Research Article

Awareness Regarding Risk Factors of Non-Communicable Diseases among College Students in Bangladesh

Morzina Akter[1], Shahanaz Parveen[2,*] and Ferdous Jahan[3]
[1]*Nursing Officer, 250 bedded general hospital, Tangail, Bangladesh*
[2]*Faculty, Community Health Nursing, **NIANER, Bangladesh*
[3]*Faculty, Community Health Nursing, **NIANER, Bangladesh*

*Corresponding author: Shahnaz Parveen, MNSc, RN, Faculty, National Institute of Advanced Nursing Education and Research (NIANER), Dhaka, Bangladesh

Abstract

Background and Objective: Non-communicable diseases (NCDs) are medical conditions which last for longer duration generally with slow progression. The diseases are non-infectious and non-transmissible. The purpose of this study was to assess the awareness regarding risk factors of non-communicable diseases among college students.

Methods: A descriptive type of cross-sectional study design was adopted for this study. The sample was drawn through a convenient sampling technique and the sample consisted of 101.The data collection period was from February 2022 to March 2022. Data was collected by using self-administered questionnaire. Data were analyzed using descriptive statistics such as frequency, percentage, and mean & standard deviation. Inferential statistics such as one- way ANOVA, independent t-test and Pearson correlation test were used to examine the relationship between variables.

Results: Findings of this study showed that the mean awareness level regarding risk factors of non-communicable diseases was 14.30 (SD=2.88). It indicates that the participants had moderate level of awareness. In bivariate analysis, it has been showed that the marital status (t=5.82, p=.001) and nuclear family (t=1.789, p=.02) were significantly related with awareness regarding risk factors of non-communicable diseases. The study findings also revealed that the fathers' (t=2.44, p=.01) and mothers' (t= 2.11, p=.03) educational qualification were significant relationships between awareness regarding risk factors of non-communicable diseases.

Conclusion: Non-communicable diseases are gradually increasing because of different types of new risk factors. The study findings concluded that the marital status, types of family, parent's educational qualification were statistically significant. Health care provider can use this study findings to develop an intervention program to increase awareness regarding risk factors of non-communicable diseases those participants had low to moderate level of awareness.

Keywords: Non-communicable diseases; Awareness

Introduction

Worldwide Non-Communicable Diseases (NCDs) are emerging as a major public health challenge in current health scenario as leading causes of morbidity and premature death [1-3]. Globally, impact NCDs are increasing of asymmetric higher in developing countries which is threaten to public health [4]. The NCDs describes a wide range of conditions, diseases, and disorders; that are causes genetic, lifestyle, or environmental [3]. It is needed to concern for Non-Communicable Diseases (NCDs) are the worrying issue for society and national governments, as well as globally due to their high mortality rate [5]. The leading causes of death in globally are NCDs than another combined causes. NCDs are responsible for near about 41 million deaths each year, which is equivalent to 71% of all deaths

[6]. Near about 80% of NCDs deaths occur in low- and middle-income countries and nearly three fourth of global NCDs related deaths take place after the age of 60 [7]. According to World Health Organization (WHO) report, NCDs are responsible 17 million deaths before the age of 70 years which is occur in low- and middle-income countries; 77% are in low- and middle-income countries. NCDs like cardiovascular diseases are account for most NCD deaths. Annually 17.9 million deaths are occurring in cardiovascular diseases; followed by cancers 9.3 million; 4.1 million chronic respiratory diseases, and diabetes 2.0 million including kidney disease deaths caused by diabetes [8].

In low and middle-income countries almost 15 million people die because of NCDs annually between the ages of 30-69

1

years; and over 85% premature deaths are occurred [6] cardiovascular diseases make up most NCDs deaths, followed by cancer, respiratory diseases, and then diabetes. These four categories of disease account for more than 80% of all premature NCD deaths [9]. It is estimated that NCDs are responsible around 42% and 27% are premature deaths in Ethiopia, which is occurring at the age of 70 years [10]. Bangladesh is passing through a demographic transition and an epidemiological transition and currently has a double burden of diseases [11]. In Bangladesh total deaths: 886,000 and NCDs are estimated to account for 67% of total deaths. The probability of dying between ages 30 and 70 years from the 4 main NCDs. Two third of premature deaths in adults are associated with childhood conditions and behaviors, and behavior associated with NCD risk factors is common in young people [12].

Several risk factors can increase the number of chances to develop NCDs. Non-modifiable risk factors including age, gender, genetic factors, race, and ethnicity [5]. Modifiable risk factors such as tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol, all increase the risk of NCDs [13]. Tobacco (including from the effects of exposure to secondhand smoke) and alcohol including cancer accounts for 7.2 and 3.3 million deaths every year. Annually 4.1 and 1.6 million deaths occur due to excessive salt/sodium intake, alcohol use and insufficient physical activities [13].

A study conducted in India study results showed that only 0.3% had good level of knowledge regarding the risk factors and awareness of risk factors of NCDs, and the awareness of rural adolescents was consistently lower than the urban adolescent's [1]. Raising awareness through health education seems to be an important persistent option for modifying the mass dietary habit and tobacco consumption, exercise of the students. Specific intervention programs must be designed based on risk factors and high-risk groups for the early detection and treatment of the major NCDs [11].

Poverty is closely linked with NCDs. The rapid rise in NCDs is predicted to delay poverty reduction initiatives in low-income countries, particularly by increasing household costs associated with health care. Vulnerable and socially disadvantaged people get sicker and die sooner than people of higher social positions, because they are at greater risk of being exposed to harmful products, such as tobacco, or unhealthy dietary practices, and have limited access to health services. In low-resource settings, health-care costs for NCDs quickly drain household resources.

The excessive treatment costs of NCDs including which is often lengthy and expensive, combined with loss of income, force millions of people into poverty annually and suppress development (WHO, 2021). NCDs are gradually increasing day by day for different types of new risk factors. Proper education and awareness can take crucial role to prevent NCDs. For establishing successful strategies in order to increase utilization of any health educational program and preventive services there is need to explore an extent to which potential beneficiaries are aware about the problem. This study will be helpful to modify individuals' health behavior through providing information regarding risk factors of NCDs.

The findings of this study will have an important implication to raise awareness about the consequences regarding risk factors of NCDs not only among college students, but also their fam-ily members, teachers and community people; and will help the health care provider to establish an awareness program regarding risk factors of non-communicable diseases for further implementation.

There is limited research on awareness regarding risk factors of NCDs in Bangladesh. Thus, the investigator would like to conduct a study on awareness regarding risk factors of non-communicable diseases among college students in Bangladesh.

Methods
Study Design
A descriptive type of cross-sectional study was carried out at Bhaighat Ideal Degree College, Dhanbari, Tangail. The college is an academic institution located at Dhanbari, Tangail.

Participants and Sampling
A descriptive study design was used to assess the awareness regarding risk factors of non-communicable diseases among college students. The approval was obtaining from the Institutional Review Board (IRB) of NIANER and BSMMU, and from the Principal of Bhaighat Ideal Degree College, Dhanbari, Tangail. Dhaka, Bangladesh. Data were collected from July 2021 to June 2022.Convenient sampling technique was used to get the eligible sample for the current study.

The participants were explained the nature, purpose, benefit of the study and obtained a verbal and written consent and also informed that they have right to withdraw their participation at any time without any penalty. Total 101 participants were recruited based on the following inclusion criteria; Students who were study in class eleven and twelve; Both male and female; Able to understand Bengali and English; Agreed to participate voluntarily in this study.

The questionnaire was used for the study consist of two parts; I Socio demographic questionnaire consist of 14 items sociodemographic questionnaire was used to measure the characteristics of the college student and part II: Awareness related questionnaire consist of 21 items with a yes/no/uncertain option was used to assess the awareness level regarding risk factors of non-communicable diseases among college students.

The questionnaire was developed by investigator based on the literature review. The score was ranged from 0 to 21. Each correct answer receives 1 point while an incorrect answer receives 0 points. The participants' awareness was categorized into three levels: Low, moderate and high. A high score indicates a high level of awareness regarding risk factors of non-communicable diseases.

Results
Socio-demographic characteristics of the participants
The mean age of the participants was 17.30 (SD= .742) years which ranging from 16-19 years. Near about 65% were male and most of the participants were Muslim (95%). Most (93.1%) of the participants was unmarried and study discipline were Science (32.7%), Humanities (35.6%), Business studies (31.7%). Most (90%) of the participants were living with family and it is observed that more than half (60.4%) were from nuclear family. More than 71% of the family was in between 4-5 members.

The educational qualification of the parents mostly was prima-

Table 1: Distribution of socio-demographic characteristics of the participants (N=101).

Variables	Frequency (n)	Percentage (%)	M±SD
Age			17.30±.74
	2		
Gender			
Male	65	64.4	
Female	36	35.6	
Religion			
Muslim	96	95.0	
Non-Muslim	5	5.0	
Marital status			
Married	7	6.9	
Unmarried	94	93.1	
Study discipline			
Science	33	32.7	
Humanities	36	35.6	
Business studies	32	31.7	
Living status			
Living with family	99	98.0	
Living with friend	2	2.0	
Types of family			
Nuclear family	61	60.4	
Joint family Family	40	39.6	
Member			
Less than 3 members	13	12.9	
4-5 members	72	71.3	
More than 5 members	16	15.8	
Fathers' education			
Primary	58	57.4	
Secondary and more	43	42.6	
Mothers' education			
Primary	60	59.4	
Secondary and more	41	40.6	
Fathers' occupation			
Service	9	8.9	
Business	39	38.6	
Others	53	52.5	
Mothers' occupation			
House wife	95	94.1	
Service and others	6	6.0	
Family history of non-communicable diseases			
Yes	30	29.7	
No	71	70.3	
Monthly Family Income		12633.66±7621.972	

ry (father 57.4% and mother 59.4%) respectively. It is observed that father's occupation more than 50% was others occupation likes as farmer; carpenter etc. whereas mother's occupation mostly was house wife (94.1%). With regard to family history of non-communicable diseases only 29.7% had family history of non-communicable diseases. The monthly family income was mean 12633.66 (SD=7621.972) BDT.

Awareness level regarding risk factors of non-communicable diseases among the participants
The mean score of awareness of the participants regarding risk factors of non-communicable diseases was calculated as 14.30 (SD=2.88) out of maximum points 21 which indicates a moderate level of awareness regarding risk factors of non-communicable diseases. Near about 85% participants believed that sleeping pill (84.2%), and stressful condition (84.2%) can cause to develop non-communicable diseases. More than

eighty percent participants considered that alcohol consumption, pain killer and air pollution respectively are risk factors of non-communicable diseases.

The study results also found that smoking; sedentary life style and harmful radiation (77.2%, 77.2%, and 74.3%) respectively are the major risk factors of non-communicable diseases where as 69.3% participants were don't know that non-communicable diseases are hereditary disease. Near about 55% participants don't know inadequate intake of fruits and vegetables can cause to develop non-communicable diseases.

Relationship between socio-demographic characteristics and awareness of non-communicable diseases risk factors among the participants
Result shows the relationship between socio-demographic characteristics and awareness of non-communicable diseases risk factors.

The study findings revealed that the Marital status and awareness regarding risk factors of non-communicable diseases was very significant relationships (t=5.82, p=.001). The study report showed that there was a significant relationship between nuclear family (t=1.789, p=.02) and awareness regarding risk factors of non-communicable diseases.

There were statistically significant relationships between fathers' educational qualification and awareness regarding risk factors of non-communicable diseases (t=2.44, p=.01). The study results also found that mothers 'educational qualification and awareness regarding risk factors of non-communicable diseases was significant relationships (t= 2.11, p=.03).

Discussion
These study findings revealed that the mean age of the participants were 17.30 years which ranging from 16-19 years. This finding nearly similar with a study conducted in Koti, Hyderabad [14].

In this study near about 65% participants were male and most of the participants where Muslim same findings were noted in other previous studies [15,16]. In opposite study result found in Nigeria and India they reported that majority of the participants were Christian and Hindu [2,7].

In the current study identified that more than ninety percent participants were unmarried. Ghazali et al a study conducted in India their study report also showed that majority of the participants were unmarried.

The study discipline was Science, Humanities and Business studies. In this study most of the participants were living with family, among them more than half of the participants from nuclear family and family member was consisted in between 4-5 members which closely consistent with previous study [15].

This study result showed that the majority of the father's educational qualification was primary. In contrary another previous study found that majority of the father's educational qualification was HSC & Equivalent. It indicates that father educational qualification is related to participant's awareness [16].

In this study found that father's occupation mostly was others occupation (such as daily labour, carpainter, farmer etc.). In

Table 2: Distribution of awareness level regarding risk factors of non-communicable diseases amongthe participants (N=101).

Variables	Correct	Incorrect	
	n (%)	n (%)	M±SD
NCDs are not transmitted from person to person	57 (56.4)	44 (43.6)	.56±.498
NCDs are more common an elderly people	65 (64.4)	36 (35.6)	.64±.481
NCDs are hereditary disease	31 (30.7)	70 (69.3)	.31±.464
Obesity and overweight are a risk factor of NCDs	60 (59.4)	41 (40.6)	.59±.494
Regular exercise can reduce the risk of developing NCDs	72 (71.3)	29 (28.7)	.71±.455
Processed food/ fast food may lead to develop NCDs	78 (77.2)	23 (22.8)	.77±.421
Inadequate intake of fruits and vegetables can cause health problems	46 (45.5)	55 (54.5)	.46±.500
Extra salt in diet could cause to develop NCDs	64 (63.4)	37 (36.6)	.63±.484
Excessive sugar intake is risk for developing NCDs	71 (70.3)	30 (29.7)	.70±.459
Excessive intake of pain killer is a risk factor of NCDs	81 (80.2)	20 (19.8)	.80±.400
Unnecessary intake of sleeping pill can causes NCDs	85 (84.2)	16 (15.8)	.84±.367
Smoking is a major risk factor for developing NCDs	78 (77.2)	23 (22.8)	.77±.421
Sedentary life style is a major risk factor of NCDs	78 (77.2)	23 (22.8)	.77±.421
Lack of sleep is one of the risk factors of developing NCDs	69 (68.3)	32 (31.7)	.68±.468
Excessive consumption of red meat can cause for developing NCDs	54 (53.5)	47 (46.5)	.53±.501
Harmful radiation like- ultra-violate ray can cause to develop NCDs	75 (74.3)	26 (25.7)	.74±.439
Exposed to air pollution can causes NCDs	81 (80.2)	20 (19.8)	.80±.400
Unplanned industrialization can cause NCDs	74 (73.3)	27 (26.7)	.73±.445
Unplanned urbanization can cause NCDs	58 (57.4)	43 (42.6)	.57±.497
Excessive alcohol consumption is risk for developing NCDs	85 (84.2)	16 (15.8)	.84±.367
Stressful condition is cause to develop NCDs	83 (82.2)	18 (17.8)	.82±.385
Total mean		14.30± 2.88	

contrast, another previous study carried out by Rahman et al their study identified that majority of the father's occupation was business.

This study revealed that most of the mother's occupation was house wife which was closely related with various previous national study [11,16]. It was found in present study that more than seventy percent family had no family history of non-communicable diseases. Another study conducted in Taif by [17] their study findings nearly consistent with the current study.

This study found that majority of the participants had moderate level of awareness which was similar a study conducted in Nigeria [2] and opposite from previous study had poor awareness regarding NCDs risk factors [18,19]. Among the participants, near about sixty percent participants know that NCDs not transmitted from person to person whereas about 70% participants don't know NCDs are hereditary disease which was closely consistent with previous study conducted in India and Nigeria [2,14].

In this study more than sixty percent participants had good awareness regarding ageing, salt intake, smoking and obesity. In a study conducted by Shravani et al their study findings were nearly consistent with the current study. This study established that majority of the participants aware about physical exercise which was similar previous national study conducted by [20].

In the present study more than seventy percent participants believed that fast food, excessive sugar intake and sedentary lifestyle are major risk factors of NCDs Similar result was noted in another study [14]. The current study identified that more than eighty percent participants agreed pain killer, air pollution and stressful condition can cause to develop NCDs.

This study result showed that near about 85% participants revealed that alcohol consumption and unnecessary intake of sleeping pill can cause to develop NCDs. Only 45% participants agreed that inadequate intake of fruits and vegetables can cause to develop NCDs similar result found another previous study which was conducted in Taif [17].

This study revealed that most of the participants had moderate level of awareness regarding unplanned urbanization and industrialization. Similarly, a previous study carried out by [14] found that the moderate level of awareness regarding unplanned urbanization and industrialization.

The current study results identified that the participants had moderate level of awareness regarding non-communicable diseases risk factors. The marital status and non-communicable diseases risk factors awareness was very significant relationship (t=5.82, p=.001).

Another previous study also found that marital status and non-communicable diseases were significantly related (Bhuyan, 2019). This current study found that the types of family and NCDs risk factors awareness had statistically significant (t=1.789, p=.02) which was inconsistent with other previous study.

In this study there were statistically significant relationships between fathers' educational qualification and awareness of non-communicable diseases risk factors (t=2.44, p=.01). It was also found that mothers 'educational qualification and awareness of non-communicable diseases risk factors was significant relationships (t= 2.11, p=.03) which was inconsistent a previous study conducted in Bangladesh by [16].

There were no significant relationships found between awareness of NCDs risk factors and age, gender, religion, study discipline, family member, fathers' education, mothers' education, father occupation, mother occupation, family history of NCDs, monthly family income.

Table 3: Relationship between socio-demographic characteristics and awareness regarding risk factors of non-communicable diseases among the participants (N=101).

Variables	M±SD	t/F/r	(p)
Age		-.086	.39
Gender			
Male	2.67 ± .503	-1.764	.08
Female	2.83 ± .377		
Religion			
Muslim	2.72 ± .469	.329	.47
Non-Muslim	2.80 ± .447		
Marital status			
Married	3.00 ± .000	5.82	.001
Unmarried	2.71 ± .477		
Study discipline			
Science	2.57 ± .560	2.990	.05
Humanities	2.83 ± .377		
Business studies	2.78 ±.420		
Living status			
Living with family	2.73 ±.464	.505	.47
Living with friends	2.50 ±.707		
Types of family			
Nuclear family	2.80 ± .400	1.789	.02
Joint family	2.62 ± .540		
Family Member			
Less than 3 members	2.76±.438	.115	.89
4-5 members	2.73±.474		
More than 5 members	2.68±.478		
Father's education			
Primary	2.75±.431	2.445	.01
Secondary and more	2.69±.513		
Mother's education			
Primary	2.80±.403	2.115	.03
Secondary and more	2.63±.536		
Father's occupation			
Service	2.88±.333	.952	.38
Business	2.66±.477		
Others	2.75±.476		
Mother's occupation			
House wife	2.75 ± .430	1.295	.19
Service and others	2.33 ± .816		
Family history of non-communicable diseases			
Yes	2.83 ± .379	1.577	.11
No	2 .69 ± .495		
Monthly Family Income		.040	.692

Conclusion

Overall awareness level regarding risk factors of non-communicable diseases was moderate level among the participants. The marital status, types of family, fathers' educational qualification and mother's educational qualification was statistically significant.

It can be mediated to develop especially community health nursing practice for public awareness to prevention and control of non-communicable diseases among not only college students but also their family members, teachers and mass people of the community.

To develop an intervention program to increase awareness regarding risk factors of non-communicable diseases those participants had low to moderate level of awareness. Further study includes a large number of sample sizes and multiple settings in a large scale. Media can play a vital role to reduce NCDs related morbidity and mortality by arranging NCDs risk factors related program regularly.

References

1. Bhaskaran A, Thomas J, Sumesh R, Rodrigues K, Mathew S. Awareness of Non-Communicable Diseases and their Risk Factors among Adolescents: A Comparative Questionnaire Study. The Indian Journal of Forensic Medicine

& Toxicology, 2021; 15(3).

2. Ghazali AK, Ayeni FA, Effiong DE. Knowledge of Non-Communicable Diseases and Risk Factors among Final Year Students in a Tertiary Institution. The Journal of Advances in Medical and Pharmaceutical Sciences, 2021; 23(6): 1-9.

3. Mane KS, Maganalli A, Nawaz AS. A comparative study on awareness about non-communicable diseases and their risk factors among government and private high school students of Davangere city. The International Journal of Medical Science and Public Health, 2016; 5(10): 2026-2030.

4. Islam SMS, Purnat TD, Phuong NTA, Mwingira U, Schacht K, Fröschl G. Non-Communicable Diseases (NCDs) in developing countries: a symposium report. Globalization and health, 2014; 10(1): 1-8.

5. Budreviciute A, Damiati S, Sabir DK, Onder K, Schuller-Goetzburg P, Plakys G, et al. Management and prevention strategies for non-communicable diseases (NCDs) and their risk factors. The Frontiers in public health, 2020; 8: 788.

6. Alam MEU, Amin MN, Haque MJ, Hasan F, Haldar MK, Yasmin N, et al. Awareness of Rural People about Prevention of Non-Communicable Diseases. The Ibrahim Cardiac Medical Journal, 2020; 10(1-2): 27-32.

7. Ramegowda C, Kathali S, Rajanna P. Assessment of knowledge on non-communicable diseases and their screening tests among elderly population in an urban area of Bengaluru.International Journal of Community Medicine and Public Health, 2019; 6(10): 4489.

8. World Health Organization. Non-Communicable Diseases, Fact sheet, 2022.

9. World Health Organization. Noncommunicable diseases progress monitor, 2022.

10. Shiferaw F, Letebo M, Misganaw A, Feleke Y, Gelibo T, Getachew T, et al. Non-communicable Diseases in Ethiopia: Disease burden, gaps in health care delivery and strategic directions. The Ethiopian Journal of Health Development, 2018; 32(3).

11. Riaz BK, Islam MZ, Islam AS, Zaman MM, Hossain MA, Rahman MM, et al. Risk factors for non-communicable diseases in Bangladesh: findings of the population-based cross-sectional national survey 2018. The British Medical Journal open, 2020; 10(11): e041334.

12. World Health Organization. No Communicable Diseases (NCD) Country Profiles, 2018.

13. Feigin V. GBD (2015) Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioral, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet, 2016; 388(10053): 1659-1724.

14. Shravani R, Rao RL, Wassey MA, Tabassum N. Awareness of Risk Factors for Non-Communicable Diseases among Adolescent girls aged 15-17 years in Koti, Hyderabad. The Journal of Medical Science and Clinical Research, 2018; 6: 743-747.

15. Rahman MM, Rahman MA, Sajani TT, Kawser A. Prevalence of NCDs among rural households of Dhamrai Upazila, Dhaka. The Anower Khan Modern Medical College Journal, 2017; 8(1): 55-59.

16. Islam MZ, Rahman MM, Moly MAH. Knowledge about Non-Communicable Diseases among Selected Urban School Students. The Journal of Armed Forces Medical College, Bangladesh, 2019; 15(1): 90-93.

17. Desouky DS, Omar MS, Nemenqani DM, Jabbar J, Tarak-Khan NM. Risk factors of non-communicable diseases among female university students of the Health Colleges of Taif University. The International Journal of Medicine and Medical Sciences, 2014; 6(3): 97-107.

18. Ade A, Chethana KV, Mane A, Hiremath SG. Non-communicable diseases: Awareness of risk factors and lifestyle among rural adolescents. The International Journal of Biological & Medical Research, 2014; 5(1): 3769-3771.

19. Rahamathulla MP, Shah MM. Frequency and Awareness of Risk Factors of Non-Communicable Diseases among University Students in Saudi Arabia. The Pakistan Journal of Medical Sciences, 2020; 36(4): 740.

20. Fatema K, Hossain S, Natasha K, Chowdhury HA, Akter J, Khan T, et al. Knowledge attitude and practice regarding diabetes mellitus among Nondiabetic and diabetic study participants in Bangladesh. The BioMed Central public health, 2017; 17(1): 1-10.

21. Kc B. Factors responsible for non-communicable diseases among Bangladeshi adults. The Biomedical Journal of Scientific & Technical Research, 2019; 20(1): 14742-14748.