#### Authorization

I hereby declare 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 institutions or individuals 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 purpose of scholarly research.

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.

Kazi Jannatul Wakeya June, 2019

## ASSESSMENT OF NUTRITIONAL STATUS AND ITS ASSOCIATED FACTORS IN ADOLESCENT GIRLS

**KAZI JANNATUL WAKEYA** 

Roll No: 0117/02 Registration No: 422 Session: 2017-2018

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

.....

Supervisor (Musammet Rasheda Begum) Associate Professor Department of Agricultural Economics and Social Sciences Chattogram Veterinary and Animal Sciences University

Md. Altaf Hossain

**Assistant Professor and Head** 

Department of Applied Food Science and Nutrition Chattogram Veterinary and Animal Sciences University Chattogram-4225, Bangladesh June, 2019

# I dedicate this thesis to my beloved parents, sister and teachers.

#### Acknowledgement

All praise and gratitude go to Almighty Allah, who gave me the energy and sound health to endure the rigor of this tedious job of completing the research work and writing up the dissertation successfully for the degree of Master of Science (MS) in Department of Applied Food Science and Nutrition, Chattogram Veterinary and Animal Sciences University. After these intensive months, today is the day, writing this note of appreciation will be the ultimate touch on my thesis dissertation. It has been a time of great learning for me in research and personal level. I would like to reflect on the people who have helped me in one way or the other to complete my thesis.

My heartiest thanks goes to my supervisor **Musammet Rasheda Begum, Associate Professor, Department of Agricultural Economics and Social Sciences, CVASU**, who encouraged and directed me by giving her valuable time and feedback. She has been an advisor as well as mentor, Allah has blessed me with. I could never appreciate her enough for her time and patience. I am indebted to my supervisor for her critical comments on my thesis write-ups.

It is my privilege to acknowledge **Md. Altaf Hossain**, Assistant Professor and Head, Department of Applied Food Science and Nutrition, Chattogram Veterinary and Animal Sciences University for his support, valuable advice and encouragement for the research work

I would like to express my gratitude and cordial thanks to **Research and Extension** of Chattogram Veterinary and Animal Sciences University, Bangladesh and **Ministry of Science and Technology** to award me with **National Science and Technology Fellowship** 2017- 2018, for the financial help supplied during the study period.

Finally, I would like to express my gratitude and appreciation to my family, especially my mother for all the support she provided for my wellbeing and study which I am utilizing even after her demise. I pray for her resting soul. Finally, this acknowledgement will not be fulfilled without mentioning the support from my elder sister, friends, classmates and juniors.

Thank you very much everyone. May the Almighty bless you all.

## **Table of Contents**

Authorizationi	
Acknowledgementiv	
List of tablevii	
List of figuresviii	Ĺ
List of abbreviationsix	
Abstractix	
Chapter-1: Introduction	1
1.1 Objectives	2
Chapter-2: Review of literature	
2.1. Growth and development during adolescent period	3
2.2. Under-nutrition and obesity/overweight in adolescents	3
2.3. Consequences of under-nutrition/over-nutrition among adolescent girls	
2.4. Prevalence of malnutrition and associated factor in adolescents	4
2.5. Socio-economic status	4
2.6. Meal skipping habits of adolescent girls	4
2.7. General and reproductive health of the adolescent girls	5
Chapter-3: Materials and Methods	6
3.1. Study setting and design	6
3.2. Study population and study duration	6
3.3. Sample size estimation	6
3.4. Sampling procedure	7
3.5. Ethical consideration	7
3.6. Study variables	7
3.6.1. Assessment of anthropometric measurements	7
3.6.2. Food frequency and dietary recall	8
3.6.3. Nutritional knowledge and morbidity pattern	8
3.7. Statistical analysis	9
3.7.1. Exploration of data	9
3.7.2 Multi-category logit model: Baseline category logit model	9
Chapter-4: Results	0
4.1. Socio-demographic and other characteristics of adolescent girls in Chattogram Cox's Bazar and Rohingya camp area (n=360)1	

No. of Tables	Name of the Tables	Page no.
1	Socio-demographic characteristics of	10
	adolescent girls (n=360)	
2	Socio-economic characteristics of	11
	adolescent girls	
3	Diseases prevalence in different area.	12
4	Foodstuffs consumption in a day by	14
	adolescent girls	
5	Practice of skipping meal among the	15
	adolescent girls according to area	
6	SAM and MAM prevalence among	17
	adolescent girls area wise	
7	Adolescent girls' nutrition status by BMI	18
8	Association between nutritional status and	18-19
	other variables among the adolescent girls	
	of Chattogram, Cox's Bazar and	
	Rohingya Camp	
9	Parameter estimates (standard error) of	20
	baseline category logit model	

### List of tables

No. of figures	Name of the figures	Page no.
1	Self-reported overall general morbidity	12
	among adolescent girls	
2	Occurrences of premenstrual syndrome	13
	among the participants	
3	Frequency food intake by adolescents per	14
	day	
4	Overall tendency of skipping meal among	15
	the adolescent	
5	MUAC status according to 10 to 14.9 years	16
	and 15 to 19 years old adolescent girls	
6	Overall BMI status of adolescent girls	17

List of figures

Abbreviations	Elaborations	
%	Percentage	
BMI	Body mass index	
MUAC	Mid upper arm circumference	
SAM	Severe acute malnutrition	
MAM	Moderate acute malnutrition	
SD	Standard deviation	
WHO	World Health Organization	
UNICEF	United Nation International Children Emergency	
	Fund	
CI	Confidence Interval	
FET	Fisher Exact Test	
PMS	Premenstrual Syndrome	
Cm	Centimeter	
Kg	Kilogram	
BBS	Bangladesh Bureau Statistics	

## List of abbreviations

#### Abstract

Nutrition in adolescence is imperative in life cycle of women to build up a healthy next generation. This study was conducted in some selected areas of Chattogram and Cox's Bazar districts and, three Rohingya camps of Cox's bazaar in Bangladesh to know the prevalence of underweight and overweight in adolescent girls and associated risk factors. A cross-sectional investigation was carried out among 360 respondents utilizing a simple random sampling technique. A structured questionnaire was used to accumulate the data. Height, weight and body mass index (BMI) were recorded for all participants. The prevalence of underweight and overweight were 26.1% and 7.2%, respectively. Area, age, skipping meal, knowledge on nutrition and premenstrual syndrome were associated with nutritional status. Proper campaign on nutritional knowledge and food intake can minimize the magnitude of malnutrition in adolescent girls.

Keywords: Adolescent girls, nutritional status, factors, Bangladesh.