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FAMILY STATUS: A CONTRIBUTING FACTOR TOWARDS CHILDHOOD AND ADOLESCENT OBESITY

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Abstract

Background: Obesity in children and adolescents is gradually becoming a major public health problem in many developing countries, including India. Families especially working mothers have fewer free moments to spend with children and to prepare nutritious and home-cooked meals. From traditional foods to fast foods and quick to easy foods have significant relationship with childhood obesity.
Materials and Methods: A multistage random cluster sampling procedure was used to draw sample from this region. Children and adolescents aged 10-19 years were selected randomly for questioning regarding the different aspects of epidemiology and their health examination was done.
Results and Discussion: In the present study 24.71% children were living in joint family while 75.29% living in nuclear family and the prevalence obesity and diabetes was more in the children who were part of the nuclear family. 23.19% mothers of the studied subjects were working.
Conclusion: This study identified the role of mother's occupation and time spent by parents with children with wrong eating habits and physical inactivity. Sensitization of parents is one of the curative measures to curtail this rising threat of obesity.

Keywords: Obesity, nuclear family, joint family, children, adolescent.

INTRODUCTION

World Health Organization estimates that 42 million children under 5 years are overweight and of these 31 million children are residing in developing countries (WHO, 2016). According to WHO (2016) majority of obese and overweight children live in developing countries and these countries have experienced 30% higher rate increases in overweight or obesity than developed countries. A significant increasing trend in the prevalence of overweight and obesity among children and adolescents has been reported over the last few years in developed and in developing countries. It is also increasingly recognized as a significant problem in developing countries undergoing economic transition. Obesity in children and adolescents is gradually becoming a major public health problem in many developing

countries, including India (Arluk et al., 2003). This study was useful to identify the best treatment strategies for young children and adolescents, however, family-based interventions are more important for long-term success. Today in nuclear families, especially working mothers have fewer free moments to spend with children and to prepare nutritious and home-cooked meals. From traditional foods to fast foods and quick to easy foods have significant relationship with childhood obesity. When the child returned home from school and parents were not home leads to bad eating habits and physical inactivity that leads to overweight and obesity.

MATERIALS AND METHODS

2048 children had undergone questionnaire and dietary survey and health examination. Out of these, 1017 were from urban population and 1031 from rural population. Children and adolescent, aged 10-19 years were selected randomly for questioning regarding the different aspects of epidemiology and their health examination was done. The permission from parents of the children, undergoing health examination and questionnaire survey was also taken on the self-designed consent form.

The survey had 3 parts:

1. Questionnaire survey and Dietary survey
2. Health Examination
3. Educating the Children/Parents

Questionnaires included type of diet, frequency of visiting restaurants per week and habit of having junk food provide information about subsequent health outcomes.

BMI is closely related to body fat percentage but is much easier to measure. The key anthropometrical measurements were taken.

The Centers for Disease Control and Prevention (CDC) suggests two levels of concern for children based on the BMI-for-age charts.

At the 85th percentile and above, children are "at risk for overweight" and,
At the 95th percentile or above, they are "overweight".

The cutoff for underweight of less than the 5th percentile is based on recommendations by the World Health Organization Expert Committee on Physical Status 1996.

Fasting Blood Sugar

Fasting blood sugar test was perfomed. The diagnostic criteria for diabetes mellitus have been modified from those previously recommended by WHO (1985).The revised criteria for the diagnosis of diabetes is used which is as follows:

Categories of Fasting plasma glucose (FPG) values are as follows:

- FPG <110 mg/dl(6.1 mmol/l) = normal fasting glucose;
- FPG ≥110 (6.1 mmol/l) and <126 mg/dl (7.0 mmol/l) = IFG (Impaired Fasting Glucose)/Prediabetes**.**
- FPG ≥126 mg/dl (7.0 mmol/l)= diabetes

(Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (2003)

Booklets, posters and pamphlets had also been prepared for awareness program at mass level. Children/Parents/Teachers etc. were provided health education by booklets/posters/pamphlets.

RESULTS AND DISCUSSION

In the present study 24.71% children were living in joint family while 75.29% living in nuclear family and the prevalence obesity and diabetes was more in the children who were part of the nuclear family (Table 1 & s2).

Table 1: Prevalence of type of family in total population

Group/Sub Group	Joint		Nuclear	
	N	%	N	%
Area				
1.Urban	342	33.63	675	66.37
2.Rural	164	15.91	867	84.09
Chi^2=86.43**(df:1) C=0.20				
All Data	506	24.71	1542	75.29

Table 2: Type of families and its relationship with obesity and diabetes in total population

Group/Sub Group	Joint		Nuclear	
	N	%	N	%
FBG Categories				
1. <110	485	24.34	1508	75.66
2. 110-126	9	28.12	23	71.88
3. >=126	12	52.17	11	47.83
Chi^2=9.68**(df:2) C=0.07				
Percentile Based				
1.Under Wt.	112	22.05	396	77.95
2.Healthy Wt	322	24.34	1001	75.66
3.At Risk	43	33.86	84	66.14
4. Over Wt.	29	32.22	61	67.78
Chi^2=10.48*(df:3) C=0.07				

Furthermore, 23.19% mothers of the studied children were working that amongst all the children 23.19% had working parents. 37.74% subjects spent one hour with the family in urban as well as rural areas (Table 3 & 4, Graph 1 & 2). This amount of time was insufficient for guiding the children about healthy eating habits and health matters as most of the quality time was spent on discussing the family affairs and studies. This was also one of the reasons of stress amongst children of nuclear families as there was nobody for sorting out problems related to their physical, emotional and health related aspects and problems. Rates of nuclear families 67.6% and 32.4% joint families were observed by Bahrain et al. (2008). In a study carried out by Earthen et al. (2011), no significant association was found between type of family and obesity, but the percentage of overweight (3.11%) and obesity (4.15%) was much higher in children staying in nuclear family than joint family (1.89% and 1.42%). Significant association was observed between BMI and family type with more number of normal weight children belonging to nuclear families by Bios and Mohan, 2016.They observed the distribution of BMI according to the family type. Statistically significant association was observed between the two. According to Rochelle et al., 2014, the prevalence of normal weight children was more in the nuclear family group (75.2%). Majority of children 778 (55.5%) belonged to nuclear families. They also observed the higher prevalence of overweight (53.1%) and obesity (51.9%) was found among subjects of nuclear family when it was compared with subjects of joint family (46.9%) and (48.1%), respectively, but this finding was not statistically significant.

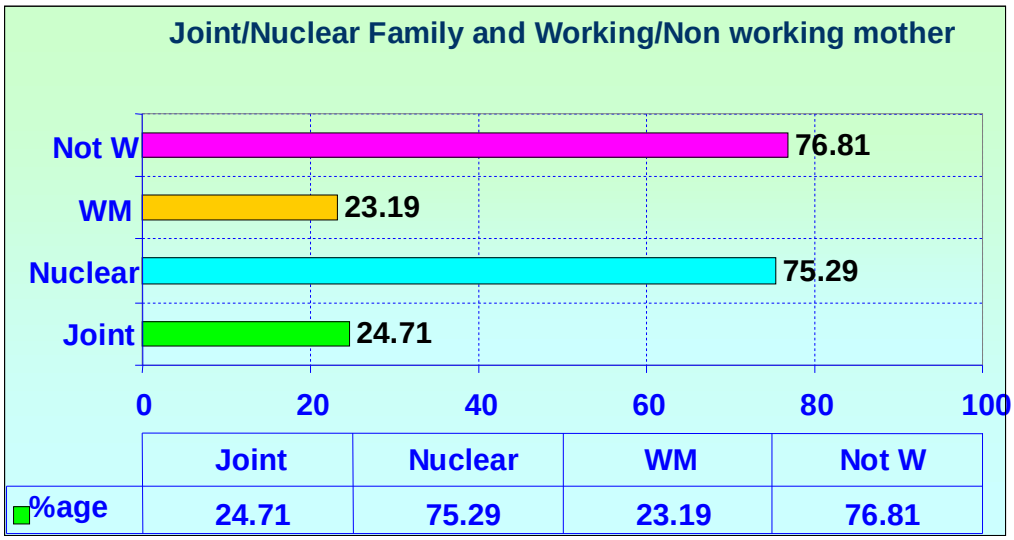
Table 3: Prevalence of working and non working mothers

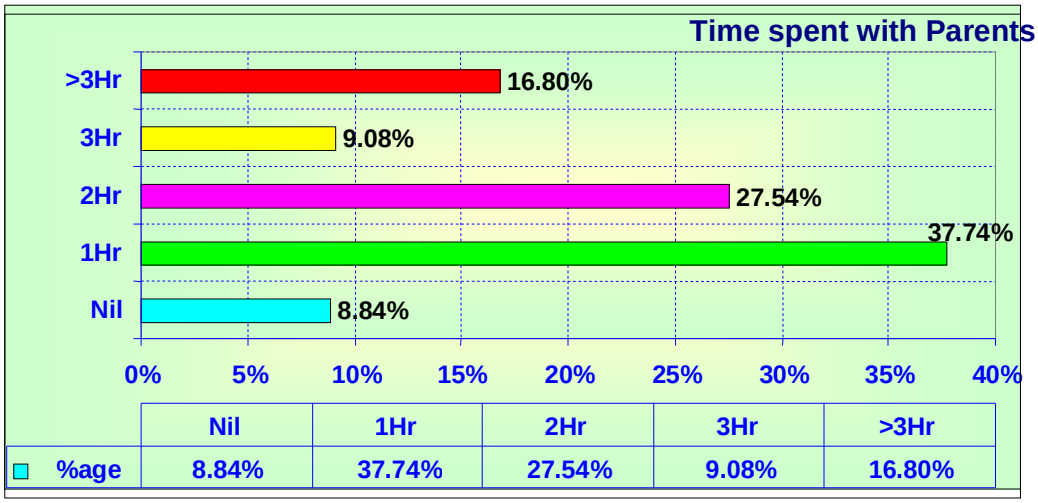
Group/Sub Group	Working		Non Working	
	N	%	N	%
Area				
1.Urban	249	24.48	768	75.52
2.Rural	226	21.92	805	78.08
Chi^2=1.89(df:1)				
All Data	475	23.19	1573	76.81

Table 4: Time spent (Hrs) with parents per day

Group/Sub Group	Nil		One		Two		Three		Three+	
	N	%	N	%	N	%	N	%	N	%
Area										
1.Urban	76	7.47	366	35.99	235	23.11	134	13.18	206	20.26
2.Rural	105	10.18	407	39.48	329	31.91	52	5.04	138	13.39
Chi^2=71.99**(df:4) C=0.18;										
All Data	181	8.84	773	37.74	564	27.54	186	9.08	344	16.80

Graph 1 & 2





Overweight 14 (11.3%) and obese 10 (8.1%) students were seen more in joint families, but there was no statistical association between family type and BMI. Study also found the rate of overweight (31%) and obesity (24.6%) was higher in students whose fathers had higher level of education. Similarly, higher prevalence of overweight (34.4%) and obesity (24.9%) was found in the students whose mother had higher level of education, and the results were statistically significant (Gamit et al., 2014).

Societal changes during the last several decades have affected child rearing which affected childhood habits of physical activity as well as diet. Socioeconomic inequalities in health arise because of the effect of social class on health through specific risk factors. Risk factors that might be involved include behavioural factors, material/structural factors and psychosocial stress related factors. Despite societal changes, family plays a major role in the lives of children in Peru. It is very common for children to live with extended family members and approximately 40% of children live in households that have other adults presented than their parents. Children are especially likely to be affected by their relationships with other adults for example grandparents. The reason for this is that children's lives are lived interdependently with parents, siblings and other kin members. Family living arrangements and absence or presence of extended family members shape the course and context of children's lives and can particularly affect children's access to human resources such as good nutrition (World Family Map, 2016).

The prevalence of overweight (63.2 %) was higher amongst adolescents who lived in nuclear family and this was significantly higher than amongst those living in joint family (36.8%). Similarly overweight was significantly higher among those adolescents (27.9%) whose mother's education was intermediate and above than those whose mother's education (6.1%) was below high school (Singh et al., 2014).

Similarly, in another study the prevalence of overweight and obesity was significantly higher among adolescents who lived in nuclear family (7.6%) as compared to those who lived in joint family (4.4%). This may be due to the reason that adolescents living in nuclear families are over nourished than adolescents living in joint families (Laxmaiah et al, 2007).

Many influences are also transferred from generation to generation through the intergenerational transmission, which extends to several different education, care, and health outcomes. A wide range of family characteristics shape family generations and can increase or decrease the chance of certain health outcomes for children. Since family is such an important influence in child nutrition outcomes, it is justified to state that family structure may be an important factor to explain why children in Peru are getting more overweight and

obese. It is also evident that ensuring good health among this population group ensures good future for the whole economy (World Bank, 2016).

It was analyzed by social, economic, and environmental factors those may operate through complex pathways to influence childhood obesity and diabetes. The findings of this study regarding the relationships between obesity and diabetes and socio-economic status are consistent with findings from many previous studies.

CONCLUSION

Families have a greater impact on the lifestyle of children. Type of families, education and occupation of parents significantly related to the prevalence of overweight and obesity. In this study, 24.71% subjects were living in joint family while 75.29% living in nuclear family and the prevalence obesity and diabetes was more in the subjects who were part of the nuclear family. This study also identified role of mother's occupation and time spent by them with children. Sensitization of parents is one of the curative measures to curtail this rising threat of overweight and obesity.

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