

## Dietary Pattern and Its Impact on Nutritional Status of Adolescent Girls among Chepang Community in Raksirang Rural-Municipality of Makawanpur District

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### ABSTRACT

**Background:** Adolescence is a period of transition between childhood and adulthood. An adolescent is defined as individuals in the 10-19 year age group. The health and nutritional status of adolescent girls affects their health and their survival in future. Adolescents, particularly girls, are increasingly conscious of their body which leads to low intake of food rich with nutrients. Teenage girls may excessively restrict their energy intake, out of a desire to be thin, which has a serious threat on their nutritional status.

**Methods:** Descriptive cross sectional study design was applied in ward number 5 of Raksirangrural municipality of Makawanpur district using semi-structured questionnaire and all adolescent girls (127) of aged 10-19 years were involved as the respondents of the study. The study duration was 7<sup>th</sup> June to 25<sup>th</sup> December 2017. The data was entered and analyzed with the help of software SPSS version 16.0.

**Results:** The prevalence of underweight was found to be 27.6%. Study shows the participants consume protective fruits and vegetables group and other fruits and vegetables group in less quantity as comparison to other food groups. Though most of the participants were literate, knowledge on nutrition about 8% had adequate knowledge and 91% had poor knowledge.

**Conclusions:** Nutritional status of adolescent girls of Raksirangrural municipality is found to be poor. The research recommends improving nutritional status and feeding habits especially intake of wheat, meat and yellow fruits focusing on adolescent girls.

**Keywords:** adolescent; anthropometric measurement; dietary pattern; nutritional status.

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### INTRODUCTION

Adolescence is the period of development that begins at puberty and ends in early adulthood. Most commonly, adolescence is divided into three developmental periods: early adolescence (10–14 years of age), late adolescence (15–19 years of age), and young adulthood (20–24 years of age).<sup>1</sup> The nutritional status of adolescent girls, the upcoming mothers, contributes importantly to the nutritional status of the community. Under-nutrition among adolescent girls is a huge public health problem that may lead them to impaired growth.<sup>2,3</sup> Dietary insufficiency is the greatest threat among adolescents due to erratic patterns and specific psycho-social factors underlying these, combined with particularly high nutritional requirements for rapid growth.<sup>2</sup> During adolescence,

an individual's overall nutritional requirement reaches its peak in their life cycle. Healthy eating is vital at this time of life not only for nutritional reasons, but also because habits acquired early in life are more likely to persist into maturity.<sup>4</sup> There are a few factors that have a significant impact on the entire development of an adolescent girl's physical and mental health, and one of them is the quality of nutrition she consumes on a regular basis.<sup>5</sup> As has been observed throughout the years, girls living away from their family have a chaotic pattern that includes eating at strange hours, ignoring hygiene, the calorific content of junk consumed, and the destructive influence it has on the fragile state of their bodies and brains.<sup>6</sup> It is found to have the fact that adolescents gain up to 50% of their adult weight, more than 20% of their adult height and

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50% of their adult skeletal mass during this period.<sup>7</sup> As BMI is categorized by NDHS, in every category the proportion is higher in adolescent (age 15-19) and at particular risk for chronically energy deficiency are girls 15-19 years of age.<sup>8</sup> The Bengali adolescents had moderate rates of under nutrition but also nutrition on girls seemed to the comparison of boys.<sup>9</sup> A study in Lucknow shows that overall prevalence of thinness was found to be 17% and 11.4% (BMI<5<sup>th</sup> percentile according to NCHS-CDC reference) among urban and rural school going girls respectively. Overall prevalence of overweight was found to be 5.4% and 3.9% (BMI >85<sup>th</sup> percentile according to NCHS-CDC reference) among urban and rural school going adolescent girls respectively.<sup>10</sup>

## METHODS

Descriptive cross-sectional study design was applied to assess the dietary pattern and its impact on nutritional status of adolescent girls among Chepang community. Primary data was collected for the research study using a semi-structured questionnaire. The study duration was 7<sup>th</sup> June to 25<sup>th</sup> December 2017. All adolescent girls (127) aged 10-19 years were involved as the respondents of the study from the ward number 5 of Raksirangrural municipality of Makwanpurdistricta as it was a census survey study. Girls not willing to participate during the interview and temporary residence or not the part of the family members was excluded. At first, the collected data was checked and edited daily for the validation of the data. Each of the data was rechecked at home after finishing the data collection. The collected data was coded which helps further processing. The data was entered in SPSS version 16.0. Then, analysis was carried out with the help of software SPSS version 16.0 on the computer to find out the result (i.e., BMI, percentage and mean including knowledge regarding nutrition as well as their dietary pattern). Pre-testing was done at 10 % of population with similar setting and necessary modification of tools was applied.

## RESULTS

The mean age of the participants was 14.97 years

where most participants (98.4%) were educated. 82.7% of the participants were found to be unmarried. More than half of participants (53.51%) had joint family where 65.4% among the participants were Christian and 34.6% were Hindu (Table 1).

<b>Table 1. Sociodemographic details of the respondents.</b>	
<b>Variables</b>	<b>Frequency (%)</b>
<b>Age Group in Years</b>	
10-14	51(40.2)
15-19	76 (59.8)
Mean: 14.97 years & S.D: 2.99 years	
<b>Educational Status</b>	
Illiterate	2(1.6)
Primary Level	61(48)
Secondary Level	60(47.2)
Higher Secondary Level	4(3.1)
<b>Marital Status</b>	
Married	21(16.5)
Unmarried	105(82.7)
Divorced	1(0.8)
<b>Family Type</b>	
Nuclear	57(44.9)
Joint	68(53.51)
Extended	2(1.6)
<b>Religion</b>	
Hindu	44(34.6)
Christian	83(65.4)

Only 8.7% of participants had adequate knowledge on nutrition where 91.3% among them had inadequate knowledge on nutrition (Table 2).

<b>Table 2. Overall Knowledge of respondents on nutrition.</b>	
<b>Variables</b>	<b>Frequency (%)</b>
Adequate	11 (8.7)
Inadequate	116 (91.3)

Finding showed 64.6% of adolescent girls are normal, where about one third of the participants are under nutrition (i.e., 27.6%). Likewise, the mean BMI of the participants was found to be 20.25 (Table 3).

The association tables were constructed by ascertaining significance of certain factors associated with knowledge about nutrition and nutritional status done on them using Chi-square test, P values less than 0.05 were taken as significant. Finding showed that 27.28% of the participants having adequate

knowledge were found to be underweight. Likewise, 27.58% of the participants having inadequate knowledge were found to be underweight (Table 4).

Nutritional Status	Frequency (%)
Underweight	35 (27.6)
Normal weight	82 (64.6)
Overweight	9 (7.1)
Obesity	1 (0.8)
Mean: 20.25 & S.D: 3.32	

Knowledge level	Underweight n (%)	Normal weight n (%)	Overweight n (%)	Obesity n (%)	Total n(%)	P value
Adequate	3(27.28)	8(72.72)	0(0)	0(0)	11(100)	0.78
Inadequate	32(27.58)	74 (63.79)	9 (7.75)	1 (0.86)	116(100)	

## DISCUSSION

The average age of the participants is 14.97 years. 27.6% of adolescent girls are underweight and only 64.6% are normal. Though most of the participants were literate, knowledge on nutrition on nutrition had adequate knowledge and 91.7% had poor knowledge. Majority of participants (53.51%) had joint family whereas 65.4% among the participants were Christian and 34.6% were Hindu. Most of them were students. Study shows the participants consume protective fruits and vegetables group and other fruits and vegetables group in less quantity as comparison to other food groups. Moreover, the study shows there is an association between the consumption of wheat, yellow fruits and meat, and nutritional status of adolescent girls. The prevalence of underweight was 27% in this study, the prevalence of underweight was found to be 27.6% which is close to the NDHS data.<sup>7</sup> Relatively, the prevalence of underweight was in increasing order with national level. This situation reflects that there is lack in the intervention carried out by the government of Nepal. The difference behind this result might be that the national level study was carried out at a large scale whereas this study was done on a small scale. The study conducted in Bangladesh, by in a developing country also found that 60.2% of adolescent girls were underweight and it shows significant relationship between knowledge and nutritional status of adolescent girls.<sup>11</sup> Though the

present study had also found adolescent girls were 27.6% underweight, there is no significant relationship between knowledge and nutritional status. The study conducted by in Bangladesh signifies the dietary pattern as the high in consumption of carbohydrate rich products and less in consumption of protein, vitamin A and vitamin C rich in products. In this study, there is high consumption of carbohydrates and protein products but less consumption of fruits and vegetables rich in vitamin A and vitamin C.<sup>12</sup>

The study conducted in Tamale metropolis revealed that the prevalence of underweight was found to be 10% which was relatively low among participants as compared to other developing countries. 7% were at risk of becoming overweight while 4% were overweight. Food was consumed basically according to their need. About 65% of children consume the variable ingredients in their diet food for having proper balanced diet. 73% of participants did not consume eggs whereas fish and meat were consumed occasionally, and these revealed as low intake in the consumption of animal protein. Most of the meals were eaten at home and mostly parents determined what was eaten at mealtimes. The general nutrition knowledge of respondents was poor. Likewise, this study reveals that 100% of participants did not consume eggs and fish and meat were consumed occasionally which shows low intake in the consumption of animal protein. Most of meals had been eaten at home and mostly parents determined that what was eaten at mealtime and the prevalence of underweight was found to be 27.6% among adolescent girls. The present study was similar where general nutrition knowledge of respondents was poor. A descriptive cross-sectional study in urban and rural schools of Lucknow district at the duration October 2008 to September 2009, total 847 school going adolescent girls between 10-19 years had been interviewed and recorded the anthropometric measurements for

assessing nutritional status. The study revealed that overall prevalence of thinness was found to be 17% and 11.4% (BMI < 5<sup>th</sup> percentile according to NCHS-CDC reference) among urban and rural school going girls respectively.<sup>10</sup> And this study was done in the rural area of Makawanpur District where maximum adolescent girls were school going girls. Similarly, in this study as well, all adolescent girls between 10-19 years had been interviewed and recorded the anthropometric measurements for assessing nutritional status. The study revealed that overall prevalence of thinness was found to be 27.6% which is higher than above mentioned study.

## CONCLUSIONS

The study on dietary pattern and its impact on nutritional status of adolescent girls among Chepang community in ward no.5, Raksirang Rural municipality of Makwanpur district. The nutritional status of adolescent girls of Raksirang Rural Municipality is found to be poor i.e., about 27.6% of adolescent girls are underweight. Most of the respondents had not adequate knowledge on nutrition (91.7%). The formal education itself is not sufficient to improve the nutritional education of the adolescent but the nutritional knowledge, most importantly the nutrition education is must to improve the adolescent

nutritional status. Moreover, most of the respondents consume high amount of carbohydrate and protein products but less consumption of vitamin A and vitamin C rich products.

## Limitations

Knowledge about nutrition is more important than the formal education so school design awareness programs especially focus on food selection in coordination with local health facilities food consumption and pattern should be based on dietary recommendations. Anthropometric measurement should be done frequently so that nutritional status can be assessed by the concerned local authority. Government efforts should be made to combat the increasing trend of underweight prevalence by taking proper action on it.

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## Conflict of Interest:None

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