

**ASSESSMENT OF NUTRITIONAL STATUS &
DIETARY DIVERSIFICATION OF PREGNANT
WOMEN AT ROHINGYA CAMP, KUTUPALONG,
UKHIA, COX'S BAZAR**



Khodadad Maruf

Roll No.: 0117/16

Registration No.: 00436

Session: 2017-2018

**A thesis submitted in the partial fulfillment of the requirements for
the degree of Master of Science in Applied Human Nutrition &
Dietetics**

**Department of Applied Food Science and Nutrition
Faculty of Food Science and Technology
Chattogram Veterinary and Animal Sciences University
Chittagong-4225, Bangladesh**

JUNE 2019

Authorization

It is hereby declared by me that I am the sole author of the thesis. I also authorize the Chattogram Veterinary and Animal Sciences University (CVASU) to lend this thesis to other individuals or institutions for the purpose of scholarly research.

I further authorize the CVASU to reproduce the thesis by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the research purpose.

I, the undersigned, and author of this work, declare that the electronic copy of this thesis provided to the CVASU Library, is an accurate copy of the print thesis submitted, within the limits of the technology available.

Khodadad Maruf

June, 2019

**ASSESSMENT OF NUTRITIONAL STATUS &
DIETARY DIVERSIFICATION OF PREGNANT
WOMEN AT ROHINGYA CAMP, KUTUPALONG,
UKHIA, COX'S BAZAR**

Khodadad Maruf

Roll No. : 0117/16

Registration No.: 00436

Session: 2017-2018

This is to certify that we have examined the above Master's thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made

-----	-----
Prof. MS. Shahnaz Sultana Supervisor Dept. of Agricultural Economics and Social Sciences Faculty of Veterinary Medicine	Md. Altaf Hossain Co-supervisor Dept. of Applied Food Science and Nutrition Faculty of Food Science and Technology

Md. Altaf Hossain

Chairman of the Examination Committee

Department of Applied Food Science and Nutrition
Faculty of Food Science and Technology
Chattogram Veterinary and Animal Sciences University
Chittagong-4225, Bangladesh

June, 2019

Acknowledgement

All praises are due to the “Almighty Allah” with whose divine blessings the author was able to complete the thesis for the degree of Masters of Science (MS) in Applied Human Nutrition & dietetics under the Dept. of Applied Food Science & Nutrition, Chattogram Veterinary and Animal Sciences University, Chattogram, Bangladesh.

The author expresses his gratitude and profound indebtedness to his honorable teacher and research supervisor, **Professor Ms Shahnaz Sultana**, Head, Department of Agricultural Economics & Social Sciences, Chattogram Veterinary and Animal Sciences University, Chattogram, Bangladesh. Without her scholastic guidance, constructive, affectionate feeling, worthy inspiration and generous help it would not be possible to carry out the research work and writing up to the thesis. The author feels proud in expressing his regard and immense indebtedness to **Professor Dr.Mrs.Jannatara Khatun, Dean**, Faculty of Food Science and Technology and **MD. Altaf Hossain**, Assistant Professor and Head, Department of Applied Food Science & Nutrition for their kind co-operation, valuable suggestions and constructive criticism throughout the research period and for the thesis work. The author is immeasurably grateful to his colleagues **Akimul Islam**, Sr. Project Officer and **Joyonta Das**, Sr.Project Officer, **Action against Hunger (ACF)**, Bangladesh for giving their patient company, ever willingness to help and mental support during the course of his study.

The author would like to express his gratitude and cordial thanks to Research and Extension of Chattogram Veterinary and Animal Sciences University and **University Grants Commissions (UGC)**, Bangladesh for the financial aid during the study period. The author expresses his heartfelt respects and thanks to his beloved parents and sisters for their understanding, inspirations, moral support, kindness and blessings, forbearance and endless love to complete his study.

The Author

June, 2019

TABLE OF CONTENTS

Authorization.....	ii
Acknowledgements.....	ii
List of Tables.....	vii
List of Figures.....	vii
List of abbreviation.....	viii
Abstracts.....	ix
CHAPTER-I: INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.2 Problem Statement	2
1.3 Purpose of the Study.....	3
1.4 Objectives of the Study.....	3
1.5 Significance.....	3
1.6 Delimitations.....	5
1.7 Limitation.....	5
1.8 Assumptions of the Study.....	5
CHAPTER-II: REVIEW OF LITERATURE.....	6
2.1 Assessment of Anthropometric Measurement	6
2.2 Assessment of Dietary Diversity	7
2.3 Assessment of Demographic Measurement	8
2.4 Consequences of Poor Anthropometric, Dietary and Demographic Diversity on Maternal Nutrition	8
2.5 Factors Affecting Individual Anthropometric, Demographic and Dietary Diversity	9
2.5.1 Socio-economic Factors and their Effect.....	9
2.5.2 Maternal Factors and their Effect.....	9
2.6 Summary of Literature Review.....	9
CHAPTER III: MATERIALS AND METHODS.....	11
3.1 Research Design.....	11

3.2 Study Variables.....	11
3.3 Location of the Study.....	11
3.4 Target Population.....	12
3.5 Inclusion criteria.....	12
3.6 Exclusion criteria	12
3.7 Sample size determination.....	12
3.8 Sampling Techniques.....	13
3.9 Selection and Training of Research Assistants.....	13
3.10 Research Instruments and Equipment.....	13
3.11 Pre-Testing of Instruments.....	15
3.11.1 Reliability.....	15
3.11.2 Validity.....	15
3.12 Data Collection Procedures and Techniques.....	15
3.13 Data Analysis and Presentation.....	16
3.14 Ethical and Logistical Considerations	16
CHAPTER IV: RESULTS.....	17
4.1 Anthropometric characteristics of the respondents.....	17
4.2 Demographic Characteristics of Respondents	18
4.2.1 Age Groups of the Respondents.....	18
4.2.2 Marital Status of the Respondents.....	18
4.2.3 Level of Education of the Respondents.....	19
4.3. Dietary Diversity and Dietary Intake of the Respondents.....	20
4.3.1 Consumption of Foods Based on Food Groups.....	20
4.3.2 Individual Dietary Diversity Score based on 24-hour recall....	21
4.4 Factors Associated with Dietary Diversity.....	21
CHAPTER V: DISCUSSIONS.....	25
CHAPTER VI: CONCLUSION.....	28
CHAPTER VII: RECOMMENDATIONS.....	29
REFERENCES.....	30
Appendix.....	35

List of Figures

SL No.	Name of the Figures	Page No.
Figure 4.1	Nutritional Status based on BMI	19
Figure 4.2	Marital status of the Respondents	20
Figure 4.3	Education Level of Respondents	21
Figure 4.4	Individual Dietary Diversity Score based on 24 hour recall	23

List of Table

SL No.	Name of the Tables	Page no.
Table 3.1	Categories of food groups	16
Table 4.1	BMI categorization (WHO)	18
Table 4.2	Demographic characteristics of the respondents	20
Table 4.3	Consumption of the respondents by food groups	22
Table 4.4	Factors Associated with Dietary Diversity	24

List of Abbreviations

Words	Abbreviation
DDS	Dietary Diversity Score
FAO	Food and Agricultural Organization
FFQ	Food Frequency Questionnaire
FGD	Focused Group Discussion
FSNP	Food Security and Nutrition Policy
IDDS	Individual Dietary Diversity Score
IFPRI	International Food Policy Research Institute
MDG	Millennium Development Goals
SDG	Sustainable Development Goals
SD	Standard Deviation
WRA	Women Reproductive Age

ABSTRACT

The nutritional status of a woman during pregnancy is important as suboptimal diet impacts negatively on the health of the mother, the fetus and the newborn. Evidence showed that maternal nutrition has important direct and/or indirect consequences for all other age cohorts. The study was aimed to assess the nutritional status and dietary diversification of pregnant women in the Kutupalong Refugee camp. A sample size of 329 pregnant women was targeted with the first respondent being randomly selected. Data were collected using researcher administered questionnaires and focus group discussion guide. Data were inputted and analyzed using SPSSV16 and summarized using descriptive statistics such as frequencies, means and percentages. Body Mass Index of the respondents was measured to determine the nutritional status. The numbers of underweight and normal pregnant women were 37% and 62% respectively. Different demographic characteristics were measured also such as educational level of the respondents. Maximum women were found with no formal education (75%), other has primary education (17%) and percentage of having secondary education (8%) was very low. Maximum respondents were married (69%) and the percentage of separated and divorced women was 14% and 17% respectively. Almost half of the respondents are ≤ 19 years of age (51%). Data were also collected using 24 hours recall method. A P value of < 0.05 was considered statistically significant. The mean dietary diversity score (DDS) was 6.16. Significant differences were found in DDS based on marital status with the married more likely to have a higher DDS of 6.88 and the single had a lower DDS of 5.75, ($P=0.029$). It is recommended that guidelines for nutrition and diets for pregnant women to be developed and disseminated and promotion of dietary diversity and modification of diets can be carried out through practical demonstrations in the camp households and health facilities.

Keywords: Nutritional status, Dietary diversity score (DDS), Body mass index (BMI)