Dietary behavior of Rohingya children in Kutupalong Refugee Camp: A Comparative Analysis Sever Acute Malnutrition children and Normal children

A Project Report Submitted to the Daffodil International University, Dhaka for the Fulfillment of Nutrition and Food Engineering

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Abstract

The study was carried out to investigate the severe acute malnutrition status, dietary history of selected Rohingya camp at Kutupalong in Cox's bazar. 384 respondents were randomly chosen for these purposes. Significant differences have been found in case of severe nutritional status, dietary pattern and disease process of camp living respondents. The guardians of maximum family were illiterate94 percent and less are educated as class 1 to 5. Sever Acute Malnourished child 9.2 percent Number of Male and Female child 180 and 220 Their daily dietary intake level in camp 43.85 percent Sanitation and hygiene practices rate 59.9 percent Diseases in the last 6 months 27.15 percent Disability children in camp 2.8 percent.

Key Words

Severe Acute Malnutrition status of refugee children, Anthropometric measurements, Their dietary habit, Sanitation and hygiene condition Diseases in the last 6 months.

Certification

This is to certify that the dissertation entitled **"Dietary behavior of Rohingya children in Kutupalong Refugee Camp: A Comparative Analysis Sever Acute Malnutrition children and Normal children"** submitted by Jannatul Ferdush , student of NFE, Student ID:161-34-482 has carried out the dissertation work under my direct supervision and guidance in the Department of Nutrition & Food Engineering, Daffodil International University.

I have the confidence regarding the originality of his data and I express that the dissertation is up to my satisfaction.

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Key variables of the study

- Age of children
- Camp living children
- Education level of parents
- Family size
- Anthropometric measurements of the respondents
- Food intake pattern
- Food frequency questionnaire
- Last 6 months disease records
- 24-hour recall methods

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Chapter 1

1.1 Introduction

Food is any substance consumed to provide nutritional support for the body. It is usually of plant or animal origin, and contains essential nutrients, such as carbohydrates, fats, proteins, vitamins, minerals and water [1]. (Joshi, 2009). Due to economical gap, there are huge differences in diet pattern of the people of different socio-economic status. The family's habit, environment, the physical, the psychological and the social setting which are related to the culture in a group determine food pattern. It also depends on the financial status of the family. In camp status, lack of variation in their food intake particularly protein, calorie and protective foods result in deficiency diseases from malnutrition such as SAM and other disorders. Nutrition is one of the most important factors influencing the quality of human life. Nutritional status is an important health indicator to assess a country's health status and morbidity pattern.

Malnutrition is widespread in Bangladesh as it is in other poor countries, and its adverse consequences are recognized by biochemical and functional changes as well as anthropometric effects. In Refugee camp, high prevalence of malnutrition has been demonstrated in several National Nutritional Surveys. It was found from those surveys that the intake of different nutrients by Rohingya people is decreasing day by day.

Severe acute malnutrition is defined in these guidelines as the presence of oedema of both feet or severe wasting (weight-for-height/length <-3SD or mid-upper arm circumference < 115 mm). No distinction is made between the clinical conditions of kwashiorkor or severe wasting because their treatment is similar. Children who are less than -3SD weight-for-age may be stunted (short stature) but not severely wasted. Stunted children who are not severely wasted do not require hospital admission unless they have a serious illness.**[2]**

The dietary pattern is uniform round the year with heavy dependence on rice, for energy. The availability of rice determines the level of energy intake. It was noted in most of the cases that protein deficiency arose because of the deficiency of energy, obligatory utilization of energy and inability to meet energy need. SAM and other diseases were found to be another widespread and severe condition of malnutrition.

Dietary patterns are very different in refugee camp and food availability is very rear. Diets of this population are cereal based which are lacking in several essential nutrients. Diet which is based on definite amounts of food from each four food groups are believed to constitute the foundation of adequate diet.

Understanding the dietary intake of Normal and SAM risk are different from each other and can give an idea of the quality of their nutritional status. It is important in regards to understanding whether this age group 6 to 59 months is prone to malnutrition.

1.2 Justification of the study

The severe acute malnutrition children are closely related to nutrition and food intake sufficient amount of nutrients in the form of daily diet are necessary for the perpetuation of the health and beneficial nutrients. The importance of good nutrition is realized in the maintenance of health of human beings. Females may be at risk of poor nutritional status which is of even more concern when considering that they may hold the responsibility of motherhood in the near future. Besides that, female get less nutritious food that live at home. The camp living children all diet is same and eating patterns are same. A history of disease and illness of last six months was also taken into consideration, in order to identify the morbidity situation of six to fifty-nine months aged, as well as an indicator of hygiene and sanitation conditions. Therefore, this study was conducted to assess and compere the diet behavior of SAM and normal children.

1.3 Research question

What is the dietary behavior of SAM and normal children in Rohingya Refugee camp at Kutupalong Cox's Bazar?

1.4 Objective

To assess the dietary behavior Severe Acute Malnutrition (SAM) and Normal children Rohingya Refugee Camp at Kutupalong Cox's Bazar?

1.5 Specific Objective

1. To determine between Normal and Severe Acute Malnutrition risk child status in Rohingya refugee camp.
2. Any different between SAM and Normal diet behavior
3. To identify socio-economic characteristics of the respondents
4. To assess dietary behavior, food choices, preferences and pattern of intake.

1.6 Acronym

- SAM =Sever acute malnutrition
- MUAC = Mid upper arm circumferences
- IYCF = Infant and young child feeding
- WFP = World food programme
- CMAM = Community based management of acute Malnutrition
- IFE = Infant Feeding in Emergencies
- Fig. = Figure
- Gm8= Gram
- INFS= Institute of Nutrition and Food Science
- Kcal= Kilo Calorie
- Kg= Kilogram
- No.= Number
- %= Percentage
- NS= Nutritional Status
- SD= Standard Deviation
- Sq.= Square
- UNICEF= United Nations International Children Emergency Fund
- USDH=United States Department of Health
- WHO= World Health Organization
- WHZ=Weight for Height

1.7 Operational definitions

Severe Acute Malnutrition

Severe acute malnutrition remains a major killer of children under five years of age. Until recently, treatment has been restricted to facility-based approaches, greatly limiting its coverage and impact. Severe acute malnutrition is defined in these guidelines as the presence of oedema of both feet or severe wasting (weight-for-height/length <-3SD or mid-upper arm circumference < 115 mm). No distinction is made between the clinical conditions of kwashiorkor or severe wasting because their treatment is similar. Children who are less than -3SD weight-for-age may be stunted (short stature) but not severely wasted. Stunted children who are not severely wasted do not require hospital admission unless they have a serious illness.[2]

Twenty-four-hour recall method

Twenty-four-hour recall method is to recall the subject's exact food intake during the previous twenty-four or preceding day. Detailed descriptions of all foods and beverages consumed, including cooking methods were taken.

1.8 Operational Planning

Time Schedule

The table below indicates the timeframe for the thesis project. This meets the deadlines set out in the brief. Once the project was underway, weekly progress report sent to Thesis Supervisor for feedback.

Week	Activity
1st	Desk Research
2nd	Questionnaire Development
3-4th	Data collection
5th	Data entry
6th	Analysis
7-8th	Report Writing
9th	Presentation and submission

Chapter 2

2.1 Review of Literature

Severe acute malnutrition deficiency (SAM) is defined as a weight-for-height measure of seventieth or less below the median, or 3SD State or additional below the mean National Centre for Health Statistics reference values, the presence of bilateral erosion o swelling of nutritionary origin, or a mid-upper-arm circumference of but a hundred and ten millimeter in kids age 1–5 years.13 million children under age 5 years have SAM, and also the disorder is related to one million to a pair of million preventable kid deaths annually. Despite this international importance, child-survival programs have neglected SAM, and World Health Organization doesn't acknowledge the term "acute malnutrition". Inpatient treatment is resource intensive and needs several expert and impelled staff Where SAM is common, the amount of cases exceeds offered inmate capability, that limits the effect of treatment; case-fatality rates square measure 20–30% and coverage is usually underneath 100%. Programmed of community-based therapeutic care substantially reduce case-fatality rates and increase coverage rates. These programs use new, ready-to-use, therapeutic foods and are designed to increase access to services, reduce opportunity costs, encourage early presentation and compliance, and thereby increase coverage and recovery

rates in community-based therapeutic care, all patients with SAM while not complications square measure treated as outpatients. This approach promises to be a successful and cost-effective treatment strategy [3]

A systematic review of the literature on dietary patterns (multiple dietary parts operationalized as one exposure) in relevance nutrient adequacy, life style and demographic variables, and health outcome was conducted. Most of the published reports on the subject have used one of two methods to determine dietary patterns: (a) diet indexes or scores that assess compliance with prevailing dietary guidance as dietary patterns, and (b) data-driven methods that use factor or cluster analysis to derive dietary patterns. Irrespective of the approach used, patterns characterized by fruit/vegetable/whole grain/fish/poultry consumption usually are according to relate to substance intake, and to selected biomarkers of dietary exposure and disease risk in the expected direction. Age, income, and education have been reported to be among positive predictors of the alleged a lot of healthful dietary patterns. An inverse association of healthful dietary patterns with all-cause mortality and cardiovascular disease risk was reported in most studies. However, the magnitude of risk reduction was modest and was attenuated when management for confounders. Few revealed studies showed associate degree association between risk of most incident cancers and dietary patterns. Both of the presently used approaches for extracting dietary patterns have limitations, are subject to dietary measurement errors, and have not generated new diet and disease hypotheses. We conducted a 6-month randomized, double-blind, parallel trial within which subjects consumed their usual diet and arabinogalactan, a useful fiber isolated from either larch or larch [4]

Simple indicators reflective diet quality for young youngsters are required each for programs and in some analysis contexts. Measures of dietary diversity are comparatively easy and were shown to be related to nutrient adequacy and nutritionary standing. However, dietary diversity conjointly tends to extend with financial gain and wealth; therefore, the association between dietary diversity and kid nutrition may be confounded by socioeconomic factors. We used information from eleven recent Demographic and Health Surveys (DHS) to look at the association between dietary diversity and height-for-age Z-scores (HAZ) for youngsters 6–23 months recent, whereas dominant for manage wealth/welfare and a number of {other and several other} other doubtless contradictory factors. Bivariate associations between dietary

diversity and HAZ were determined in nine of the eleven countries. Dietary diversity remained important as a main result in seven countries in variable models, and interacted considerably with different factors (e.g., child age, breast-feeding status, urban/rural location) in 3 of the 4 remaining countries. Thus, dietary diversity was significantly associated with HAZ, either as a main effect or in an interaction, in all but one of the countries analyzed. These findings suggest that there is an association between child dietary diversity and nutritionary standing that's freelance of socioeconomic factors, which dietary diversity might so mirror diet quality. Before dietary diversity can be recommended for widespread use as AN indicator of diet quality further analysis is needed to substantiate and clarify relations between numerous dietary diversity indicators and nutrient intake, adequacy, and density, for children with differing dietary patterns. Because of the perceived importance of dietary diversity for health and nutrition, indicators of dietary diversity have become increasingly popular in recent years. These types of indicators are particularly attractive because they are relatively simple to measure and they are thought to reflect nutrient adequacy, i.e., individuals consuming more diverse diets are thought to be more likely to meet their nutrient needs. Simple yet valid indicators are of particular importance for large household surveys and for program management.[5]

Micronutrient deficiency disease remains a tangle of public health concern in most developing countries, partially thanks to monotonous, cereal-based diets that lack diversity. The study objective was to assess whether or not dietary diversity score (DDS) supported an easy count of food teams consumed and DDS employing a 10-g minimum intake for every food cluster (DDS 10g) square measure smart indicators of adequate substance intake in 24–59-months-old non-breast-feeding Filipino kids. Pearson's correlation and linear regression were used to assess the utility of DDS and DDS 10g as indicators of micronutrient intake. Sensitivity and specificity analysis were used to determine the most applicable cut off purpose for exploitation DDS to reason kids with high chance of adequate substance intake. The average diet of the sample population consisted of 4–5 food teams. The mean chance of adequate nutrient intake (MPA) of eleven micronutrients was thirty third. The Pearson's correlation between MPA and DDS was zero.36 ($P<0.001$) and for DDS 10g it increased to 0.44 ($P < 0.001$). Intake of individual micronutrients was correlated to DDS for most nutrients. When maximizing sensitivity and specificity, the best cut-off points for achieving 50 and 75% probability of adequate micronutrient intake were 5 and 6 food groups,

respectively. DDS and DDS 10g were both significant predictors of adequate micronutrient intake. This study demonstrates the utility of indicators of dietary diversity to predict adequate intake of micronutrients in the diets of young non-breast-feeding children. Dietary Diversity Score Is a Useful Indicator of Micronutrient Intake in Non-Breast-Feeding Filipino Children [6]

The proteins in these foods are of high biological value. There is large amount of iron in organ meat especially liver and kidney and smaller amount in muscle tissue. Meat is poor source of calcium, but some small fishes, where some of the bone is edible are fair source of calcium. Eggs are important for their protein, iron, phosphorus, vitamin A and riboflavin content. Egg protein, most of which albumin in white of egg are of high biological value. Legumes include lentils, soybean, Bengal gram, green peas etc. although legumes proteins have somewhat lower biological value than animal proteins, they are important in many parts of the world, due to high protein content. They are often called as meat substitute. One-half cup of cooked legumes supplies approximately 7 to 10g of protein. They are excellent source of iron, zinc, phosphorus, thiamine and fair source of calcium and riboflavin. They also contain considerable amount of phytate and fiber.[7]

Leafy vegetables, non- leafy vegetables and other different kinds of fruits are included in this food group. Leafy vegetables are especially rich in calcium, iron, carotene, ascorbic acid and riboflavin. Some leafy vegetables also contain considerable amount of zinc. There are different types of green leafy vegetables grown in Bangladesh. Their iron content is a valuable contribution to the diet. Their energy and protein values are negligible. Non- leafy vegetables contain only slightly less of certain minerals and vitamins than leafy vegetables. Vegetables contributed 90% of carotene, 57% of vitamin C, 25% of calcium, 15% riboflavin and 8% of iron in 1981-1982 survey of Bangladesh.[8

Chapter 3

3.1 Equipment

No.	Equipment	Purpose
1.	Paper	To produce Questionnaire
2.	Weighing scale	To take weight in field
4.	Computer	To entry data To analyze data For report writing To make a presentation

3.2 Methods and Materials

Study Locations

The study of SAM risk children and dietary behavior of the Rohingya refugee camp was in Cox's bazar. Data are collected of non-resident 6 to 59 months aged refugee children were collected from the camp.

Study Design

The study was a randomized type of cross-sectional study. The data for this research was obtained through personal interviews of each respondent on structured questionnaire including both open-ended and close-ended questions. The dietary information, previous and present disease condition and anthropometric information were taken from selected respondents.

Study population

This study was conducted among the 6 to 59 months aged children in Rohingya Refugee camp.

Study period

September 2019 to November 2019.

Data Collection Period

5th October 2019 to 20th October 2019.

Sampling techniques and sample size

The subjects of the study were in Rohingya refugee camp of Cox's Bazar. A total of 400 children are involved in the study. The subjects were randomly selected.

Sample size calculation

The required sample size is, $n = z^2pq/d^2$
Population is more than 10000.

Here,
n is desired sample
z = standard normal deviate= 1.96, corresponding to 95 percent confidence interval
p = assumed proportion of target population= Percent or population variance=50%= 0.5
q= 1- p= (1-0.5) = 0.5
d= level of significance desired= 5%= $5/100$= 0.05

So, $\mathbf{n = z^2pq/d^2}$ $= \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.05 \times 0.05} = 384.16 \approx 384$

So, the total sample size will be 384.

To avoid any dropout, we have collected data from 400 samples as a whole.

Consent

The purpose and nature of the study was explained to each participant and after getting the written consent, they were recruited in the study.

Development of the questionnaire

A standard questionnaire was developed to obtain the relevant information regarding the general information, Anthropometry measurement, socio-economic information and individual information. Dietary history was recorded for last 24 hours using recall methods. Anthropometric measurement and food frequency information sheet were included in the questionnaire. The diseases in the questionnaire were recorded in the last six months.

Pre-test

The purpose of the pre-test was to test the content, wording and expression, the topical sequence of questions and duration of the interview and the reliability of some items. After pre-test, the individual questionnaire which were related for quantitative data collection were improved and reformed to ensure content coverage, the reliability and validity of the study.

Collection of socio-economic information

The socio-economic status was the family size, age, parents education level of the respondents. All of the information was recorded in the respective places of the questionnaire.

Collection of Anthropometric Information

The anthropometrical data (MUAC, weigh) were taken individually. A standard weight scale was carried to all respondents for weight measurement. Measure all respondents MUAC level by the help of MUAC tape. All the measurements were recorded on structured questionnaire.

Body weight

Weight was recorded in kilograms by using standard weight machine. During the measurement of the weight, each subject was asked to be bare- footed and loose extra accessories. The weight machine was calibrated every day before use.

Diseases History

All responded diseases history are recorded in a correct way. They faced the types of diseases in last 6 months were also recorded in the analysis.

Collection of dietary information

In this session, respondents were asked about the food intake patterns. The dietary intake was assessed for the last 24 hours by recall method. The consumption of the animal and plant foods rich in macro and micro nutrients were obtained by using a food frequency checklist of locally available common foods.

Data verification

Questionnaires were checked every day after interviewing and these were carefully checked after completion of all data collection and coded before entering into the computer. To minimize the errors, these are checked and resolved by correction after entering the data set into the computer.

Statistical Analysis and Methods Used

Data was transferred from the written recording forms to a computerized database file. Data analysis was carried out using the statistical package SPSS on personal computer.

3.3 Limitations of the study

1) In this study, the sample size was not very large to have inference for large population.
2) Due to shortage of time and resource constraints could not collect the sufficient data from all Refugee children.
3) Some respondents could not able to tell about the exact diseases, foods and other infection their child's. In that case, the approximate diet history and diseases was taken into account based on subsequent secondary questions.
4) Some of the respondent's parents were less co-operative and uncomfortable to expose their problem and about socio-economic condition of the family.

Chapter 4

4.1 Results

A) Background Information

Table-01: Distribution of the respondents' sex

Sex	Number	Percent
Male	**220**	**55.0**
Female	**180**	**45.0**
Total	**400**	**100.0**

Table-02 shows the sex of the respondents. Here the table shows that 55 percent respondents were male and 45 percent respondents were female.

Table-02: Distribution of the age of the respondents

Age range (months)	Frequency (%)
Up to 7	**10 (2.5%)**
24 to 38	**160 (40 %)**
39 to 59	**70 (17.5%)**

Age of respondents

Table02 shows the age limit of the respondents. Here the first row shows that 2.5 percent respondents' age were Up to 7 months, 40percent respondents' age were 24 to 38 months and 17.5 percent respondents' age were39 to 59 months.

B) Socio-economic Information

Table-03: Distribution of the family size of respondents'

Family size	Frequency (%)
Less than 4	111(27.8%)
4 to 8	243(60.8%)
9 to above	46(11.5%)

Table-03 shows the distribution of the family size of the respondents and observed that the family size of the respondents ranged from less than 4 was 27.8 percent. The table shows that about 60.8 percent of the respondents' family consist4 to. 8-member and 11.5 percent of the respondents' family consist 9 to above members, 11.5 percent .

Table-04: Level of education of the respondents' father

Educational status of father	
Education level	Frequency (%)
Illiterate	376 (94%)
Up to class 5	17(4.2%)
Above class 5	6(1.5%)

Table-04 shows the educational level of the respondents' father is illiterate person is 94 percent, 4.2 percent were Up to class 5, 1.5 percent were educated above class 5 .

Table-05: Level of education of the respondents' mother

Educational status of mother	
Education level	Frequency (%)
Illiterate	380(95%)
Up to class 5	19(4.8%)
Above class 5	1(.2%)

Table-05 shows the educational level of the respondents' mother. Here only 0.2 percent of the were above class 5, 4.8 percent were Up to class 5, 95 percent were illiterate mothers.

C) Nutritional status and Anthropometric Information

Table-06: Nutritional status of the respondent

Nutritional status MUAC	Frequency (%)
SAM	37(9.2%)
Normal	363(90.8%)

Table 06 shows the SAM respondents ranged was9.2 percent and The Normal children was 90.8 percent.

Table 07: Association of Nutritional status of respondents with family member

MUAC category	Family category		
	1 (less than 4)	2 (4 to8)	3 (9 to above)
SAM	10	18	9
Normal	101	225	37

Table 07 shows the nutritional status depend on family category here we see the less than 4 member SAM level shows 10 and 4 to 8 members of family is SAM level shows 18 and9 to above number of family member SAM level is 9.

Table-08: Distribution of the weight of respondents'

Weight range of respondents(kg)	Frequency (%)
4.5 to 8.5	55 (13.8%)
8.6 to 12.4	209(52.2%)
Above 12.5	136(34%)
Total	100

Table 08 shows the weight range of respondents was above 12.5 kg 34 percent ,8.6 kg to 12.4 kg was 52.2 percent and 4.5 to 8.5 kg child was 13.8 percent.

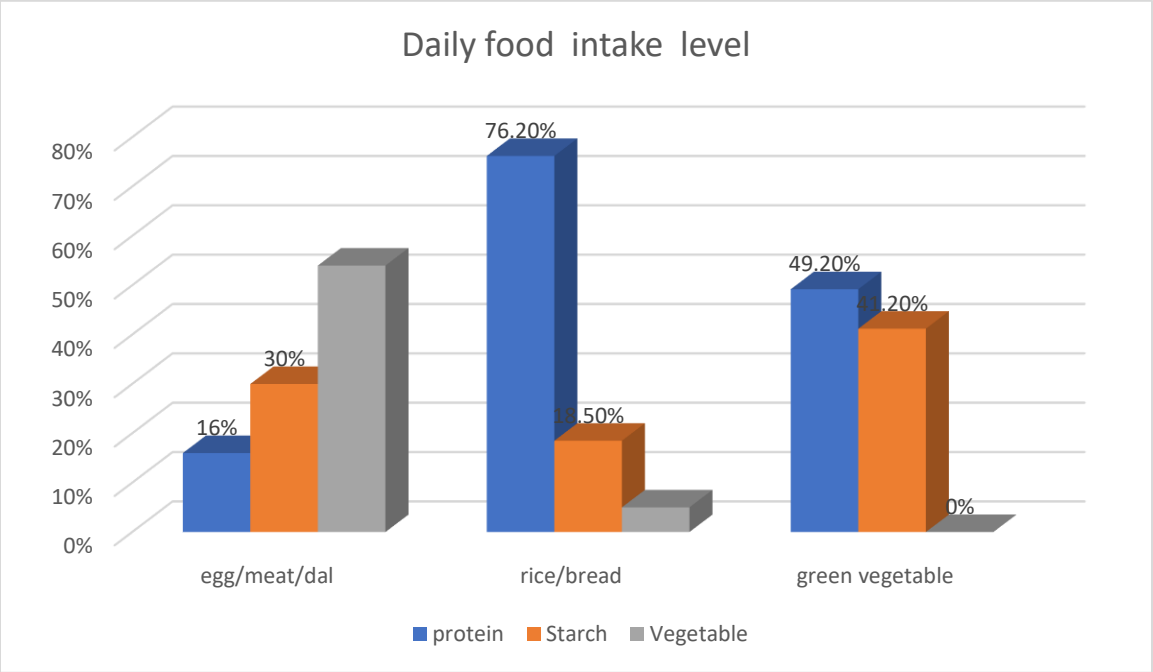
Table -09: The age of respondents

Age range (months)	Frequency (%)
Up to 7	10 (2.5%)
24 to 38	160 (40 %)
39 to 59	70 (17.5%)

Table 09 shows the age of the respondents was up to 7 months 2.5 percent, 24 to 38 months aged children 40 percent and 39 to 59 months aged children 17.5 percent.

D) Information of the Food Frequency Questionnaire

Figure -01: Distribution of the respondents' food frequency or preferences of food intake



Here figure 01 shows 9 out of every 15 children a diet the orange Colum is the camp living children daily starch intake level is 50percent, Blue Colum shows daily protein intake level is 76.2 percent and Ash shows the daily vegetable level is 54 percent.

Figure 02: Available foods sources in Rohingya Refugee camp

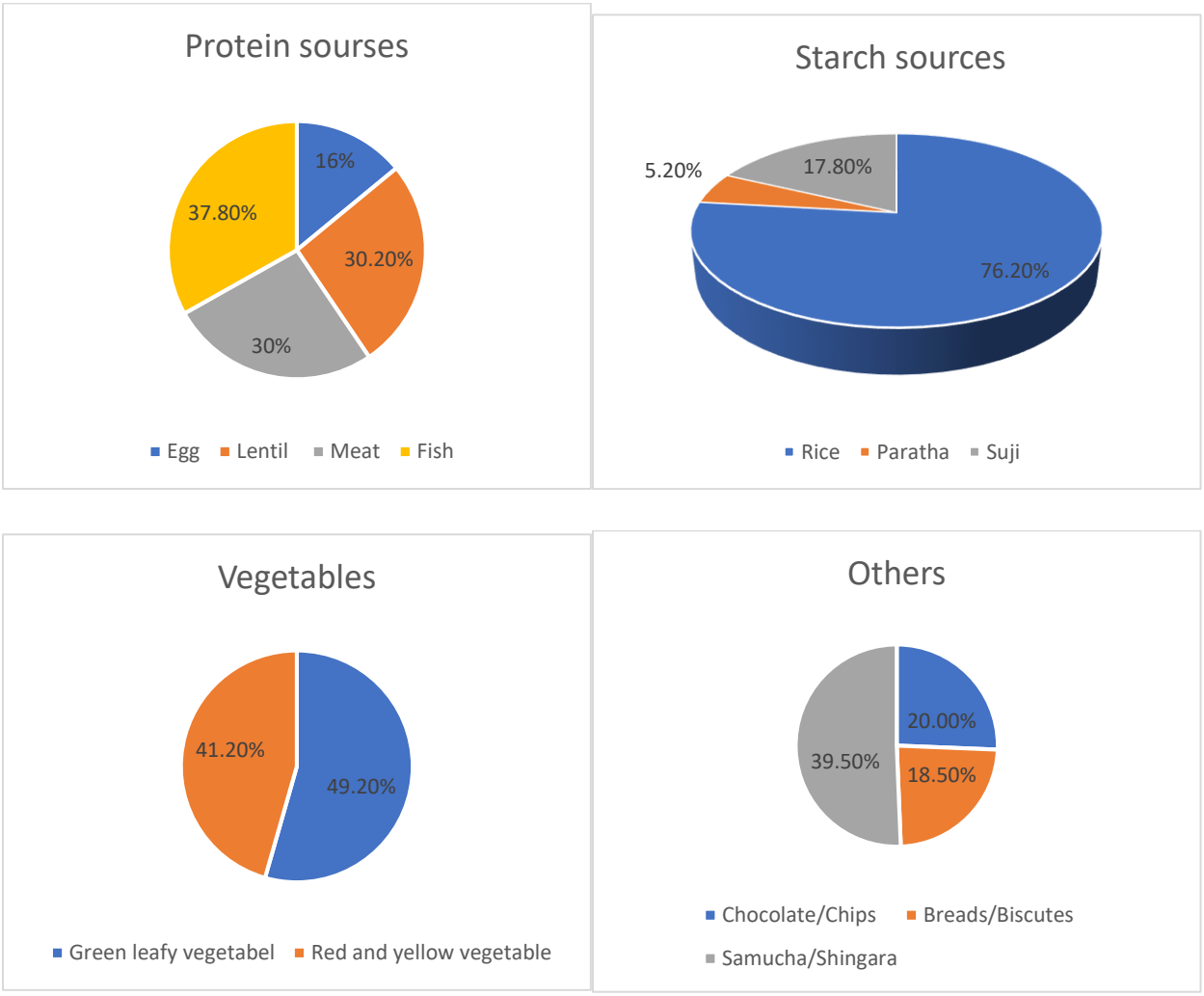


Figure 02 shows the distribution of the respondents' available food frequency or preferences of food intake and highlighted that rice and pulses were very common as the cereal rice is staple food in like as Bangladeshi and pulses are low cost protein sources. However, meat and fish are also very common items of them. Vegetables are consumed regularly green leafy vegetable 49.2% and 41.2% are eat red and yellow vegetable starch level is where rice 76.2%, suji 17.8% and 5.2% are paratha. On the other hand, they eat protein in camp egg 16%, lentil is gets in rations 30.2%, eat meat 30% and fish 37.8%.

4.2 Discussion

Denial of citizenship rights in homeland, restrictions on freedom of movement, and economic opportunities are the main causes of Rohingya exodus to Bangladesh. Rohingya people have been subjected to systematic domination in Myanmar. They are being subjected to rape, and sexual violence. Forced labor was used to repress this ethnic minority. Rohingya people in Myanmar do not have property rights because this right is only provided to the citizens of Myanmar. As the Rohingya, in Myanmar do not have the citizenship rights, their children's do not have access to the state-run schools beyond primary education. Government of Myanmar imposed financial coercion in the forms of extortion, arbitrary taxation and unfair penalties [Ahmed 2010]. Bangladesh is a compactly populated country and malnutrition are a widespread and persistent problem here. To maintain a proper nutritional status, balanced diet is a very much necessary. Refugee children's need proper diet for better nutritional status. In the Rohingya refugee camp, nutritional status most of the children aged between6 to 59 months. For this reason, a cross-sectional survey was carried out among the 384 respondents who were live in Rohingya refugee camp in Cox's bazaar. Major goals of the study were to assess the nutritional status, lifestyle, food intake pattern, disease process, etc. of selected children in Rohingya refugee camp. The major thing of the study diet pattern and nutritional status of all children aged in six to fifty-nine months. Total 400 respondents were participated in the survey. 45 percent of total sample were male and 55 percent were female respondents. It was also found that 42.5 percent respondent's age were between six and twenty-four months. Only 17. 5percent were between thirty-nine months to fifty-nine months. Socio-economic factors involve mainly educational qualifications of parents, family size and others. The educational attainments of parents were appreciable. About many of them parents are illiterate two third of respondent's father were read above class 5, 4. 5percent were read below class 5, Only 1.5 percent respondent's fathers were above class 5. In case of respondent's mother, only .2 percent were above class 5,and rest of them are illiterate. However, dietary behavior is an indicator of nutrition which is related to the performance of a child, his/her nutritional status, and lifestyle. Among the 400 respondents, 102 respondents eat at least one fruit regularly and 198 respondents don't. The fruit eating behavior is mostly seen in camp. In refugee camp are main food is rice and lintel because they can get these things in ration every one or two months later.

They like chicken and big fish they less amount of vegetable, but they eat spinach. For dairy product they can't get easily in the camp here lake of dairy reaction and other types of dairy products. Another foods consumption is very rare among the respondents. But consumption of outside market food is very frequent among them. About 220 respondents eat outside foods regularly which is alarming because market food is not prepared ion hygienic condition which may be a serious cause of food borne disease among the respondents. Only 10 percent respondents consume only breast milk. On the other hand, the percentage of daily consumption of homemade foods is 78 percent. In case of disease situation, 87 percent respondents are properly used to toilet of whereas 13 percent respondents are done not know the proper use of toilet and hygiene were suffering from different disease at that time. That indicates the high morbidity in camp living to children [9]

Chapter 5

5.1 Conclusion

A cross-sectional study was carried 384 respondents of Rohingya Refugee camp in Cox's Bazar. The study was carried out to assess their nutritional status, lifestyle, disease process, food intake pattern etc. About 1.5 percent of respondent's father were above class Five and rest of all are illiterate. In case of respondent's mother, only .2 percent were above class 5, 4.8 percent were educated up to class Five and rest of all are illiterate. A number of variables related to nationality crisis and its effects on children's have been analyzed quantitatively. 93% (69 out of 74) of the Rohingya refugees believe that Children's being used as labor results in The nationality crisis (significant at 0. 05) where6. 8% (5 out of 74) believe that the nationality crisis doesn't happen only for Children's involvement in the labor work. In the camp there is extreme use of children as a labor that is affecting their physical and mental health. Education system is not effective for the camp residence They are denied access to any form of education by the Government of Bangladesh. The Education is considered as luxurious element as Rohingya are not having a proper housing to live and food to eat. Out of the respondents, 93% reported there is scarcity of food. Food provided by donor and NGOs does not meet the quality. There are severe shortages of pure drinking water in the camp. Among respondents, 97% say there are shortages of sufficient water and better food. Children particularly girls and women have to collect water from UNHCR water distribution point by standing for hours. Due to insufficient drinking water, it increases the availability of disease such as diarrhea, dysentery etc. Children are being harassed physically in the camp results in the nationality crisis. A child suffers from high level of risk regarding rape and harassment. Findings from this study shows that 95% reported the existence of physical harassment in the camp. Birth registration and certificates are the evidence of having identity, but Rohingya and their children do have such type of registration. Only 80% reported of having birth certificate [10]

5.2 Recommendations

During learning process most of the children are not have extra nutrition they need extra nutrition because it helps to improve physical and mental condition in the growing age. All the camp living refugee children need proper diet and proper take they should know about key knowledge of better nutrition for the baby and women. They have lake ok knowledge So very often they fall in sick and hamper their childhood performance. Currently recommended few steps to improve their nutritional status as well as food behaviors are given below:

1) In all camp houses decorated well-structured clean kitchen must be present.
2) Personal hygiene and environmental sanitation should be monitored regularly.
3) Knowledge about easily digestive adequate nutritional foods and it could be disseminated thought media by the hotel authority.
4) Care could be taken so that fruits and vegetables are supplied regularly in the refugee camp.
5) Care should be taken so that the foods of the children can be balanced and delicious.

Chapter 6

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6.2 Annexure

Normal and SAM Risk child's Assessment and Dietary behavior Questionnaire

This questionnaire is used to assess the subrecipient's SAM and Normal child's necessary information from taking permission of their curator.

Serial no: Date:

1. Sex: Male ……. Female …….
2. Camp no: ……..
3. Number of Family member :…….
4. Education status of Father: ……
5. Education status of Mother:…….
6. How many children?
   Boys ……. Girls …….
7. MUAC tape measure level ……
8. Weight in kg: ……
9. Nutritional Category: ……. SAM ……. Normal
10. Did the baby born before Normal date?
    Yes …… No ……...
11. Which type of milk do you feed your baby?

a) Ration milk
b) Formula milk
c) Breast milk
d) Powder milk

12. What age of your children stop breast milk ……?
13. What age of your children start complementary food ……?

14. 24 hours diet history

Feeding Time	Food item
Morning	
Mid morning	
Lunch	
Before evening	
Dinner	
Bed time	

15. If the children eat out side food what types

a) Snacks from market

b) Bakery products

c) Industrial product's

Water and Hygiene

16. Drink clean water	Yes	No
17. Houses were clean	Yes	No
18. Kitchen was clean	Yes	No
19. Children's wear clean cloth	Yes	No
20. Take regular shower	Yes	No
21. Wash before having each meal	Yes	No
22. Weather they wash their hand after Toilet	Yes	No

Disease History (Last 6 months)

23. Fever: Yes …….. No ……

If yes then what are temperature and time duration: ……

24. Diarrhea (days): Yes …….. No …….

If yes then how many days to cure: ……

25. Cough (days): Yes …….. No …….

If yes then how many days to cure: ……

26. Others (days): Yes …….. No …….

If yes then how many days to cure: ……

27. Any disability visible? Yes……. No……

If yes have taken any treatment?