Original article

DIETARY HABIT AND NUTRITIONAL STATUS IN FORCIBLY DISPLACED MYANMAR NATIONAL ADOLESCENTS

Monzur Al Murshed Chowdhury[1], ANM Shamsul Islam[2], Nur Jahan Simi[3], Md Raziur Rahman[4].

ABSTRACT

Background: Adolescence is a unique intervention point in the life-cycle for a number of reasons. Malnutrition is an important cause of adolescent morbidity & growth retardation. Appropriate feeding practice, hygiene and sanitation can reduce these consequences through maintenance of nutrition and prevention of infection.

***Methods*:** A cross sectional study was carried out among 268 respondents in 5, 8, 8w,18 camp situated in Ukhiya upazila, Cox's Bazar. Data were collected by convenient sampling through face to face interview using semi-structured questionnaire. Data were analyzed by SPSS 25 software.

Results: The study found that highest number (37.7%) of the respondents were in age group of 16 to 19 years. Majority (75.7%) respondent have formal education up to primary school. Drinking water were 100% tube well water, living house were 100% kacha. Majority of the adolescents (87%) were unmarried, 58.2% had family size of 4-6 person, 95.1% were unemployed. Most (67%) of the respondents had thinness (underweight) and 7% adolescents had severe thinness (underweight). According to z-score, 23% and 7% were severely stunted. According to Food Consumption Score, 69.9% of the respondents had borderline consumption and 19.7% had poor consumption. Only 1.2% of the respondents went to bed hungry due to shortage of food. Chi-square test showed statistically significant relationship was found between nutritional status and age of the respondents ($p<0.05$), but no significant relationship was found between nutritional status and sex of the respondents ($p>0.05$).

Conclusion: Although undernutrition was found in the most of the aspects, attention could be given to improve balanced diet, improve accommodation facilities, availability of safe drinking water, availability of education for all FDMNs living in the camp to improve overall nutritional status.

JOPSOM 2022; 41(2): 50-56

https://doi.org/10.3329/jopsom.v41i2.69548

Key words: FDMN; Dietary Habit; Nutritional status

---

1. Deputy Program Manager (DPM), National Nutrition Services (NNS), Mohakhali, Dhaka & Chairman, Muktijoddha Abdur Rahim Chowdhury Foundation (MARC Foundation).

2. Associate Professor & Head, Department of Public Health and Hospital Administration, National Institute of Preventive and Social Medicine (NIPSOM), Mohakhali, Dhaka-1212.

3. Lecturer, Anwer Khan Modern Medical College, Dhanmondi, Dhaka & Treasurer, Muktijoddha Abdur Rahim Chowdhury Foundation (MARC Foundation).

4. Medical Officer, IHT, Mohakhali, Dhaka.

***Correspondence: Monzur Al Murshed Chowdhury**. E-mail: monzural@gmail.com*

INTRODUCTION

Adolescence is an important stage of physical growth and development in the lifespan. Unique changes that occur in an individual during this period are accompanied by progressive achievement of biological maturity. Growth occurs in skeleton, in the muscle, and in almost every system and organ of the body in adolescence except the brain and the head [1]. During adolescence, more than 20% total growth in stature and up to 45% of adult bone mass are achieved, and weight gained during the period contributes about 50% to adult weight [2]. Accelerated growth characteristic of adolescence places increased demand on energy, protein, and other nutrients [3].

Rohingya people are one of the two major populations residing at Rakhine state of Myanmar [4]. On 25 August 2017, they had to flee from the state as they were attacked and their villages were ruined by the Myanmar army [5]. As a result, a series of humanitarian crises unfolded that led an unprecedented flow of refugees across the border to neighboring Bangladesh [5]. At present around 890000 Rohingya refugees are living in refugee camps in Cox's Bazar. They are now termed as forcibly displaced Myanmar nationals (FDMN) to Bangladesh. Like other forcibly displaced refugees, FDMN also suffer from different forms of malnutrition [6].

Childhood undernutrition, highly prevalent in South Asia [7], continues to persist throughout adolescence but little attention has been given to undernutrition of adolescents perhaps for the belief that adolescents are a low-risk group. Stunting in adolescence is 32% in India, 36% in Bangladesh, and 47% in Nepal, and low body mass index (BMI) is 53% in India, 50% in Bangladesh, and 36% in Nepal [8].

Adolescent are vulnerable segment and tend to fall risk group in the developing countries [3]. Due to recent outbreaks of military massacres in the Rakhine state of Myanmar, thousands of Rohingyas are pouring into Bangladesh. Evidence suggests that adolescent with high morbidity and mortality are the most vulnerable group among migrants and need special care. Protein-energy malnutrition, iron deficiency anemia, iodine deficiency disorders, and vitamin A deficiency are common for Forcibly Displaced Myanmar Nationals adolescent. This research may facilitate the visibility of this community to policy makers, NGO workers and donors, therefore increasing understanding of the main causes of malnutrition and encourage the improvement of their health and nutritional status among refugee (Rohingya) peoples in Bangladesh generally, and particularly in the Cox bazar area.

METHODS

Study design & setting: This was a cross sectional study carried out among 268 respondents in 5, 8, 8w,18 camp situated in Ukhiya upazilla, Cox's Bazar. The study conducted from January 2019 to December 2019 among the adolescents of age group 10 to 19 years.

Data collection and analysis: Data were collected through face-to-face interview using a pre-tested data collection sheet. Before preceding the data collection, the detail of the study was explained to each eligible respondents and their parents. Then written consent from both respondents and their parents were obtained. The relevant socio-demographic data along with anthropometric data of the respondents were collected and recorded. Computer based statistical analysis were carried out with appropriate techniques and systems. Quantitative data were expressed as mean and standard deviation and qualitative data were expressed as frequency distribution and percentage. Statistical analysis was performed by using Statistical Packages for Social Sciences (SPSS version 25). For nutritional assessment, "WHO criteria (1995, 2000 and 2004)" BMI cut-off was performed. The patient was then assigned a rating of underweight (severe thinness, moderate thinness, mild thinness), normal weight, overweight, pre-obese, obese (obese class I, obese class II and obese class III). Anthropometric parameters, such as height (cm), weight (kg), BMI (kg/m^2) were recorded.

Ethical considerations:

Ethical clearance of the study was obtained from the Institutional review board of NIPSOM, Bangladesh. Informed written consent was obtained from the respondents after describing the objectives and procedure of the study and ensuring that there was no chance of any physical, mental, social and economic harm to them. Each participant voluntarily took part in the study. Privacy and confidentiality was maintained strictly. Participants had the liberty to refuse to participate at any point of the study. Anonymity of data a was maintained and access to data was restricted to the Principal Investigator.

RESULTS

Table-1 shows that about 37.7% of the respondents belonged to age group 16-19 years, mean (±SD) of the age of the respondents was 16.23 (±4.74) years. Most of the respondents (56.3%.) were female. About 75.7% of the respondents had their educational qualification up to primary school, 76.5% of the respondents were student, 87.7% were unmarried, 4% had monthly income within TK 1000- 5000.

Table 1 Baseline characteristics of the respondents (n=268)

Baseline characteristics	Frequency	Percentage
Age in years		
10-12	89	33.2
13-15	78	29.1
16-19	101	37.7
mean (±SD)	16.23(±4.74)	
Sex		
Male	117	43.7
Female	151	56.3
Educational status		
Primary school	203	75.7
High school	44	16.5
Never went to school	21	7.8
Employment status (current)		
Unemployed	255	95
Private job	8	3
Business	5	2
Marital status		
Unmarried	235	87.7
Married	33	12.3
Age at marriage		
13-15 years	4	1.5
16-19 years	29	10.8
Family size		
1-3 persons	108	40.3
4-6 persons	156	58.2
>6 persons	4	1.5
Monthly family income (TK)		
1000-5000	1	0.4
5001-10000	5	1.9
10001-15000	2	0.7
15001-20000	5	1.9
Not employed	255	95.1
Source of drinking water (tube well)	268	100
Living house (kacha, comprises of 2 rooms)	268	100

Table 2 shows that 74% respondents were under weight (67% moderate thinness, 7% mild thinness). Only 26% of the respondents were normal weight.

Table 2 Nutritional status of the respondents (n=268)

Nutritional status	Frequency	Percentage
Severe thinness (underweight)	19	7
Mild thinness (underweight)	180	67
Normal weight	69	26

Table 3 shows among the respondents 23% were stunted and 7% were severely stunted.

Table 3 Respondents (n=268) according to height for age z-score:

Height for age z-score	Frequency	Percentage
>-2SD (normal height for age)	187	70
-3SD to -2SD (Stunted)	62	23
<-3SD (severely stunted)	19	7

Table-4: Distribution of the respondents according the food frequency questionnaire (for last 7 days, n=268):

Food name	Never f (%)	Once a day f (%)	2-3times per day f (%))	4/ more per day f (%)	Once a week f (%)	2-3 times per week f (%)	4/more per week f (%)
Rice	-	-	264(98.4%)	4(1.6%)	-	-	-
Roti	247(92.5%)	-	-	-	21(7.5%)	-	-
Bread	-	-	-	-	-	-	-
Milk & milk products	201(74.9%)	-	-	-	67(25.1%)	-	-
Pulses	-	-	241(90%)	-	-	-	27(10%)
Egg	40(15%)	121(45%)	-	-	11(4%)	80(30%)	16(6%)
Chicken	196(73.1%)	-	-	-	72(26.9%)	-	-
Fish	80(30%)	54(20%)	-	-	35(13%)	99(37%)	
Mutton	268(100%)	-	-	-	-	-	-
Beef	268(100%)	-	-	-	-	-	-
Fruits	209(78%)	-	-	-	51(19.1%)	8(2.9%)	-
Vegetables	-	46(17.3%)	189(70.5%)	13(5%)	5(1.7%)	15(5.5%)	-
Nuts	255(95%)		-	-	8(3%)	5(2%)	-
Sweet foods like sugar, chocolate, bakery etc.	136(50.7%)	36(13.3%)	-	-	73(27.5%)	16(5.9%)	7(2.6%)
Fatty foods like oil, butter, margarine	-	13(5%)	255(95%)	-	-	-	-

The table 5 shows the majority of the respondents (69.9%) had borderline FCS. None of the respondents had acceptable high consumption (>52).

Table-5: Respondents according the Food Consumption Score in Bangladesh [9] (n=268):

Food Consumption Score (FCS)	Frequency	Percentage
Poor consumption (≤ 28)	53	19.7
Borderline consumption (>28 - ≤ 42)	187	69.9
Acceptable low consumption (43-52)	28	10.4

The table 6 shows only 1.2% of the respondents went to bed hungry for the shortage of food.

Table-6: Respondents according to the shortage of food (for last 7 days, n=268):

Foot shortage	Frequency (Percent)
Percentage of respondents who were not able to consume food three times a day due to shortage of food in the last week	2(0.69)
Percentage of respondents who went to bed hungry due to shortage of food in the last week	3(1.2)
Percentage of respondents who thought taking diversified food can help healthier or better life	214(79.9)

Figure 1 shows among 268 respondents 17.5% were mildly anemic.

Figure 1: Respondents according to the anemia (n-268)

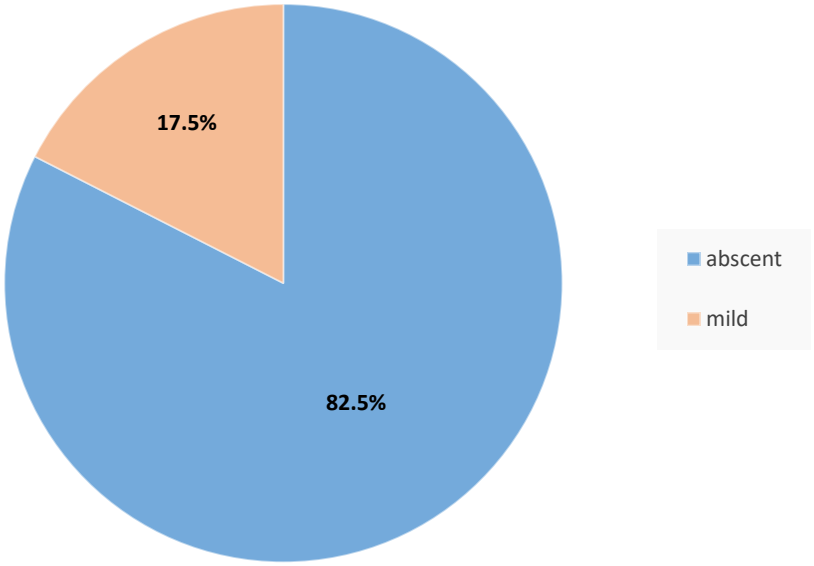

Figure 1: Respondents according to the anemia (n-268)

Table-7 Chi-square test showed statistically significant relationship was found between nutritional status and age of the respondents ($p<0.05$), but no significant relationship was found between nutritional status and sex of the respondents ($p>0.05$).

Table 7: Relationship between socio-demographic characteristics and nutritional status of the FDMN adolescent respondent (n-268)

Characteristics		Nutritional status				Chi-square test
		Severe thinness	Mild thinness	Normal weight	Total	
Age (years)	10-12	25(28.1%)	50(56.2%)	14(15.7%)	89(33.2%)	P<0.05
	13-15	7(9.0%)	44(56.4%)	27(34.6%)	78(29.1%)	
	16-19	8(7.9%)	44(43.6%)	49(48.5%)	101(37.7%)	
	Total	40(14.9%)	138(51.5%)	90(33.6%)	268(100%)	
Sex	Male	15(12.8%)	60(51.3%)	42(35.9%)	117(43.7%)	P>0.05
	Female	25(16.6%)	78(51.7%)	48(31.8%)	151(56.3%)	
	Total	40(14.9%)	138(51.5%)	90(33.6%)	268(100%)	

DISCUSSION

In this study, majority (37.7%) respondents had age ranged 16-19 years and 43.7% of the respondents were male and 56.3% were female. More than three fourth of the respondents (87.7%) were unmarried A similar study was conducted in Canada in 2004 where 60% of the respondents were male and majority of them were married [10]. In this study, 75.7% of the respondents studied up to class 5 and 7.8% adolescent respondent never went to school. A similar study conducted at the same study place in 2017 where majority of the participants were illiterate (75.2%) and 24.8% participants were literate those who complete their primary education [11].

In this study, most (58.2%) respondents belong to families that consist of 4 to 6 persons. A similar study conducted in Ethiopia in 2017 found that, 59.4% of their study participants had family size of 1 to 5 members. 32.5% belonged to family size of 6 to 10 and 8% respondents had more than 10 members in their families [12]. In this study, 74% respondents were under weight (67% moderate thinness, 7% mild thinness) and only 26% had normal weight. A study was conducted in Pakistan among Afghan adolescent refugees where prevalence of stunting, thinness, and overweight and obesity at 35.3%, 4.4% and 14.8%, respectively [13]. According to this study, 23% of the respondents were stunted and 7% of them were severely stunted. A study was conducted in Ethiopia where the overall prevalence of stunting and thinness was 9.7%, and 15.2% respectively. Among the respondents, 26.5%, 13.5% and 16.1% had severe, moderate and mild malnutrition with respective of their BMI. The prevalence of stunting, thinness, and overweight and obesity were 35.3%, 4.4% and 14.8%, respectively [14]

In this study, statistically significant relationship was found between nutritional status and age of the FDMN adolescent respondents ($p<0.05$) and there was no significant relationship was found in between nutritional status and sex of the FDMN adolescent respondents ($p>0.05$). According to a study in Ethiopia, the stunting was significantly associated with the age [14]. A study was conducted among Afghan adolescent refugees where high proportion of stunting was observed among 11–14 years old as compared to 15–19 years old participants [13].

CONCLUSION

In this study, the findings showed that majority of the FDMN adolescent respondent were undernutrition with the provided food in camp. There was lack of nutritious food, lack of proper diet, limited supply of food, shorter and dense accommodation facilities. It is expected that, the findings of the study may help the policy makers to revise their plan in maintaining nutritional status by suppling balanced diet and improving facilities in the FDMN refugee camp.

REFERENCES

1. Tanner JM. Growth at adolescence (2nd ed.) Oxford: Blackwell Scientific Publications, 1992.

2. Gong ET, Heald FP. Diet, nutrition and adolescence. In Modern nutrition in health and diseases, (8th ed.) Shills ME, Olson JA, Shike, M. (eds). Philadelphia: Lea and Febiger, 1994.

3. Khan MR, Ahmed F. Physical status, nutrient intake and dietary pattern of adolescent female factory workers in urban Bangladesh. Asia Pacific journal of clinical nutrition. 2005 Mar 1;14(1):19.

4. Mahmood SS, Wroe E, Fuller A, et al. The rohingya people of myanmar: health, human rights, and identity. Lancet 2017;389:1841–50.

5. Taufiq HA. Rohingya refugee crisis and the state of insecurity in bangladesh. In: Genocide and Mass Violence: Politics of Singularity . n.d.: 2019. 145–80.

6. Leidman E, Humphreys A, Greene Cramer B, et al. Acute malnutrition and anemia among Rohingya children in kutupalong cAMP, Bangladesh. JAMA 2018;319:1505–6.

7. World Bank. Repositioning nutrition as central to development: a strategy for large scale action. Washington, DC: World Bank; 2006. (http://worldbank.org/NUTRITION/Resources/281846-1131636806329/NutritionStrategy.pdf, accessed on 19 February 2008).

8. Kurz KM. Adolescent nutritional status in developing countries. *Proc Nutr Soc.* 1996;55:321–31.

9. Household Food Security and Nutrition Assessment (HFSNA) 2009, WFP, UNICEF, IPHN.

10. Fenta, H., Hyman, I. and Noh, S., 2004. Determinants of depression among Ethiopian immigrants and refugees in Toronto. The Journal of nervous and mental disease, 192(5), pp.363-372.

11. Al Masud, A., Ahmed, M.S., Sultana, M.R., Alam, S.I., Kabir, R., Arafat, S.Y. and Papadopoulos, K., 2017. Health problems and health care seeking behaviour of rohingya refugees. Journal of Medical Research and Innovation, 1(1), pp.21-29.

12. Mensa, M. and Belijo, M.N., 2017. Status of Skilled Birth Attendance Utilization and Determinants Among Women of Child Bearing Age in Chencha Woreda, Gamo Gofa Zone, Southern Ethiopia, December 2016. EC Gynaecology, 5, pp.248-266.

13. Saeedullah A, Khan MS, Andrews SC, Iqbal K, Ul-Haq Z, Qadir SA, Khan H, Iddrisu I, Shahzad M. Nutritional status of adolescent Afghan refugees living in Peshawar, Pakistan. Nutrients. 2021 Aug 31;13(9):3072.

14. Engidaw MT, Gebremariam AD. Prevalence and associated factors of stunting and thinness among adolescent Somalian refugee girls living in eastern Somali refugee camps, Somali regional state, Southeast Ethiopia. Conflict and health. 2019 Dec;13:1-8.