

# Surveillance of Health Caring Practices and Nutritional Status Among Adolescent Girls at Madhupur Hill Tracts, Bangladesh

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**Abstract:** A longitudinal surveillance study was carried out among the tribal (*Garo Tribe*) and non-tribal adolescent girls at a renowned hill tracts (Madhupur) in Bangladesh. A total number of 110 adolescent girls were collected among them fifty percent were tribal and another was non-tribal general population. In baseline survey, overweight found 7.3% in non-tribal adolescent girls whereas in tribal girls it was 1.8% and 70.9% non-tribal and 58.2% tribal adolescent girls were normal body weight at baseline survey. The nutritional status was increased in subsequent surveys. Hygienic sanitary napkin was used only 36.4% tribal adolescents and 70.9% non-tribal adolescent girls at baseline survey which was positively increased in 2<sup>nd</sup> and 3<sup>rd</sup> follow-up surveys. But the consciousness about proper sanitary practices was little increased in both groups is a bad indicator of personal hygiene knowledge. However, the knowledge about food misconception was positively deviates in both groups after second and third time monitoring. Thus it can be postulate that the repeated survey and monitoring can influence the positive variations of the nutritional knowledge, health care behavior and positive health outcomes towards normal BMI-for-age in both groups due to sharing and mix-up nutrition education knowledge.

**Keywords:** Tribal, Non-Tribal, Adolescent Girls, Health Care, Nutritional Knowledge, Surveillance

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## 1. Introduction

Adolescence is a transitional period between childhood and adulthood, which begins from the earliest signs of secondary sexual characteristics development and ends when a person has achieved adult status [1]. It is also considered a unique intervention point in the life cycle for a number of reasons [2]. The rapid change in physical growth and psychosocial development place adolescents into a nutritionally vulnerable group with unhealthy eating behaviors that do not meet dietary recommendations [3]. It has been recognized by the health professionals that adolescents' growth and development is affected by the poor

eating patterns [4]. Some factors include poor household economic condition, child labor causes under nutrition of adolescent [5]. Malnutrition during adolescence has serious, long term effects on the health and nutritional status since total nutrient needs during adolescence is higher than any other time during the life cycle. An adequate diet is nutritionally essential at this time. Therefore diet is a relevant factor not only for growth and development, but also for the present and future health of adolescence [6]. The nutritional status of adolescents in Bangladesh is deplorable. A large number of adolescent girls suffer from malnutrition [7]. Moreover, geographically Bangladesh Hill Tract areas population is more vulnerable and persist more malnutrition in all age groups [8]. The prevalence of malnutrition is found

to be markedly higher among girls compared to boys. In this stage an adequate intake of energy and other nutrients in the diet would seem of importance in order to build up the full potential of an individual [9].

The *Garó* community is one of the major tribes in Bangladesh. According to the history books, the *Garó* tribe entered Bangladesh in the first century. They were refugees from Mongolia and came to this region through Tibet. *Garó* is one of the largest indigenous communities of Bangladesh. They live in the north-eastern parts of the country [10]. The lifestyle patterns of *Garó* households are distinct although they are living embedded with some other social and cultural sharing of common Bangladeshi. Compared to the other tribal groups, the *Garó* tribe is little advanced in education and social activities but economically they are very poor or deprived by any once. Their living rooms or conditions is not good enough as well as their surroundings hygiene [8, 11].

Considering the above requirements, this study was designed with the objectives of investigating the knowledge about food, nutrition & health care, measurement and surveillance of nutritional status of the adolescent girls at the hilly areas of Madhupur Upazila of Tangail District which influence their dietary pattern, nutrient intake and nutritional knowledge.

## 2. Methods and Materials

### 2.1. Study Design

The study area was selected at Madhupur Hill Tracts due to their population diversity and communication facilities. It was longitudinal as well as descriptive study. The study had the coverage of three main surveys including Baseline survey, Midterm survey, and Final survey. The study was conducted

for the period of one year and was effective from September 2012 to August 2013. Simple random sampling methods were applied purposively to collect the information of 110 adolescent girls in which 55 *Garó* (tribal) adolescent girls & another 55 *Non-Garó* (non-tribal) adolescent girls at Madhupur Upazila.

### 2.2. Anthropometric Measurement

Weight machine was used to measured body weight. The weight was recorded bare footed and the scale was calibrated to zero marking every time before use. The weight was recorded in kilogram. Height of the study population were measure in standing position with hanging by the side and bare footed, relaxed way, the vertebral column touching the scale. Height was measured to the nearest 0.1 cm.

### 2.3. Data Analysis

The data set were first checked, cleaned and entered into the computer from the numerical codes on the form. The data was edited if there is any discrepancy and then cleaned it. The frequency distributions of the entire variables were checked by using SPSS. 16.0 Windows program. For tabular, charts and graphical representation Microsoft word and Microsoft excel were used.

## 3. Results and Discussion

In Bangladesh adolescence experience problem associated with limited access to education, early marriage, lack of employment opportunity, extra-curricular activities etc. it is very important to focus our attention on the adolescents who will be future adults, so that they are well prepared for their future role as a responsible members of the society.

**Table 1.** Background information of the selected adolescent girls at baseline survey.

Variables		Tribal ( <i>Garó</i> )	Non-Tribal ( <i>Non-Garó</i> )
Age in Years (Mean $\pm$ SD)		15.4 $\pm$ 2.4	14.5 $\pm$ 2.2
Educational Qualification	Illiterate (%)	12.7	7.3
	Primary (%)	23.7	20
	Secondary (%)	63.6	72.7
Income (TK.)	<4000 (%)	14.5	7.3
	4000-7999 (%)	49.1	43.6
	8000-11999 (%)	23.6	23.6
	$\geq$ 12000 (%)	12.8	25.5

Table-1 shows the background information of the selected adolescent girls at Modhupur Hill Tract areas in Bangladesh. It was observed that the mean ages of *Non-Garó* and *Garó* respondent girls were 15.4 and 14.5 years respectively. Educational qualification of the selected tribal adolescent girls was comparatively lower than non-tribal adolescent girls. Household monthly income is a main indicator for the food consumption, nutritional status and other life style of a family. The majorities of the non-tribal and tribal respondent's family's monthly were 4000-7999 which was very low amount (1 US\$ = 81 Tk. June 2017). Again, 25.5% *non-Garó* respondent's family's monthly income was more than 12000 Tk. whereas, only 12.8% *Garó* family's monthly

income was more than 12000 Tk.

Figure 1 shows the respondent categories in terms of nutritional status in both *non-Garó* and *Garó* adolescent girls and observed that in baseline survey 7.3% *non-Garó* adolescent girls were overweight which is comparatively higher than *Garó* adolescent girls. Only 1.8% *Garó* (Tribal community) adolescent girls were overweight which is a good indicator that usually they are not suffering from life style diseases. They were usually hard worker and their food intake is also limited. However, in second and third time survey results showed that the percentage of overweight in both *Non-Garó* and *Garó* adolescent girls were decreased in a considerable numbers.

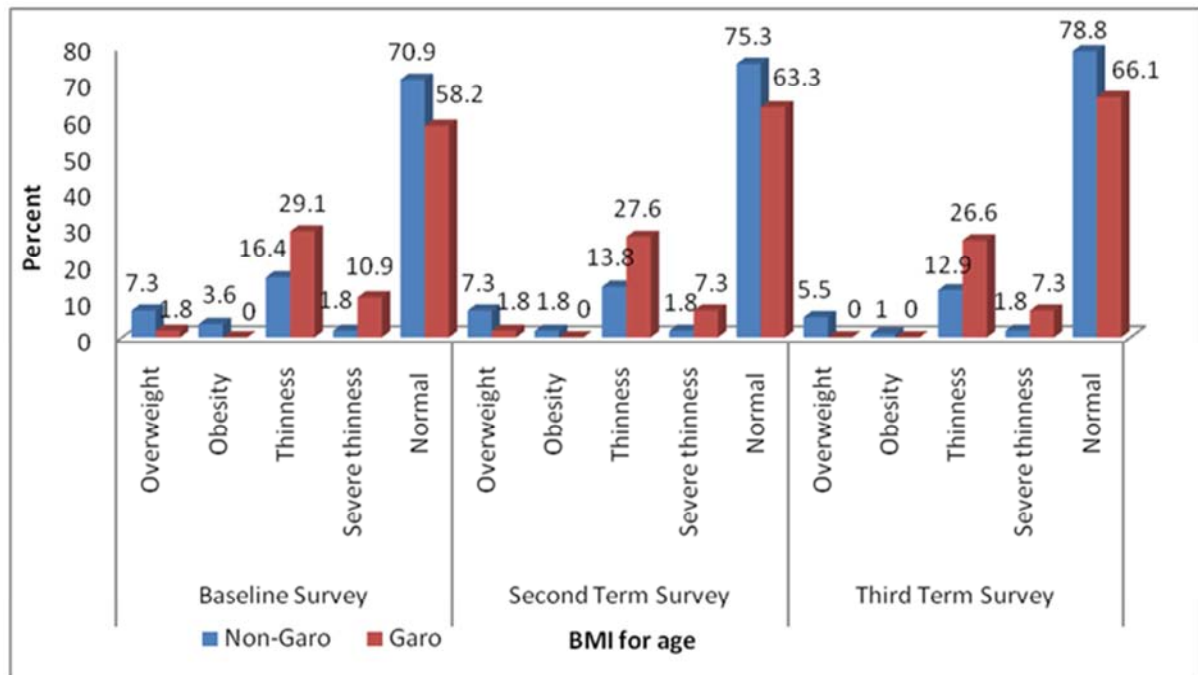


Figure 1. Comparison of the surveillance of nutritional status between Garo and non-Garo according to BMI for age.

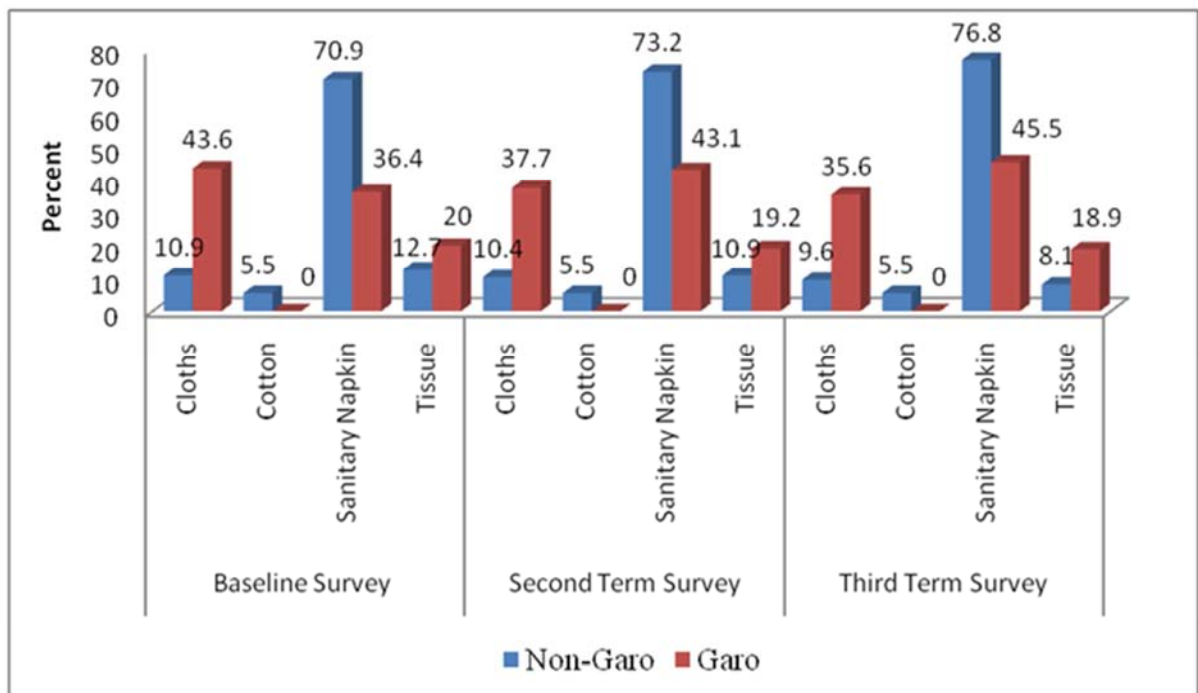


Figure 2. Surveillance of the sanitary practices during menstrual cycle.

In baseline survey also showed that *non-Garo* girls were more appropriate nutritional status according to BMI-for-age. There are 70.9% of *non-Garo* were normal BMI-for-age. *Garo* adolescent girls were comparatively lower rate of normal body weight and nutritional status, 58.2% were normal at baseline survey which was increased in further survey in both *Non-Garo* and *Garo* adolescent girls.

Figure 2 shows the sanitary practices during menstrual cycle in both groups and observed that in baseline survey

*Garo* adolescent girls used more unhygienic facilities such as cloths 43.6%, cotton 5.5% at baseline survey. Certain percentage of (10.9%) *non-Garo* adolescent girls also used unhygienic cloths during their menstruation period. But after second and third time surveys, the results of the sanitary practices was highly very limited improved in both groups. They cannot understand their personal hygiene properly due to their illiterate and poor education or counseling system.

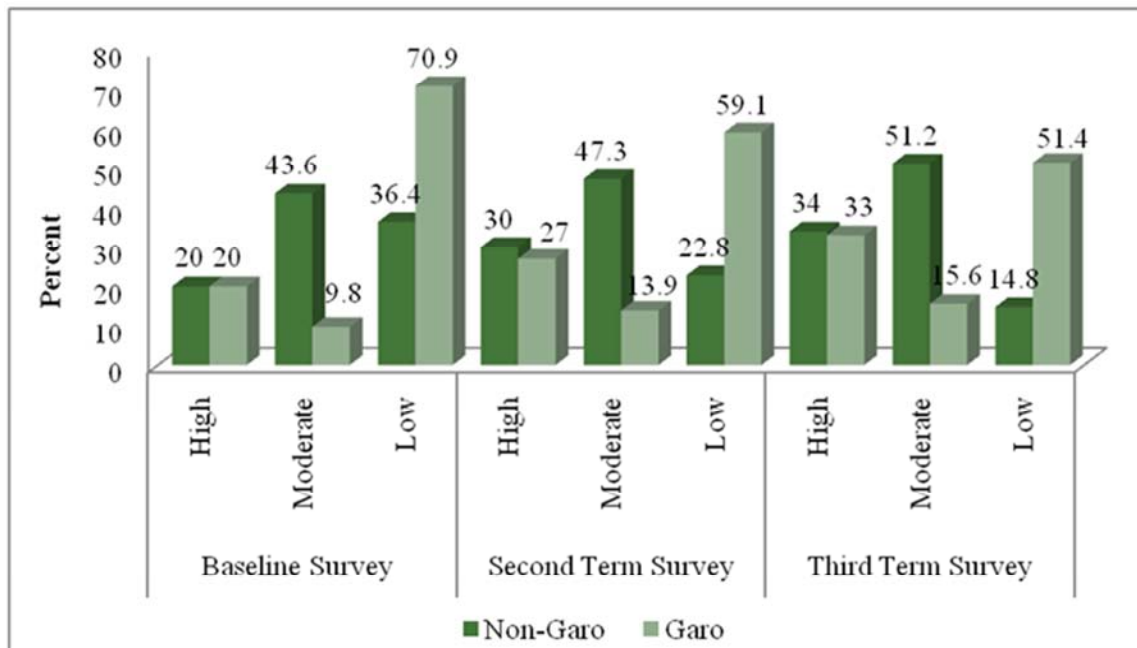


Figure 3. Surveillance of amount of food taken during menstrual cycle throughout the study period.

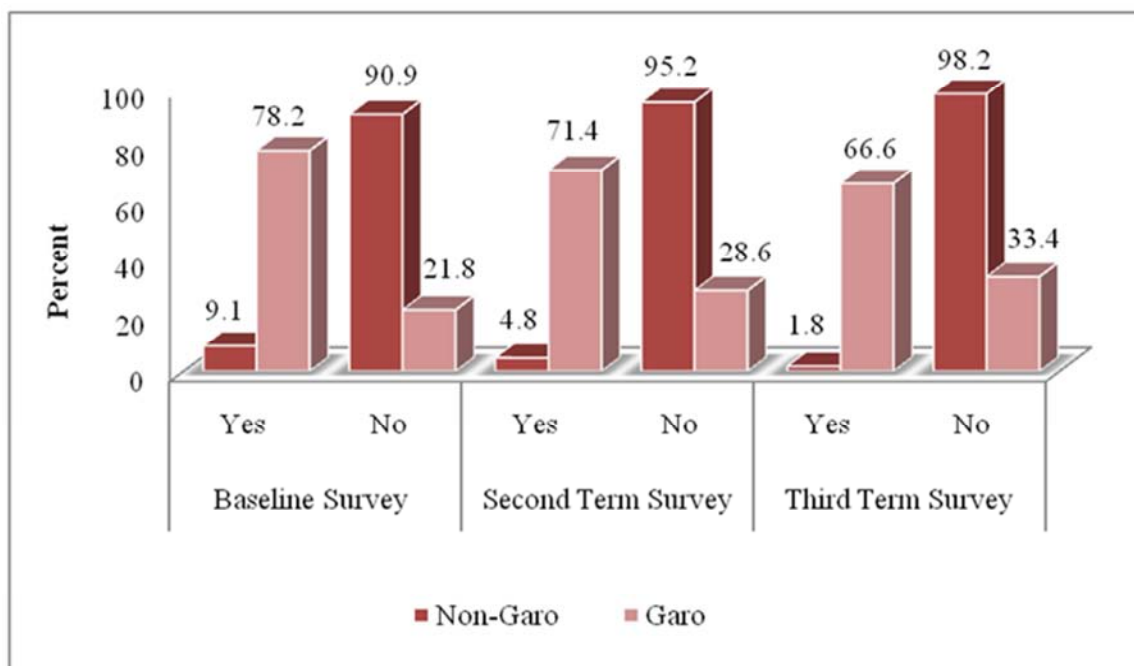


Figure 4. Knowledge about food misconception during menstrual cycle throughout the study period.

Figure 3 showed the surveillance of amount of food taken during menstrual cycle throughout the study period in both *Garo* and *non-Garo* adolescents girls and observed that in baseline survey 20% of both *Garo* and *non-Garo* adolescent girls taking high amount of foods. On the other hand, majorities of the *Garo* (70.9%) girls were taken lower amount of food intake compared to the *non-Garo* girls. In case of second and third survey, the percentage of taking medium amount of food increased in both *Garo* and *non-Garo* adolescent girls. In another survey. The percentage of

taking low amount of food was 70.9% in *Garo* adolescent girls and 36.4% in *non-Garo* adolescent girls at baseline survey which is decreased in further survey in both *Garo* and *non-Garo* adolescent girls' i.e. 51.4% and 14.8%.

Figure 4 indicates that the respondent categories in different terms of knowledge about food misconception during menstrual cycle throughout the study period in both *Garo* and *non-Garo* adolescent girls and observed that in baseline survey 78.2% *Garo* and 9.1% percent *non-Garo* adolescent girls had food misconception during menstruation

period. But the percentage of respondent's knowledge about food misconception decreased in both *Garó* and *non-Garó* adolescent girls in midterm survey and then final survey.

## 4. Conclusions

The surveillance of the study showed the positive variations of the nutritional knowledge, health care behavior including personal hygiene and nutritional outcomes of the adolescents in both *Garó* and *non-Garó* households. Several socio-economic factors such as monthly income, expenditure on foods, educational level and community surveillance or participation including consciousness and enthusiasm of the participants can enhance their knowledge which implies their lifestyle. The most significant positive health outcomes towards normal BMI-for-age was observed in both *non-Garó* and *Garó* adolescent girls resulting at midterm survey and then final survey consecutively.

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