India who are living with overweight and obesity. This works out to an overall prevalence of 9% of overweight and obesity among children below the age of 20 years. Overweight and obesity rates are projected to grow annually by 6.2% every year. Multiple factors contribute to the development of obesity in children, including genetic predisposition, environmental influences, socio-economic status, and behavioural factors such as poor diet and physical inactivity. Increased consumption of high-calorie, nutrient-poor foods, coupled with sedentary behaviours like excessive screen time, plays a significant role in the rising prevalence.

Aim: The present study aimed to assess the risk of obesity among children aged 6-11 years, in a selected community, Kannur District.

Methods:A quantitative research survey approach,using Family Planning Nutrition Assessment(FNPA)screening tool was conducted. The sample consisted of 300 mothers of children aged 6-11 years in a selected community, selected through convenient sampling. The data were analysed using both descriptive and inferential statistics based on the objectives of the study.

Results: The results of the study depicted that most (78%) of the children had moderate risk of obesity, whereas 20% of them had low risk of obesity. Only 2% of the children had high risk of developing obesity. There was a significant association between risk of obesity and demographic variable consumption of junk foods (< (0.044).

Discussion: The study conducted among children aged 6-11 years revealed that our children are at high risk of

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obesity during their childhood period itself. Urgent actions should be initiated to tackle this dangerous situation to ensure the health of our future citizens.

Introduction:-

Background of the Study:-

Obesity in early childhood is a growing concern world-wide with far reaching consequences for physical and mental health, cognitive development and for future economic productivity. Children under five years are vulnerable population and obesity during this period can lead to chronic diseases and cognitive and emotional delay[4]. Multiple factors contribute to the development of obesity in children, including genetic predisposition, environmental influences, socio-economic status, and behavioural factors such as poor diet and physical inactivity. Increased consumption of high-calorie, nutrient-poor foods, coupled with sedentary behaviours like excessive screen time, plays a significant role in the rising prevalence[1].

A descriptive cross-sectional study was conducted in Kannur district, Kerala to estimate the prevalence of overweight and obesity in school children aged 5-12 yrs. The sample consisted of 2400 school children from government & private schools using cluster sampling technique. Three private and two govt schools were selected using simple random method from these strata. Study variables used in this study were age, sex, socioeconomic status, birth weight, blood pressure, maternal education, television viewing, monthly income of parents, government/private school and family size. Data analysis was done using descriptive & inferential statistics. The results revealed that around 3% of the children was obese, 7% was overweight and 18% of them were having underweight. It was also observed that girls are more prone than boys to develop persistent obesity during adolescence. There was a significant association between monthly income of parents and overweight. The correlation between BMI and waist hip ratio showed that BMI is positively correlated with obesity and overweight, but with normal and underweight, this correlation is not statistically significant. The researchers concluded that obesity and overweight are increasing in young population due to lifestyle changes and various risk factors and it is the need of the hour to tackle this issue for a healthy future[2].

Need for the study:-

A cross-sectional study was carried out to assess the prevalence of overweight & obesity among affluent school children in Thrissur from November 2019 to October 2020. One school was selected using lottery method and universal sampling method was applied in the school to select 1104 students. Data were collected using a semi-structured questionnaire and anthropometric measurements. Data analysis was done using descriptive & inferential statistics. The results depicted that 13.9% of the children had overweight and 7.3% were obese. The combined prevalence of overweight & obesity was 21.2%. It was also found that prevalence of obesity & overweight was 23.7% among boys & 18.2% among girls. The prevalence of overweight and obesity increases with age and the results are statistically significant. The researchers concluded that Prevalence of obesity is increasing because of rapid economic and industrial growth, improvement in living standards; overeating of energy dense foods, decreased physical activity, sedentary lifestyle, playing of computer games and television viewing for longer duration. So, appropriate steps must be initiated to tackle this issue[3].

A descriptive cross-sectional study was done to assess the prevalence and risk factors of overweight and obesity in school children of Kottayam district, Kerala, India. From Government & private schools, 2 strata were made using cluster sampling technique. One class from each standard was selected using simple random sampling. All students from selected classes were selected and the sample consisted of 1200 children aged 5-12 years. Body mass index was calculated using the formula weight in kilograms (kg) divided by height in meter square (m^2). The Body Mass Index percentile were plotted according to the age and gender specific BMI charts obtained from CDC. Data analysis was done using descriptive & inferential statistics. The results revealed that 54.75% were girls and 45.25% were boys. It was also found that 58.6% of them were in private schools and 41.4% were in Government schools. Around 3% of the students had obesity & 7% of them had overweight. Chi square test was done to find the association and it was found that obesity and Overweight were found to be significantly related to age (p value= 0.000 and 0.001) and gender (p value= 0.000 and 0.041) respectively. It was also found that overweight and obesity was significantly related to school. (P=0.000) whereas overweight was significantly related to family size (P= 0.039), meanwhile obesity was not significantly related to family size (P= 0.076). The researchers concluded that childhood obesity is increasing at an alarming speed and it must be addressed with immediate attention[4]. Childhood obesity is the most prevalent nutritional disorder among children worldwide. Multiple factors contribute to the

development of obesity in children, including genetic predisposition, environmental influences, socio-economic status, and behavioural factors such as poor diet and physical inactivity. Increased consumption of high-calorie, nutrient-poor foods, coupled with sedentary behaviours like excessive screen time, plays a significant role in the rising prevalence. Obesity in childhood is further associated with a wide range of serious health complications, including type 2 diabetes, cardiovascular diseases, orthopaedic problems, and psychological issues such as low self-esteem and depression. Moreover, obese children are more likely to become obese adults, further compounding their risk of chronic disease and premature mortality[1].

Problem statement:-
A study to assess the prevalence and risk factors of obesity among children in a selected community, Kannur District, Kerala.

Objectives:
The objectives of the study were to: -
- assess the prevalence and risk factors of obesity among children
- associate between risk of obesity and selected demographic variables.

Hypotheses:
To achieve the stated objectives the hypothesis will be tested at 0.05 level of significance.
H_1: There will be a significant association between risk of obesity and selected demographic variables.

Assumptions:
- children may have mild to severe risk of obesity
- obesity in children can have serious consequences in their future life.
- obesity in children can lead to psychological issues

Materials and Methods:-

Research Approach:
The study employed a quantitative survey research approach to systematically investigate the risk of obesity among children in a selected community, Kannur.

Research design:
A descriptive research design was adopted to assess the risk of obesity among children in selected community.

Setting of study:
The study was conducted in a selected community of Kannur district.

Variables:
In this study, the risk of obesity among children was the dependent variable, whereas, extraneous variables were age, gender, birth weight of the child, duration of breastfeeding, frequency of eating out, consumption of junk foods, adequacy of drinking water and physical exercises.

Sample and sampling technique:
The sample in this study consisted of 300 mothers of children between age group of 6 to 11 years, selected through convenient sampling, who are from a selected community and those who met the inclusion criteria.

Inclusion criteria:
- mothers who are willing to participate in the study
- mothers of children between the age group 6 to 11 years
- mothers who are available at the period of data collection

Exclusion criteria:
- mothers who are not willing to participate in the study
- mothers of children aged below 6 years and above 11 years
- mothers of children who were not available at the time of data collection

- mothers of children diagnosed with medical conditions that affect the weight

Description of the tool:
Part A: Baseline characteristics:
The first part of the tool consisted of 8 items related to the baseline characteristics of the children, that include age, gender, birth weight of the child, breastfeeding duration, eating out habits, consumption of junk foods, adequacy of drinking water and physical activities per day.

Part B: The Family Nutrition and Physical Activity (FNPA) screening tool:
The investigators used a standard tool that consisted of 20 statements to assess the home environment and parenting practices related to child's risk for overweight & obesity. Using a 4-point Likert scale, it covers diet, physical activity, screen time, consumption of junk foods and sleep habits. The options were almost never (1), sometimes (2), usually (3) and almost always (4) for the positive statements and vice versa for the negative statements. The maximum score was 80 and the least being 20. The investigators arbitrarily graded the prevalence of risk of obesity among children.

Results:

Section A: Description of baseline characteristics:

- The results revealed that around 22.33% of the children were in the age group of 7- <8, whereas (20.67%) of them were in the age group of 9-<10. Only (19.67%) of them were in the age group of 10-<11 and very less proportions, ie, (18.67%) belonged to the age group of 6-<7 and 8-<9. It was also found that majority (51.67%) of the samples were boys and the rest, ie, 48.33% were girls.
- Results depicted that around 56% of the children had a birth weight of 2kg-<3kg, and 34% of them had birth weight of 3kg-<4kg. Very small proportions, ie, 8% of them had a birth weight >4kg and only 2% of them had birth weight <2kg. It was also identified that majority (33%) of the children were breastfed from 1 year – 1 and half year whereas 26.33% of the children were given breastmilk from 6month – 1year. Around 19% of the children were given breastmilk from 1 and half year – 2years and 15.67% of the children were breastfed for >2 years. Very few proportions, ie, 6% of the children were given breastmilk for <6months.
- It was identified that around 59.33% of children do not go out to eat food frequently whereas 40.67% of children go out to eat food frequently. Results also revealed that most (89.67%) of children were consuming junk foods while 10.33% were not consuming junk foods. Majority (60.33%) of children consumed candy while 49% of children had fried foods. Around 43.33% of children used to have sugary drinks and 41.33% of children consumed fast foods. Almost 38.37% of the children had the intake of processed snacks.
- It was found that most (83%) of children used to drink adequate amount of water per day and only 17% of the children did not drink adequate amount of water per day. Results showed that most (82.67%) of children had adequate physical activity and only 17.33% of them did not have adequate physical activity.

Section B: Description of prevalence of risk of obesity among childrenn=300

Grading	Range	Severity of visual media addiction	
		Frequency	Percentage
High risk	20 – 40	06	2
Moderate risk	41 – 60	234	78
Low risk	61 - 80	60	20

Table No.1. Percentage distribution of prevalence of risk of obesity among children.

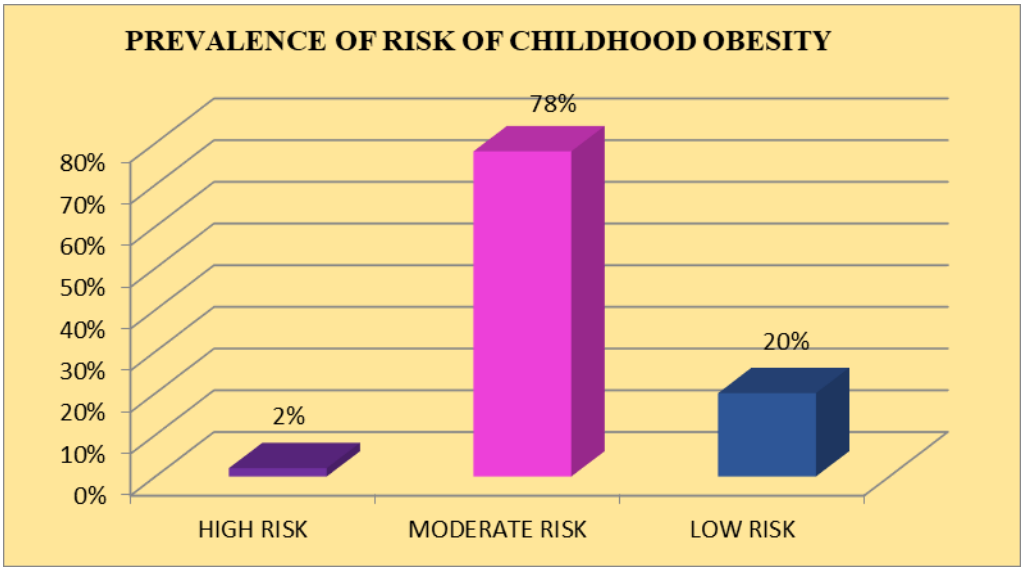

Figure. No.1. Bar diagram shows prevalence of the risk of obesity among children.

The data in the above table & figure reveal that 78% of the children have a moderate risk of obesity, while 2% of them have a high risk. Around 20% of them have a low risk of obesity.

Table. No.2. Range, mean, median and standard deviation of prevalence of risk of obesity among children n=300

Variables	Range	Mean	Median	Sd
Risk of obesity	33 - 70	55.42	56	6.336

Maximum score - 80

The data presented in the above table show that the mean, median, and standard deviation of prevalence of risk of obesity among children were 55.42, 56 and 6.336 respectively.

Table No. 3. Association between prevalence of risk of obesity among children and selected demographic variables.n=300

Sl. No.	Variables	χ^2 value	df	P value	Inference
1	Age	114.01	128	0.807	Not significant
2	Gender	30.508	32	0.542	Not significant
3	Birth weight of child	120.308	96	0.47	Not Significant
4	Breast feeding duration	154.537	128	0.55	Not Significant
5	Eating out habits	30.378	32	0.549	Not significant
6	Consumption of junk foods	46.77	32	0.044*	**Significant***
7	Adequacy of drinking water per day	39.790	32	0.162	Not Significant
8	Adequacy of physical activity	29.082	32	0.615	Not Significant

P<0.05 *significant

To find the association between prevalence of risk of obesity and selected demographic variables, following null hypothesis was stated.

H_{01}: There will be no significant association between prevalence of risk of obesity and selected demographic variables

The data in the above table reveal that there was a significant association between junk food (0.044) and prevalence of risk of obesity among children. It was also found that there was no significant association between age, gender, birth weight, breastfeeding duration, eating out habits, adequacy of drinking water per day and adequate physical activity and hence the test is statistically significant at $P<0.05$ level. So, the null hypothesis was rejected, and the research hypothesis was accepted.

Implication of the study:

The results obtained from the study helped the researchers to derive certain implications for Nursing practice, Nursing education, Nursing administration and Nursing research.

Nursing practice:

As nursing professionals, student nurses can practice various strategies for prevention of obesity like weight reduction, adequate physical activity, avoidance of junk food consumption and having plenty of water etc and it can be taught to public through various awareness programs.

Nursing education:

The present study emphasizes the urgent need of health education and awareness programs regarding the prevention of childhood obesity among children on a wide-spread manner and nursing students must take initiatives for the same.

Nursing administration:

Nurses as administrators can play a key role in educating the children through mass education program and other initiatives regarding prevention of obesity among children. Health administrators can take preventive actions to speed up the preventive measures of obesity among children.

Nursing research:

The findings of the study also have scope in the field of research and based on the recommendations; future studies can be conducted so that more information regarding the issue can be brought into light.

Conclusion:-

Obesity in children is a major health concern of the developed world. The National Health & Nutrition Examination Survey has reported that the prevalence of obesity is increasing in all paediatric age groups, both in males & females. Many factors contribute to this situation including eating habits, genetics, environment, metabolism and life style practices. Obesity can be countered through lower calorie consumption, proper exercise patterns and healthy lifestyles including adequate physical activity.

Ethical clearance: The ethical clearance of this study was obtained from the Institutional Ethical Committee (IEC) of Lourde College of Nursing.

Source of funding: Self-funded project within the Institution.

Conflict of Interest: The authors declare that there is no conflict of interest.

References:-

1. https://www.betterhealth.vic.gov.au/health/healthyliving/obesity-in-children-causes
2. Karakkad P, John K, Issac EV. Prevalence of obesity and overweight in school children aged 5 to 12 years of Kannur District. J. Evid. Based Med. Healthc. 2016; 3(77), 4161-4164. DOI: 10.18410/jebmh/2016/888
3. Viswambharan JK, Abraham R.A cross sectional study on the prevalence of overweight and obesity in affluent school children of central Kerala. Int J Community Med Public Health2021;8:4284-8.
4. Paulose A, Aluckal E. Prevalence of overweight and obesity in school children aged 5-12 years of Kottayam, India. International Journal of Science & Healthcare Research. 2022; 7(3): 410-415. DOI: https://doi.org/10.52403/ ijshr 20220760.

5. Polit DT, Hungler BP. Nursing research principles and methods. 6th ed Philadelphia: JB Lippincott Company: 1999.
6. Johny S and P. S. Sobha, Prevalence and Risk Factors of Childhood Obesity among School Children in Kerala, The Nursing Journal of India, May - June 2019 vol. CX. No. 3
7. Ramanathan, Ramya & Mohan, Janani & Ramesh, Shanthi & Subramanian, Sundari. (2022). Knowledge Attitude and Practice among Mothers towards Childhood Obesity: A Cross-sectional Study. Journal Of Clinical And Diagnostic Research. 16. 10.7860/JCDR/2022/55021.16623
8. Madanika SV, Kotyal MB, Kumar GM, Anuradha S. Prevalence of overweight and obesity among rural school children aged between 6 years to 16 years. Int J Contemp Pediatr 2022;9:608-13.
9. Abraham RJ, Pillai PC. Survey of obesity among school children in rural Kerala, India. Int J Contemp Pediatr 2019;6:2413-8
10. Shiji K. Jacob. "Prevalence of Obesity and Overweight among School Going Children in Rural Areas of Ernakulam District, Kerala State India". Int J Sci Stud. 2014;2(1):16-19.
11. Mahajan, Preetam B; Purty, Anil J[1]; Singh, Zile[1]; Cherian, Johnson[1]; Natesan, Murugan[1]; Arepally, Sandeep[1]; Senthilvel, V[1]. Study of Childhood Obesity Among School Children Aged 6 to 12 Years in Union Territory of Puducherry. Indian Journal of Community Medicine 36(1):p 45-50, Jan–Mar 2011. | DOI: 10.4103/0970-0218.80793.