Prevalence and Knowledge on Obesity Among School Going Adolescents of Kaski, Nepal

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Abstract

Introduction: Childhood obesity has now been recognized as a global health problem because of its devastating consequences and prevalence at uncontrollable rate worldwide. The objective of this study was to determine prevalence of obesity and find out the knowledge on obesity among school going adolescents. **Material and Methods:** This descriptive cross-sectional study was conducted among adolescents of two private schools of Kaski district. Altogether 120 adolescent students were selected using census method. Height and weight were measured with standard scale and BMI was calculated. Self-administered structured questionnaire was used to assess knowledge. Descriptive statistics and Chi-square test at 0.05 significance level was used to analyze data. **Results:** The mean age of adolescents was 15.1 years and 50% of them were male. The prevalence of obesity among adolescents was 3.3%. Seventy five percent of the adolescents had knowledge regarding meaning of obesity and 59.2% had mentioned high calorie intake as a risk factor of obesity. Likewise, 52.5% adolescents stated Diabetes mellitus as consequence of obesity. Ninety eight percent mentioned regular exercise as a preventive measure of obesity. More than three fourth (78.3%) of the adolescents had inadequate knowledge regarding obesity. Male adolescents had significantly higher knowledge than female adolescents (*p*=0.00). **Conclusion:** Even though very few adolescents had obesity, there were adolescents with overweight which were at more risk for getting obesity. Adolescents have inadequate knowledge regarding obesity.

Key words: Obesity, Adolescents, Prevalence, Knowledge

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Introduction

Obesity has reached epidemic proportions globally, with at least 2.8 million people dying each year as a result of being overweight or obese. Once associated with high-income countries, obesity is now also prevalent in low- and middle-income countries.[1]. Also, 44% of the diabetes burden, 23% of the ischemic heart disease burden and between 7% and 41% of certain cancer burdens are attributable to overweight and obesity[2]. The problem of obesity is steadily affecting many low and middle-income countries, particularly in urban settings[1]. Prevalence of obesity and overweight was 4.9% in Asia[3]. In Nepal,

4.0% and 21.6% adult population are obese and overweight respectively.[4]

The consequences of childhood and adolescent obesity are far reaching, not only including health-related physical outcomes, such as high blood pressure, high cholesterol, metabolic syndrome, type 2 diabetes, orthopedic problems, sleep apnea, asthma, and fatty liver disease, but also psychological, social and behavioral consequences, such as risk for problems related to body image, self-esteem, social isolation and discrimination, depression, and reduced quality of life.[5]

In order to promote healthier eating habits and consequently to decrease the rate of obesity; knowledge about food, nutrition and healthier physical activity is believed to be important[6]. But very little study was done regarding prevalence and knowledge on obesity among school adolescents in Nepal. So,this study was intended to determine prevalence of obesity and find out the existing knowledge on obesity among school adolescents.

Material and Methods

The descriptive cross-sectional research design was used for this study. Altogether 120 school adolescents studying in grade 10 of SOS Hermann Gmeiner School (90 students), and Karuna Nidhi Education Foundation Higher Secondary School (30 students), Kaski were selected using census method. Convenience sampling methods was used to select schools. Both male and female students were included in the study. Data were collected using pre-tested self administered questionnaires. Height and weight of each adolescent was measured and recorded.

A portable Measuring Board with a base for standing upon and a right angle headpiece was used for measuring height. Similarly, Digital Weighing Scale was used to measure the weight. Prior to data collection, formal permission was taken from school administration and informed was obtained from the both adolescents and their parents of each. The collected data were checked, reviewed and organized for its completeness and accuracy. Data were edited, categorized, coded, entered and analyzed by using Statistical Package for Social Science (SPSS) version 16.The data were analyzed using frequency, percentage, mean and standard deviation and Chi-square test was used to measure the association between selected variables and adolescent's level of knowledge.

Obesity was measured by body mass index (BMI) which is defined as the weight in kilograms divided by the square of the height in meter (kg/m2). BMI level was calculated by percentile ranking for adolescents by plotting the BMI of each adolescent on BMI-for-age growth chart of World Health Organization (for either girls or boys).

Scoring system was adopted to find out the adequacy of knowledge. For each right response score 1 was given and 0 for wrong and don't know responses. The total obtainable score was 63. Adequacy of the knowledge was graded based on the 50% of maximum scores as adequate and less than 50% of score as inadequate knowledge.

Results

The study results were presented in socio-demographic variables, prevalence of obesity, level of knowledge and association between selected variables and knowledge on obesity, prevalence of obesity.

Socio-demographic Variables

The mean age of the adolescents was 15.08 years with Standard deviation of 0.656. Half (50%) adolescents were male, majority of the adolescents (67.5%) were Brahmin/Chhetri and about two third of the adolescents (71.7%) were from urban residence. The majority of the adolescents were Hindu (86.7%). Most of the adolescents (83.3%) were from nuclear family. Regarding the parental education, literacy rate among adolescent's mothers was 94.2% and majority (54.2%) was SLC and intermediate level. Similarly, the literacy rate among adolescent's fathers was 97.5% among which majority (45.8%) were graduate and postgraduate. Likewise, most of the adolescent's mothers were housewives (57.5%) and fathers were service holder (59.2%) (Table1).

The Prevalence of Obesity among Adolescents

The prevalence of obesity among adolescents was only 3.3%. Likewise, 10% of the adolescents were overweight while 77.5% were healthy weight and 11% were underweight (Table 2).

Adolescents' Level of Knowledge regarding Obesity

Out of total adolescents, majority (78.3%) of adolescents had inadequate knowledge whereas only 21.7% of adolescents had adequate knowledge regarding obesity. Majority (40.0%) of adolescents had got information from schools teachers followed by family friends 30.8 % news paper 30% health worker and radio/TV 24.2% (Table 3).

Association between Adolescent's Level of knowledge and socio-demographic Variable

Association between adolescent's level of knowledge and socio-demographic variables showed that there is significant relation between adolescent's

level of knowledge and sex since the p value is less than 0.05 (P=0.00). But there is no any association between other variables such as area of residence and type of family and family history of obesity since the p value is greater than 0.05 (p value =0.245, 0.843, 0.268) (Table 4). There is no association between prevalence of obesity among adolescents with their level of knowledge (Table 5).

Table 1: Socio-demographic Variables of Adolescents (n=120)

Variables	Number	Percent (%)
Sex		
Male	60	50.0
Female	60	50.0
Ethnicity		
Brahmin/ Chhetri	81	67.5
Newar	7	5.8
Janajati	25	20.8
Dalit	5	4.2
Others	2	1.7
Area of residence		
Rural	34	28.3
Urban	86	71.7
Parent's educational status		
Mother		
Illiterate	7	5.8
Informal education	4	3.3
Primary education	4	3.3
Secondary education	13	10.8
SLC and intermediate	65	54.2
Graduate and postgraduate	27	22.5
Father		
Illiterate	3	2.5
Primary education	3	2.5
Secondary education	10	8.3
SLC and intermediate	49	40.8
Graduate and postgraduate	55	45.8
Parent's Occupation		
Mother		
Agriculture	3	2.5
Housewives	69	57.5
Business	20	16.7
Service	28	23.3
Father		
Agriculture	5	4.2
Business	44	36.7
Service	71	59.2

Table 2: Prevalence of Obesity among Adolescents (n = 120)

Prevalence of Obesity	Number	Percent (%)
Underweight (Less than 5th percentile)	11	9.2
Normal / Healthy weight (5th percentile to less than 85th percentile	93	77.5
Overweight (85th to less than 95th percentile)	12	10.0
Obese (Equal to or greater than 95th percentile)	4	3.3

Table 3: Adolescents' Level of Knowledge and sources of Information regarding Obesity (n=120)

Variables	Number	Percent
Level of Awareness		
Adequate	26	21.7
Inadequate	94	78.3
Sources of Information		
Newspaper/ magazines/ posters/ pamphlets	36	30.0
TV/Radio	29	24.2
Health worker	29	24.2
School teacher	48	40.0
School curriculum	22	18.3
Family members/Friends	37	30.8

Table 4: Association between socio- demographic variables and Adolescent's Level of Knowledge (n = 120)

Variables	Knowledge		Chi-square	p-value
	Adequate	Inadequate		
	No. (%)	No. (%)		
Sex				
Male	23 (88.5%)	37 (39.4%)	19.64	0.00
Female	3 (11.5%)	57 (60.6%)		
Type of family				
Nuclear	5 (19.2%)	29 (30.9%)	1.354	0.245
Joint	21 (80.8%)	65 (69.1%)		
Residence				
Rural	22 (84.6%)	78 (83%)	0.39	0.843
Urban	4 (15.4%)	16 (17%)		
Family history of obesity				
Present	17 (25.4%)	50 (74.6%)	1.228	0.268
Absent	9 (17.0%)	44 (83.0%)		

Table 5: Association between Prevalence of Obesity and Knowledge regarding Obesity

Variables	Knowledge		Chi-square	p-value
	Adequate	Inadequate		
	No (%)	No (%)		
Normal weight and below	22 (86.6%)	82 (87.2%)	0.121	0.728
Above normal	4 (15.4%)	12 (12.8%)		

Discussion

In this study, 100% of the adolescents have heard about obesity through different sources. Among them forty percent of the adolescents mentioned that they had heard about obesity from school teachers and least (24.2%) mentioned TV/Radio as a source of information. This finding contradicts with the findings of the study done in Malaysia which revealed Television (73.3%) as a major source and school teachers (10%) as a least mentioned source of information regarding obesity[7].

This study shows majority (77.5%) of adolescents were healthy weight, 10% were overweight and only 3.3% were obese. This finding is parallel with the findings of one study which reported that 85.6% of children were healthy weight, almost 10% of them were overweight and only 4.5% children were obese[8]. This study is also consistent with another study conducted among higher secondary level adolescents with 5.8% overweight and 2.3% obese[9]. Similarly, this is also parallel with the findings of another one study which showed the prevalence of overweight of 12.2% among adolescents[10].

More than two third (75.0%) of the adolescents in this study were able to define obesity correctly which is consistent with the findings of the onestudy which showed 82.21% of students defined obesity correctly[11]. Likewise, in this study only 26.7% of the adolescents correctly mentioned the method of assessment of obesity using BMI. This finding contradicts with the findings of the study which showed 66.82% responded correctly about BMI.[11].

In this study more than half (59.2%) of the adolescents mentioned high fat containing food as a risk factor for obesity which contradicts with the finding of the study where only 12.01% mentioned highest fat containing food as a risk factor[11]. Similarly, 25.0% adolescents identified obesity as a genetic problem and 17.5% identified stress as risk factor which contradicts with the findings of another study which reported 14.5% as genetic susceptibility and 32.6% as stress as risk factor for obesity[12].

The study shows that majority (78.3%) of adolescents had inadequate knowledge. This result is supported by findings of other study conducted among 100 adolescents which revealed that 67% had inadequate knowledge and only 32% had moderately adequate knowledge[13]. This result is also parallel with the study done in another 100 adolescents which showed that 93.0% of the adolescents had below average knowledge regarding obesity[14].

In this study, male adolescent students had significantly higher awareness (88.5%) than female (11.5%) adolescent students regarding obesity. This finding is parallel with another one finding of which resulted that male students had more knowledge than female adolescent students[14]. There was no significant association between selected socio-demographic variables (area of residence and type of family) and knowledge level of adolescents. This study contradicts with the finding of another one study which shows significant association between knowledge level of adolescents with area of residence and type of family[13].

Association between knowledge level and prevalence of obesity was not significant in this study. This is supported by the study which revealed insignificant association between knowledge regarding obesity and body mass index (BMI) level of adolescents[13].

Conclusion

In conclusion, majority of the adolescents had inadequate knowledge regarding obesity. Even though very few adolescents had obesity, there were adolescents with overweight which were at more risk for getting obesity; among which male adolescents were obese while most of the female adolescents were overweight.

Recommendation

It is recommended to conduct health programme regarding prevention of obesity in schools and provide information through school teachers as well as through mass media to increase knowledge regarding obesity.

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