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PREVALENCE OF NON COMMUNICABLE DISEASES (NCD) AMONG URBAN HOUSEWIVES OF SELECTED AREA OF DHAKA CITY

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ABSTRACT

Non-communicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. The 4 main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes. The rapid rise of non-communicable diseases (NCDs) represents one of the major health challenges to global development. This cross-sectional study was conducted among 200 urban housewives from a selected area of Dhaka city. The data was collected through semi-structured self administered questionnaire. The current study reveals that majority of respondents were middle aged, educated urban housewives. Among the 200 respondents, the prevalence of hypertension of the study population was found to be 32.1% and diabetes to be 38%. Almost all respondents have at least one risk factors and great proportion of people have 2 or more risk factors. 56% were taking oral contraceptives of which combined form of pill was most popular which may contribute as one of the factors for raised prevalence of hypertension. Behavioral risk factors like tobacco use reveals that 14%of total respondents are using smokeless form of tobacco. Zorda is most popular than sada pata and gul. Dietary pattern of overall surveyed population took fruits and vegetables on an average 4.42 and 6.23 days in a week respectively of which servings of intake varied from 2 -3 numbers in a typical day. Salt intake separately during meals was found to be fairly high (51.5%) in spite of having profound knowledge among the respondents (56.5%) regarding its harmful health effects. Overall physical activity of respondents is quite low as 28.5% respondents walk for at least 10 minutes in a typical day. Performance of moderate intensity physical activity like walking, jogging or carrying light load is comparatively higher than vigorous intensity physical activity like carrying heavy

load, washing heavy clothes by 66.5%. About 75.5% have measured their blood pressure within past 12 months of which 59% was not found to be hypertensive. Hypertensive respondents mostly 52.4% took anti-hypertensive drugs and received advice to reduce salt intake (62.2%) and loose weight (56.1%). %). Blood sugar was also been measured by 71% respondents of which 62% were found non diabetic. Respondents mean BMI was 26.50 and 51.5% of total surveyed population were overweight. The mean blood pressure was 127/74mmof Hg. The mean waist circumference was 78.65cm.

KEYWORDS: Non Communicable Diseases.

1.1 INTRODUCTION

By the dawn of the third millennium, the entire world is drifting towards the non-communicable diseases (NCDs).According to WHO, Non-communicable diseases (NCDs), also known as chronic diseases, which are not passed from person to person.[1] They are of long duration and generally slow progression. The 4 main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.

Non-communicable diseases have a considerable toll on individuals, societies and health systems. The rapid rise of non-communicable diseases (NCDs) represents one of the major health challenges to global development. It is becoming a major public health threat in the developing world. NCDs were estimated to have contributed to almost 60% of deaths in the world and among them about 80% occur in the developing countries.[4] Non-communicable diseases have modifiable risk factors, which are easy to measure and can help in planning effective interventions. Thus targeting the risk factors for non-communicable diseases is recognized as an essential preventive strategy.

In low resource countries, the fight against rising level of NCDs has begun. Like other developing countries, Bangladesh has also been going through a rapid epidemiologic transition in which NCD's accounts for two-thirds of all deaths. Bangladesh has been facing a dual burden of existing infectious diseases and escalating rise of NCDs like diabetes, heart disease, stroke, cancer, chronic respiratory disease, etc.[2] Bangladesh is one of the highest density populated countries existing with more than 156 million people in the world where the sex ratio is 106 males for every 100 females and a per-capita health expenditure of US $ 64 will not be sufficient enough to combat with this condition. The country has 64 districts

and a statistic shows that on average, each district has about 20 million households. On average, a household consists of 5-6 persons. In Bangladesh women comprise nearly half of the total population and women are considered most disadvantaged, particularly with respect to education, labor, nutrition, health etc.

In all means the status of women is much lower than that of men in every sphere of life. Most women's lives remained centered on their traditional roles in house making, and they had limited access to markets, productive services, education, health care, and local government. She builds the entire household but ends up neglecting her own health by not paying enough attention to herself and her fitness thus making the situation of women is particularly vulnerable. Each and every housewife suffers from one or more NCDs.

With medical research achievements in terms of vaccination, antibiotics and improvement of life conditions; communicable diseases started to reduce in number.[1] Most of the Asian countries are double burdened because: (a) infections and nutritional deficiencies are still prevalent; (b) cardiovascular diseases (CVDs), cancers, diabetes, neuropsychiatric ailments and other chronic diseases are increasing. The sharp increase is associated with changes in lifestyles, increased smoking and shifts in dietary habits: meat and dairy products with high fat, sugar and salt, as well as reduced physical activity as mentioned in a research conducted in 2009 on 5 Asian countries.[16] According to the World Health Organization's statistics, chronic non-communicable diseases such cardio vascular diseases, diabetes, cancers, obesity and respiratory diseases, account for about 60% of the 56.5 million deaths each year and almost half of the global burden of disease.

Hypertension (high blood pressure), coronary heart disease (heart attack), cerebrovascular disease (stroke), heart failure etc constitute the major contributor among NCDs. Worldwide, an estimated 17 million people die of these diseases, particularly heart attacks and strokes, every year. CVDs are promoted by risk factors like tobacco use, alcohol, physical inactivity and unhealthy diet.[19,20,21] The burden is exacerbated by the complications such as blindness, amputations and kidney failure for which diabetes is the leading cause.[22] Thus diabetes is another leading non-communicable disease.

The development and implementation of NCDs prevention polices in the developing countries like Bangladesh, is a multidimensional challenge.

1.2 Justification of the Study

- Non-communicable diseases (NCDs) have been accounting for 60% of all deaths and 47% of the global burden of disease. It is predicted that, by 2020 NCDs will be causing 7 out of every 10 deaths. Thus NCD is a major issue of concern worldwide.
- It is found that 80% of chronic disease deaths are already occurring in low and middle income countries. Thus there are strong economic arguments to address the NCD burden in developing countries to improve economic impacts for households.
- Bangladesh is suffering from double burden diseases. Concern regarding non-communicable diseases (NCD) has arisen recently. The keys for controlling double burden diseases are primary prevention through amplifying awareness for promotion of healthy life style.
- In Bangladesh women comprise nearly half of the total population. In spite of lifestyle changes the situation of women is still vulnerable. She plays the central role in house making and ends up neglecting her own health.
- STEPS emphasizes that small amounts of good quality data are more valuable than large amounts of poor data. There is limited amount of related small scale research on urban women. Therefore, the present study has addressed this challenge by measuring the prevalence of major preventable risk factors for NCDs among urban housewives of Dhaka, using STEPS wise approach.

1.3 Research Question

What is the prevalence of non-communicable disease (NCD) among urban housewives of selected area of Dhaka city?

1.4 Research Objective

1.4.1 General objective

To determine the prevalence of non-communicable disease among urban housewives of selected area of Dhaka city.

1.4.2 Specific Objectives

- To find the prevalence of heart disease and diabetes of study population.
- To identify the behavioral risk factors like tobacco use, dietary habit and physical activity of housewives.

- To discover the biological risk factors like height, weight, blood pressure, heart rate and waist circumference of respondents.
- To explore socio-demographic factor of respondents.

1.5 Operational Definition

Prevalence

Prevalence is the total number of cases of a disease present in a given population at a specific time. The prevalence of LBP among the housewives was determined by the number of housewives affected by LBP per hundred housewives, in this study.

Housewife

Housewife means a married woman, whose main occupation is caring for her family, managing household affairs while her husband earns the family income.

Hypertension

Is said if blood pressure was >140/90 mmHg. Respondents who were taking any medicine were also considered as hypertensive.

Physical activity

It is defined as any bodily movement produced by skeletal muscles that require energy expenditure. Physical activity will be categorized into vigorous and moderate and sedentary activity.

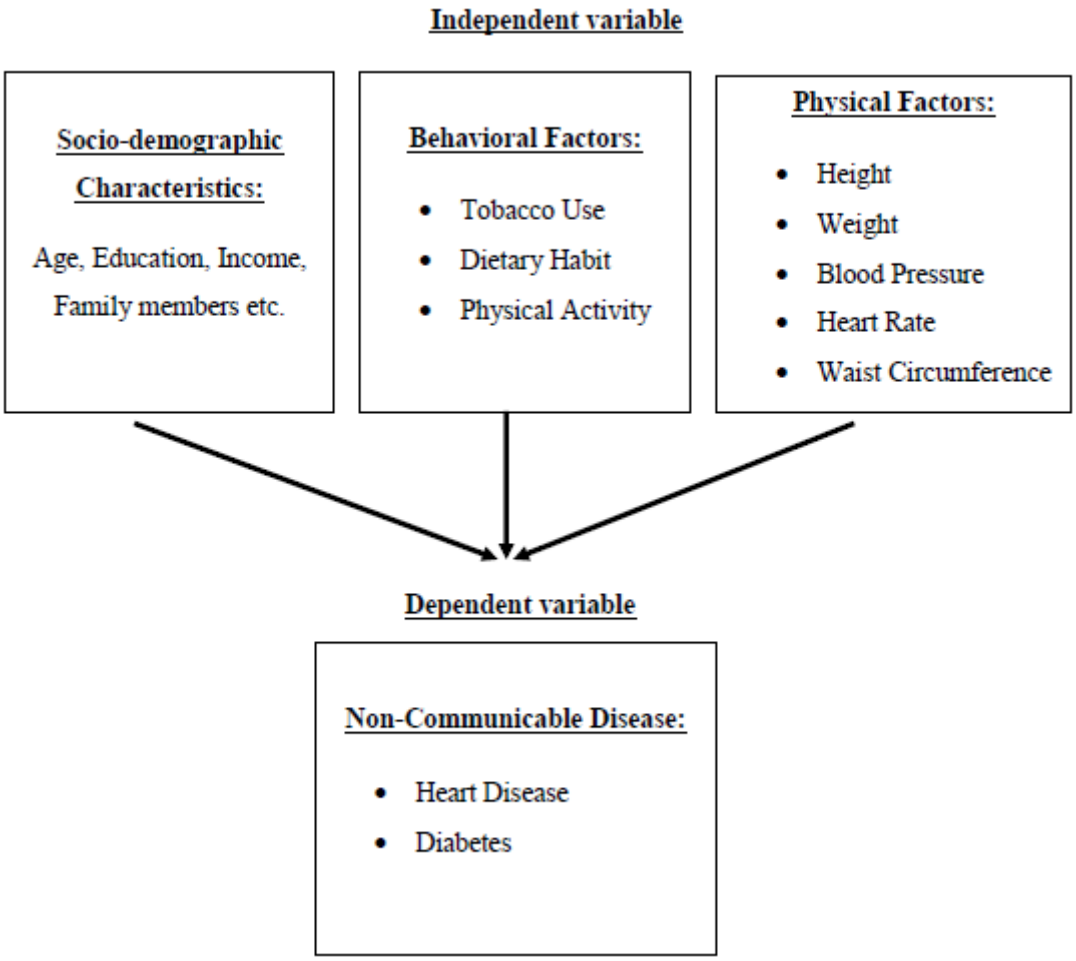
Moderate intensity physical activity

It is referred to activities which take moderate physical effort and that make you breathe somewhat harder than normal. Examples include cleaning, vacuuming, polishing, gardening, cycling at a regular pace etc.

Vigorous intensity physical activity

It is referred to activities which take hard physical effort and which make you breathe much harder than normal. Examples include playing football, tennis or fast swimming, washing heavy clothes etc.

1.6 Conceptual Framework



1.7 Limitation of the Study

- ➢ WHO Step-wise approach includes step 3 – biochemical laboratory test for more accurate result interpretation, which could not be done.
- ➢ This study was conducted in a selected area of Dhaka city, therefore; the result might not be reflecting the exact situation of the whole country.
- ➢ This research has been conducted with a constraint time schedule.

LITERATURE REVIEW

For centuries, communicable diseases were the main causes of death around the world. These diseases included tuberculosis, cholera, malaria, etc. These diseases are now coined as "age-old diseases" by Mr. Mahmood. S. A. I in his article 'Shifting from infectious diseases to non-communicable diseases: A double burden of diseases in Bangladesh'.[15]

With medical research achievements in terms of vaccination, antibiotics and improvement of life conditions; communicable diseases started to reduce in number.[1] Recent ages have seen epidemiological transition from communicable diseases to non- communicable diseases. This transition imposes constraints in dealing with the double burden of infectious and non-infectious diseases. Most of the Asian countries are double burdened because: (a) infections and nutritional deficiencies are still prevalent; (b) cardiovascular diseases (CVDs), cancers, diabetes, neuropsychiatric ailments and other chronic diseases are increasing. The sharp increase is associated with changes in lifestyles, increased smoking and shifts in dietary habits: meat and dairy products with high fat, sugar and salt, as well as reduced physical activity as mentioned in a research conducted in 2009 on 5 Asian countries.[16]

In 2011 Mr. Bleich SN says in his article that Bangladesh is in the midst of an epidemiologic transition, where the burden of disease is shifting from a disease profile dominated by infectious diseases, under-nutrition and conditions of childbirth to one increasingly characterized by NCDs.[17] NCDs (inclusive of injuries) account for 61 percent of the total disease burden in Bangladesh.[18] The publications released by the World Health Organization (WHO), World Heart Federation(WHF), Pan American Health Organization(PAHO), International Diabetes Federation (IDF) and several papers dealing with NCDs mentions Non communicable diseases (NCDs), also known as chronic diseases, are diseases which do not passed from person to person. They are of long duration and generally slow progression. The 4 main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.[2]

According to the World Health Organization's statistics, chronic non-communicable diseases such cardio vascular diseases, diabetes, cancers, obesity and respiratory diseases, account for about 60% of the 56.5 million deaths each year and almost half of the global burden of disease.[40,41]

Cardio vascular diseases (CVD)

Based on WHO bulletin reports and a study by Reddy KS on Cardiovascular diseases in the developing countries in 2002, it is said CVD is the name for the group of disorders of the heart and blood vessels and include hypertension (high blood pressure), coronary heart disease (heart attack), cerebrovascular disease (stroke), heart failure etc. These diseases constitute the major contributor among NCDs. Worldwide, an estimated 17 million people

die of these diseases, particularly heart attacks and strokes, every year. CVDs are promoted by risk factors like tobacco use, alcohol, physical inactivity and unhealthy diet. The costly and prolonged care of CVDs in low-and middle- income countries often divert the scarce family and societal resources to medical care.

Diabetes

The statistics released by the World Health Organization and the International Diabetes Federation are alarming.[19] The number of diabetes in the world is expected to increase from 194 Million in 2003 to 330 in 2030 with three in four living in developing countries. The burden is exacerbated by the complications such as blindness, amputations and kidney failure for which diabetes is the leading cause. Studies in different countries have shown that diabetes is a costly disease accounting for between 2.5 and 15% of the total healthcare expenditure.[22]

Cancer

Cancer is now a major cause of mortality throughout the World. Developing countries are responsible for the globally increasing trend. Over 10 million new cases and over 7 million deaths from cancer occurred worldwide in 2000. Between 2000 and 2020, the total number of cases of cancer in developing countries expected to increase by 73%.[23]

Chronic respiratory diseases

Chronic respiratory diseases represent a major burden for the health systems worldwide. Chronic non communicable respiratory diseases include Chronic Obstructive Pulmonary Disease (COPD) and Asthma. Respiratory diseases cause 15% of the global burden of disease. Worldwide, it is estimated that 600 million people suffer from COPD and 2.5 million deaths were attributed to these diseases in 2000. By 2020, COPD is expected to become the third most common cause of mortality in the world.[19]

WHO also mentions non-communicable diseases have modifiable risk factors, which are easy to measure and can help in planning effective interventions.[35] Thus targeting the risk factors for non-communicable diseases is recognized as an essential preventive strategy. So to established risk factor that determines the major disease burden, the WHO STEPwise approach to non-communicable disease (NCD) risk factor surveillance is introduced. According to the World Health Report 2002 there eight major behavioral and biological risk factors which are included in STEPS chronic disease risk factor surveillance.[24]

The major (modifiable) behavioral risk factors identified are:

- Tobacco use
- Harmful alcohol consumption
- Unhealthy diet (low fruit and vegetable consumption)
- Physical inactivity.[24]

The major biological risk factors identified are:

- Overweight and obesity
- Raised blood pressure
- Raised blood glucose
- Abnormal blood lipids and its subset raised total cholesterol.[24]

Applying WHO STEPwise approach to non-communicable disease (NCD) risk factor several countries worldwide including Bangladesh have surveyed its population for risk factors. Results varied from countries but of all women and urban area population in particular showed distinct results.[36]

Risk factors

Tobacco Use

Tobacco remains the most important avoidable risk factor of NCDs. It increases the risk of dying from coronary heart disease and cerebrovascular disease 2–3 fold.

According to studies conducted in Europe, Japan and North America, 57–80% of lung cancers in women, are imputable to tobacco. Study among 1066 participants in Vietnam reported 50.6% (526/1066) of women being exposed daily to tobacco smoke either from themselves or someone else.[25] Whereas similar studies conducted in Zambia[26] and Saudi Arabia reported only 1.5% and 1.2 % use of tobacco by females respectively. Same prevalence is reported in STEPwise Survey Bangladesh 2010 of 1.3%. Moreover 42% non-smokers were exposed to second hand smoke at home (36%) or workplace (21%).[10] But interestingly pattern of smokeless tobacco consumption was higher in older age groups and this trend was more prominent in women. Compare to STEPwise Survey Bangladesh 2002 the prevalence has reduced from 67.6% to 30.8%.[27]

Dietary Habit

In STEP wise Bangladesh 2010 Survey it was found that the frequency of vegetables consumption was particularly high in Bangladeshi population[10] unlike Saudi population where women consumed Less than 1 serving fruit and vegetable per day was 63.2% and 49.8% resp.[28] Inspite of vegetables being one of the cheapest meals, Bangladesh 2010 Survey found 95.7% did not consume minimum recommended amount fruit or vegetables on an average day.[10]

Considering the type of oil used for cooking in Bangladesh 2002 Survey among urban household maximum uses soybean oil and palm oil scored 0%. Whereas in rural area oil used was divided into mustered oil (42.1%) and soybean oil (58%). Saudi Arabia 2005 survey too reported maximum use of Vegetable oil (83.4%).[27,28]

It is reported that Bangladesh household follows a usual practice to add extra salt while taking rice. Overall prevalence reported in Bangladesh 2002 Survey was 62.7%, though urban class proportion ranged to 37.8% which was significantly lower than rural class.[27] This percentage is three times than a person requires for physiological functions of the body.

Physical activity

Several study review reports women esp. housewives are more prone to physical inactivity. In a recent study on Malaysian adult's physical inactivity 33,949 adults were studied and it was reported the prevalence of overall physical inactivity was 43.7% at 95% CI. Authors also found housewife those with no formal education; high income earners and old age respondents were significantly associated with physical inactivity.[29] High income earner household respondents reporting less physical activity is also seen in survey report in Saudi Arabia where 74.3% women presented low level of physical activity.[28]

Similar study in Vietnam reported the average time spent doing moderate and/or vigorous physical activities was only 16.27 hours/week for women.[25] Whereas in study among African women 30.5% of females were physical active for moderate-intensity recreational-related activities.[26] In studies conducted in Bangladesh, one third of surveyed housewives did not engage in moderate activity (such as brisk walking, household chores) and 62% people usually did not engage into any vigorous physical activities such as running, cycling, swimming, climbing, lifting heavy weights etc. High physical activity was more in rural women than their urban counterparts.[10]

Another study conducted by Mr. Kebria from CRP, Bangladesh on housewives reports during household activities about 62% of housewife have domestic help and 38% do not have domestic help. Thus 52% housewife works 4-6 hours and 29% works 1-3 hours daily. The distribution of the exercise found was as follows: (01-20) min 4% of housewives do exercise (21-40) min 3% housewives do exercise, 41min-1 hour 5% housewives do exercise.[9] Mr. Dunstan DW mentioned in his article, low physical activity like prolonged television viewing may contribute to metabolicsyndrome through related poor eating habits metabolic syndrome has been linked to type 2 Diabetes mellitus, cardiovascular diseases and mortality.[30]

Alcohol consumption

Being a Muslim major country previous survey conducted in Bangladesh found insignificant alcohol consumer at 0.9%. So authors mentioned question on Alcohol consumption may be dropped as it maybe culturally sensitive.[14]

Overweight and obesity

Worldwide, overweight affects 1.2 billion people of which 300 million are clinically obese. In World Health report 2002, about 60% of diabetes globally can be attributable to overweight and obesity. In other respects, it is estimated that 60% of world's population do not do enough physical activity.[31] Several survey report worldwide reports Asian population'swomen are 31.8% overweight or obese.[25] Same findings are found among African population where higher proportions of females (48.6%) are overweight or obese than males (20.6%).+ Whereas in Bangladesh 2010 STEPwise survey it was interesting to see one fourth (25%) of the population were underweight (BMI<18.5 kg/m2), 57% were normal weight and 18% were overweight.[10]

Waist and Hip circumference

In Vietnam study mean waist circumference for men and women reported nearly same but abdominal obesitywas17.8% for women.[25] In contrast African male had elevated waist-hip-ratios than females.[26] Arabian female respondent's waist-hip circumference ratio is 0.81.[28] Among Bangladeshi population it is reported 33.7% women had increased waist circumference (>_80 cm in women). Higher prevalence of both central and general obesity in women may predispose them to an increased risk of NCDs.[10] In 2002 Bangladesh survey report waist and hip girth mean of urban respondent was reported 82.95 cm and 92.02 cm resp.

Hypertension

Hypertension is a disease of its own as well as a risk factor for other major disease such as stroke, coronary heart disease, heart failure and renal insufficiency. It is very common in Bangladeshi people but its detection and treatment status is far from adequate, as mentioned in 2010 STEP survey report of Bangladesh. It was also reported that One third (32.9%) of the population never measured their blood pressure. The prevalence of hypertension is more in urban area (19.9%). On measurement 14.8% of the survey population was detected to be hypertensive. Thus reflects the need for effective hypertension control program for the population at large.[10] A recent research on Prevalence and determinants of pre-hypertension and hypertension among the adults in rural Bangladesh published in 2015 by Mr. Khanam states hypertensive people contribute half of NCD burden in Bangladesh.[32]

Blood Glucose

Bangladesh indicates an increasing trend in diabetes prevalence especially in urban areas. A higher prevalence of diabetes mellitus in the urban population was also observed compared with rural subjects by another population-based study by Mr. Hussain A.[33] In a web resource on diabetes risk-factors it was mentioned that in Bangladesh most of the patients are type 2 diabetics and the risk of developingtype 2 diabetes mellitus (DM) is determined by some modifiable factors related to rapid urban growth and changing lifestyle (i.e. obesity, sedentary lifestyle, diet, smoking, physical and emotional stress) and non-modifiable factors (i.e. family history of diabetes, age, race/ethnicity).[34,39]

The literature associated with these non-communicable diseases in developed countries is abundant. However, despite the encouraging programs and joint projects proposed by WHO and other organisms in the form of collaborative research agreements to developing countries, in order to support national registries, unreliable and insufficient data are still prevailing in most of these countries.[37,38]

METHODOLOGY

3.1 Study Design

A cross-sectional study has been done in which the study has been conducted using steps 1 and 2 of the WHO STEP wise approach for NCD surveillance taking into account of local needs and resources available. Due to lack of financial support, this study have not include step 3 of biochemical measurement.

3.2 Study Area

This study population includes housewives. In general, the target population of the study has included individuals residing in the geographic area of Shantinagar which is in Paltan thana of Dhaka city of the country.

3.3 Study Period & Duration

The study was conducted from April 2015 to August 2015 over a period of 5 months.

3.4 Study Population

The study population for this survey has included all women who were housewives of urban settlement, aged 25 to 50 years.

3.5 Sample Size

The sample size was calculated based on previously estimated prevalence rates for the main outcomes of interest.

In this regard by using formula,

$$n = \frac{z^2(p*q)}{d^2}$$

Where,

n: Sample size

z: Confidence limit (Standard value of z is considered 1.96 at 95% CI) P: Prevalence Rate of NCD.

q: (1-p) Proportion Of person not suffering from the disease.

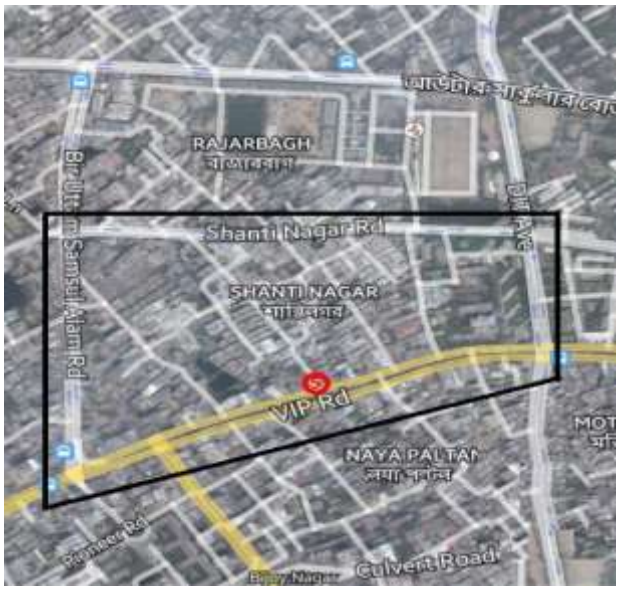
d: Acceptable standard error (standard value of 0.05).

According to the prevalence of smokeless tobacco used in urban women reported in global adult tobacco survey of Bangladesh 2009, p = 23.4%

$$\text{Sample Size (n)} = \frac{(1.96)^2 * 0.234 * (1-0.234)}{0.05^2} \approx 275$$

The final sample size was anticipated considering non-response rates at the household and individual level.

3.6 Sampling technique



The map shows satellite view of Shantinagar area of Dhaka city.

Sampling of eligible individuals was done from a randomly selected sample of households. In Shantinagar area each apartment holds specific holding number. Starting from point "S" from map, along the lane every alternative apartment was selected. From every selected apartment 1 flat was randomly selected. And from each selected flat, women as housewife aged between 25 to 50 years living in that household present during the time of interview was interviewed.

The interview was carried out by home visits. No proxy interview was allowed. The process of selection was continued by walking through right hand side of the lanes of the study area until desired sample size was attained.

3.7 Data collection method

The survey was conducted using the WHO recommended STEP wise approach.

Step 1 involves the survey questionnaire. It consisted of core (age, gender, education in years, current exposure to tobacco, diet and physical activity) and expanded (occupation, family size, average household income etc.) variables.

Step 2 involves physical body measurements including BP, height, weight, heart rate and waist circumference measurements.

Step 3 involves laboratory tests.

For Step 1

Study was done by using a standardized questionnaire. Questionnaire for this survey was developed by using steps I & II of WHO STEPS. All the core components were incorporated. Questionnaire was translated into bangla. Validation of the translated questionnaire was done.

For Step 2

Physical examination was done according to standardized procedure by measuring height, weight, waist circumference, pulse and blood pressure. Relevant information was also been obtained from medical records or other authentic documents as necessary from study population.

Measuring Blood pressure and pulse

For collecting information about high blood pressure, both self-reported data and blood pressure measurements were taken. Blood pressure was measured using ordinary aneroid sphygmomanometers on the right arm while the participants were in sitting position and hand was in resting position on the handle of the chair. After rested for at least 5 minutes, systolic and diastolic measurements were taken. A second reading was taken after 2 minutes resting interval. Pulse was also measured before each blood pressure was measured by means of beats per minutes. Mean of two measurements of blood pressure and pulse was used in the statistical analysis.

Anthropometric Measuring

Height, weight and waist circumference was measured to calculate their body mass index (BMI), and thereby obesity.

Height was measured with the participant standing upright against a wall on which a height mark was made. Measurements were taken with the participant barefoot, standing with the back against the wall and head in the Frankfort position, with heels together. The participant was asked to stretch to the fullest. After being appropriately positioned, the participant was asked to exhale and a mark was made to mark the height. The height was then measured to the nearest 0.1 cm from the mark to the floor using a tape measure.

Weight measurements were taken on a pre-calibrated weighing scale. The scale was placed on a firm, flat surface. Participants were weighed dressed in light clothing and barefoot. Measurements were taken to the nearest 0.1 kg.

Waist circumference was measured by plastic measuring tape, maintaining privacy of the participants. This was measured directly on the skin at the end of a normal expiration with the arms relaxed at the sides, at the midpoint between the lower margin of the last palpable rib and the top of the hip bone. Waist circumference was measured to nearest centimeter.

For Step 3

This study did not include biochemical laboratory measurement. Information on diabetes or raised blood glucose level was only be collected by asking the respondents if any health personnel told them that she have diabetes or not. She was also asked if she measured her blood glucose level earlier and/or received any medicine.

3.8 Data Management

All questionnaires were reviewed for accuracy, consistency and completeness. Attempt was undertaken to rectify the incomplete questionnaires through follow-up household visits as required.

3.9 Data Analysis Plan

The aggregated data from the interviewers was sorted, analyzed using statistical SPSS software version 20 and reported.

3.10 Selection Criteria

3.10.1 Inclusion Criteria

Individuals residing in study area for at least 3 years Respondents present on day of data collection.

3.10.2 Exclusion Criteria

Pregnant and lactating women.

Subjects with mental disabilities or learning difficulties unable to participate.

Respondents visiting Dhaka.

3.11 Ethical Issues

Permission was obtained from State University of Bangladesh before commencement of the study. Written informed consent was taken from the study subject. The respondents had the right to refuse to answer any question without providing the reason for their decisions. Privacy of the respondents was maintained during data collection.

4.1 RESULTS

This chapter presents the findings of the study obtained from interpretation and analysis of data. The present cross sectional study was conducted to determine the prevalence of risk factors for non-communicable disease among urban housewives of selected area of Dhaka city. Data was collected from 200 housewives of selected area of Dhaka city by interviewer-administered semi-structured questionnaire. Data was analyzed by SPSS. The overall results of the study have been presented in tabular, graphical and narrative form thereby interpreting the results to describe the various aspects of respondents.

Table 1: Distribution of respondent's age (n = 200).

Age group	Frequency (n)	Percentage (%)
25-30 years	38	19.0
31-40 years	115	57.5
41-50 years	47	23.5
Total	**200**	**100.0**
Mean age = 36.19 ± 6.489 years, Minimum = 25 years, Maximum = 50 years		

Table 1 narrates the percent distribution of respondents by their age. Among the 200 respondents, 19.0% (n=38) respondent were of age group 25 – 30 years, 5 7.5% (n=115) respondents were of age group 31 – 40 years, 23.5% (n=47) respondents were of age group 41-50 years. Mean age of the respondents was 36.19 years with SD of 6.489.

Table 2: Distribution of respondent by highest level of education (n = 192).

Educational Status	Frequency (n)	Percentage (%)
No formal schooling	12	7.0
Less than primary school	16	8.0
Primary school completed	12	7.0
Secondary School Completed	8	5.0
H.S.C Completed	65	32.5
College/University Completed	67	33.5
Post graduate completed	12	7.0
Total	**192**	**100.0**

Table 2 illustrates the percent distribution of respondents by their educational status which shows that majority of the respondents 33.5% (n= 67) have completed their university education followed by H.S.C completion 32.5% (n=65). Only 8% (n=16) respondents have completed less than primary school. Post graduated completed respondents were the least at 6% (n=12).

Table 3: Distribution of respondent by occupational status (n=192).

Current Occupation	Frequency (n)	Percentage (%)
Govt. employee	12	7.0
Non-govt. employee	16	9.0
Business	12	7.0
Teacher	28	15.0
Housewife	81	40.5
Unemployed, able to work	24	12.0
Unemployed, unable to work	19	9.5
Total	**192**	**100.0**

The above table shows that most of the respondents are housewife 40.5% (n=81). 12% (n=24) respondents are able to work but currently unemployed. The second most common occupation is teacher 14% (n=28) followed by non-govt. employee 8% (n=16), govt. employee and business at 6% (n= 12) each.

Table 4: Distribution of respondent by number of children (n=200).

Number of Children	Frequency (n)	Percentage (%)
No child	24	12.0
1 Child	40	20.0
2 Children	115	57.5
3 Children	21	10.5
Total	**200**	**100.0**

This table narrates that half of the respondents 57.5% (n = 115) had 2 children, 20% (n = had 1 child, 12% (n= 24) had no child and 10.5% (n=3) had 3 children.

Table 5: Distribution of respondent's taking oral contraceptive (n=200).

Oral contraceptive	Frequency (n)	Percentage (%)
Yes	112	56.0
No	88	44.0
Total	**200**	**100.0**

The above table shows that 56% (n=112) respondents are currently on oral contraceptive and remaining 44% (n=88) are not currently on any oral contraceptive.

Table 6: Distribution of type of oral contraceptive by respondents (n=112).

Type of Oral Contraceptive	Frequency (n)	Percentage (%)
Combined (Estrogen + Progesterone)	84	75.0
Only Progesterone	28	25.0
Total	**112**	**100.0**

Among the respondents currently taking oral contraceptive, around 2/3rd of them use combined (Estrogen + Progesterone) contraceptive 75% (n=84). Remaining 1/3rd takes only progesterone contraceptive 25% (n=28).

Table 7: Distribution of respondents by monthly income (n=200).

Monthly family Income	Frequency (n)	Percentage (%)
40-45 Thousand BDT	75	37.5
46-55 Thousand BDT	60	30.0
56-60 Thousand BDT	25	12.5
Refused	40	20.0
Total	**200**	**100.0**
Mean = 48212.50, Median = 47000.00, Range = 20000.00		

Table 7 shows that the monthly income of respondent's family is mostly between 40 – 45 thousand BDT 37.5% (n=75) followed by 46 – 55 thousand BDT and 56-60 thousand BDT at 30% (n=60) and 12.5% (n=25) respectively. Around 20% (n=40) respondents refused to answer. The median and mean monthly income was found to be 47000.00 and 48212.50 respectively.

Table 8: Distribution of respondents currently using any smokeless tobacco such as zarda, sadapata, gull, snuff (n=200).

Smokeless Tobacco use	Frequency (n)	Percentage (%)
Yes	28	14.0
No	172	86.0
Total	**200**	**100.0**

This table shows that majority of respondents 86% (n=172) are not currently using any smokeless tobacco and only 14% (n=28) are currently using smokeless tobacco.

Table 9: Distribution of respondents by response related how often smokeless tobacco used (n=28).

Often used	Frequency (n)	Percentage (%)
Daily	17	60.7
Occasionally	11	39.3
Total	**28**	**100.0**

Table 9 shows among 28 respondents, 60.7% (n=17) are daily users of smokeless tobacco and 39.3% (n=11) are occasional users.

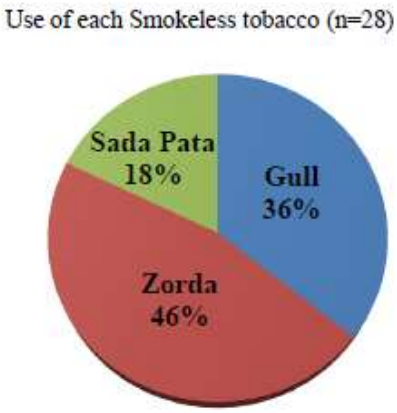


Figure 1: Distribution of respondent's use of each smokeless tobacco (n= 28).

The figure illustrates the percentage distribution of respondent's use of each smokeless tobacco. It shows that among 28 users of smokeless tobacco majority uses zorda 46.4% (n=13) followed by gull 35.7% (n=10) and Sadapata 17.9% (n=5).

Table 10: Distribution of respondent's past use of smokeless tobacco (n=172).

Past used smokeless tobacco	Frequency (n)	Percentage (%)
Yes	74	38.3
No	98	61.7
Total	**172**	**100.0**

This table shows 38.3% (n=74) respondents previously used smokeless tobacco in past once in a lifetime and 61.7% (n=98) respondents never used any form of smokeless tobacco.

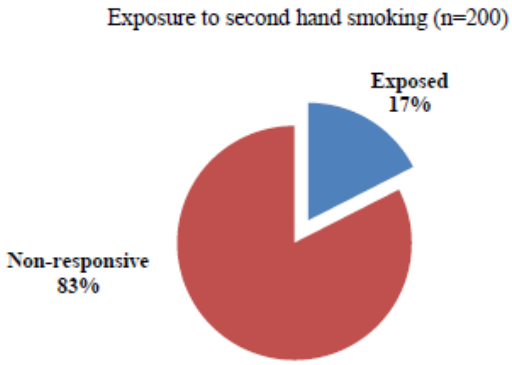


Figure 2: Distribution of respondent on exposure to second hand smoking (n=200).

The above figure shows percentage distribution of respondents on exposure to second hand smoking. Among total respondents (n=200), only 17.5% (n=35) respondents could report about their exposure to second hand smoke during past seven days and majority 83.5% (n=165) were not able to recall or response.

Table 11: Distribution of respondents currently smoking any tobacco products such as cigarettes, cigars, or pipes (n=200).

Currently smoking	Frequency (n)	Percentage (%)
Yes	3	1.5
No	197	98.5
Total	**200**	**100.0**

This table shows very few respondents 1.5% (n=3) are currently smoking any kind of tobacco products such as cigarettes, cigars, or pipes and vast majority 98.5% (n=197) reported no smoking.

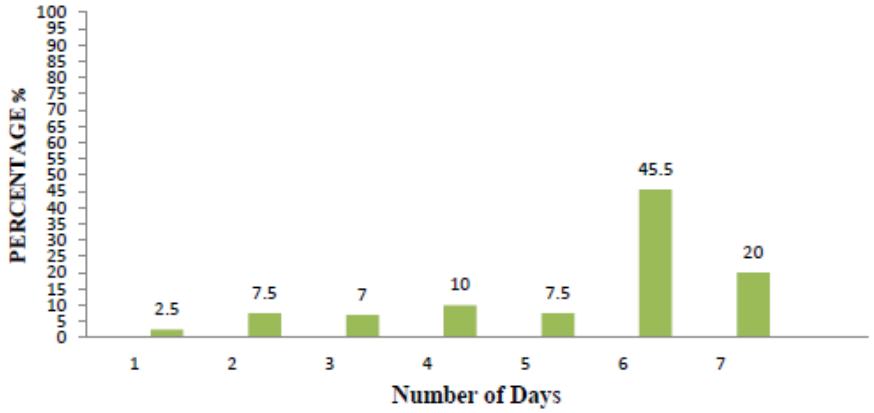


Figure 3: Distribution of respondent's eating habit of vegetable in a typical week (n=200).

Number of Days

The above bar diagram illustrates respondent's eating habit of vegetable in a typical week. It shows that almost half of the respondents 45.5% (n=91) are typically in a habit of eating vegetables 6 days in a week and 20% (n=40) eat vegetables 7 days a week. Remaining respondent's response varied between 1 to 5 days. Mean of number of days was found to be 6.23± 1.75.

Table 12: Distribution of respondents response to eating number of servings of vegetables in a typical day (n=200).

Servings of Vegetables	Frequency (n)	Percentage (%)
1	37	18.5
2	48	24.0
3	115	57.5
Total	200	100.0

Table 12 shows that maximum respondents 57.5% (n=115) eat 3 servings of vegetables in a typical day followed by 2 servings and 1 serving by 24% (n=48) and 18.5% (n=37) respectively.

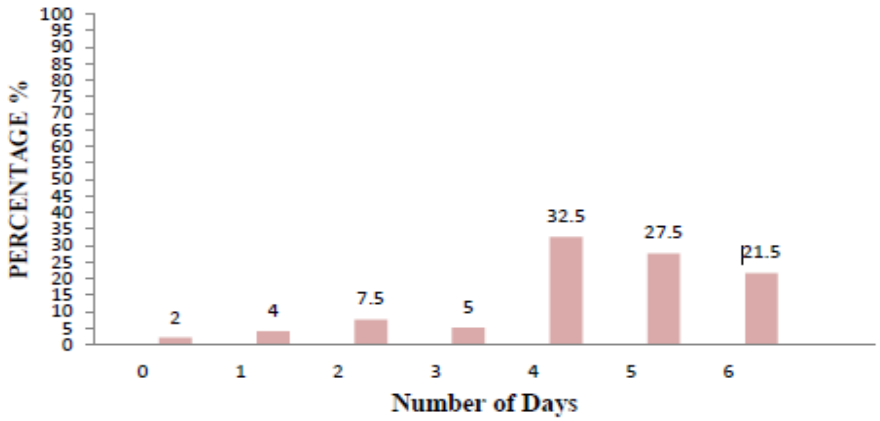


Figure 4: Distribution of respondent's eating habit of fruits in a typical week (n=200).

The above bar diagram illustrates respondent's eating habit of fruits in a typical week. It shows that almost 1/3rd of the respondents 32.5% (n=65) are typically in a habit of eating fruits 4 days in a week followed by 27.5% (n=55) eat fruits 5 days in a week and 21.5% (n=45) eat fruits 6 days in a week. Remaining respondent's response varied between 0 to 3 days. Mean of number of days was found to be 4.42 ± 1.36.

Table 13: Distribution of respondents response to eating number of servings of fruits in a typical day (n=200).

Servings of fruits	Frequency (n)	Percentage (%)
1	58	29.0
2	98	49.0
3	44	22.0
Total	200	100.0
Servings of fruits	Frequency (n)	Percentage (%)

Table 13 narrates that 49% (n=98) respondents eat 2 servings of fruits in a typical day followed by 1 servings and 3 serving by 29% (n=58) and 22% (n=44) respectively.

Table 14: Distribution of respondent's family monthly salt consumption (n=200).

Salt Consumption	Frequency (n)	Percentage (%)
1 Packet / 500GM	40	20.0
2 Packets / 1000GM	125	62.5
3 Packets / 1500GM	35	17.5
Total	200	100.0

This table shows 62.5% (n=125) respondents bought 2 packets of salt (500gm/packet) averagely in a month for their family consumption. Rest 20% (n=40) and 35% (n=35) respondents bought 1 and 3 packets respectively.

Table15: Distribution of respondent's use of salt separately during meals (n=200).

Use Salt	Frequency (n)	Percentage (%)
Yes	103	51.5
No	97	48.5
Total	200	100.0

This table illustrates 51.5% (n=103) respondents are in a habit of using salt separately during meals and 48.5% (n=97) respondents are not in a habit of using salt separately.

Table 16: Distribution of respondents by response to knowledge regarding harmful health effects on in taking extra salt (n=200).

Response to knowledge	Frequency (n)	Percentage (%)
Yes	113	56.5
No	87	43.5
Total	200	100.0

Table 16 shows 56.5% (n=113) respondents are knowledgeable about harmful effects of taking extra salt on health and 43.5% (n=87) respondents are not knowledgeable about harmful effects.

Table 17: Distribution of respondents based on use of type of oil or fat for meal preparation (n=200).

Type of oil	Frequency (n)	Percentage (%)
Soybean oil	152	76.0
Sunflower oil	24	12.0
Butter or ghee	12	6.0
Mustard oil	12	6.0
Total	200	100.0

The above table narrates that almost 2/3rd of respondents 76% (n=152) are using soybean oil for meal preparation followed by sunflower oil at 12% (n=24). Ghee or butter and mustard oil is used by 6% (n=12) respondents each.

Table 18: Distribution of respondents based on number of days eating out averagely per week (n=200).

Number of days	Frequency (n)	Percentage (%)
0	6	4.0
1	20	10.0
2	138	71.0
3	24	12.0
Don't know	6	3.0
Total	**200**	**100.0**
Mean = 2.04		

This above table show majority of respondents 71% (n=138) eat 2 days out averagely per week. 12% (n=24) and 10% (n=20) respondents eat 3 and 1 day in a week averagely out. Few number of respondents 4% (n=6) do not eat out in a typical week. The mean number of days is 2.04.

Table 19: Distribution of respondent's typical day work duration (n=200).

Duration	Frequency (n)	Percentage (%)
5-7 hrs	89	44.5
8-10 hrs	79	39.5
11-13 hrs	32	16.0
Total	**200**	**100.0**
Mean = 8.00 ± 2.278, Minimum = 5 hours, Maximum = 13 hours		

The above table shows among 200 total respondents, 44.5% (n=89) respondents typical day work duration is between 5-7 hours. Remaining 39.5% (n=79) and 16% (n=32) respondents typical day work duration lies between 8-10 hours and 11-13 hours respectively. Overall mean duration of respondents work is 8 hours.

Table 20: Distribution of respondent's moderate-intensity activity at work that causes small increases in breathing or heart rate such as brisk walking or carrying light loads for at least 10 minutes continuously (n=200).

Moderate-intensity Activity	Frequency (n)	Percentage (%)
Yes	133	66.5
No	67	33.5
Total	200	100.0

Table 20 shows that 66.5% (n=133) respondents mentioned about the presence of moderate-intensity activity at their work whereas 33.5% (n=67) denied the presence of any moderate-intensity activity at their work.

Table 21: Characteristics of number of days and duration of moderate-intensity activity at work by respondents (n=133).

Characteristics	Number of days	Duration
Mean	3.90 days	2.40 hours
SD	0.588	0.748
Minimum	3 days	1 hour
Maximum	5 days	3 hours
Characteristics	Number of days	Duration

The table shows respondents mean number of days and duration of moderate-intensity activity at work is 3.90 ±0.58 days and 2.40 ± 0.748 hours respectively.

Table 22: Distribution of respondent's vigorous-intensity activity that causes large increases in breathing or heart rate like carrying or lifting heavy loads, washing heavy clothes etc for at least 10 minutes continuously (n=200).

Vigorous-intensity Activity	Frequency (n)	Percentage (%)
Yes	8	4.0
No	192	96.0
Total	200	100.0

Table 22 shows that only 4% (n=8) respondents mentioned about the presence of vigorous -intensity activity at their work whereas 96% (n=192) denied the presence of any vigorous -intensity activity at their work.

Table 23: Characteristics of number of days and duration of vigorous -intensity activity at work by respondents (n=8).

	Mean ± SD
Number of days	1.38 ± 0.51 days
Duration	1.87 ± 0.83 hours

The table shows respondents mean number of days and duration of vigorous -intensity activity at work is 1.38 ± 0.51 days and 1.87 ± 0.83 hours respectively.

Table 24: Distribution of respondent's response to walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to travel from places (n=200).

Use a bicycle or Walk	Frequency (n)	Percentage (%)
Yes	57	28.5
No	143	71.5
Total	200	100.0

Table 24 shows that 28.5% (n=57) respondents usually walk for at least 10 minutes continuously to travel from places. Remaining 71.5% (n=143) denied walking for traveling places.

Table 25: Characteristics of number of days and duration of walk or use a bicycle for at least 10 minutes continuously to travel from places by respondents (n=57).

	Mean ± SD
Number of days	2.79 ± 0.773 days
Duration	1.73 ± 0.695 hours

The table shows respondents mean number of days and duration of vigorous walk or use a bicycle for travel is 2.79 ± 0.773 days and 1.73 ± 0.695 hours respectively.

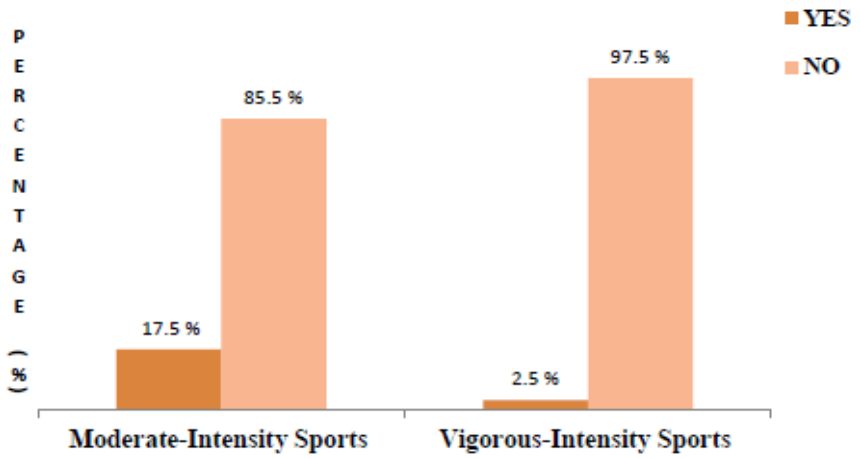


Figure 5: Distribution of respondent's response in doing moderate-intensity sports or fitness such as brisk walking, cycling, swimming etc and vigorous-intensity sports or fitness like running, playing football etc for at least 10 minutes continuously (n=200).

The above figure illustrates the respondent's activity toward moderate-intensity sports and vigorous-intensity sports in a typical day. Out of 200 respondents 17.5% (n=35) are involved in moderate-intensity sports and only 2.5% (n=5) are involved in vigorous -intensity sports. Remaining respondents denies the presence of any moderate or vigorous -intensity sports in their daily routine.

Table 26: Characteristics of number of days and duration of moderate-intensity sports by respondents (n=35).

	Mean ± SD
Number of days	2.25 ± 0.81 days
Duration	1.37 ± 0.49 hours

The table shows that the respondent's mean number of days and duration of moderate-intensity sports is 2.25 ± 0.81 days and 1.37 ± 0.49 hours respectively.

Table 27: Distribution of respondent's response to blood pressure measurement by health professional (n=200).

Blood pressure measured	**Frequency (n)**	**Percentage (%)**
Within past 12 months	151	75.5
1-5 years ago	28	14.0
Not within past 5 years	21	10.5
Total	200	100.0

This table shows 2/3rd of respondents 75.5% (n=151) have measured their blood pressure within last 12 months. Out of remaining 1/3rd 14% (n=28) respondents have measured their

blood pressure 1-5 years ago and 10.5% (n=21) have not measured their blood pressure within past 5 years.

Table 28: Distribution of respondents presence of elevated blood pressure or hypertension during the past 12 months (n=200).

Presence of Hypertension	Frequency (n)	Percentage (%)
Yes	82	41.0
No	118	59.0
Total	200	100.0

Table 28 illustrates that during past 12 months 41% (n=82) respondents mentioned the presence of elevated blood pressure or hypertension which was measured by a doctor or other health worker. Remaining 59% (n=118) did not experience hypertension.

Table 29: Distribution of respondents currently receiving treatments/advice for high blood pressure prescribed by a doctor or other health worker (n=82).

Treatment / Advice	YES	NO
Anti-hypertensive Drugs	52.4% (n=43)	47.6% (n=39)
Reduce salt intake	62.2% (n=51)	37.8% (n=31)
Lose Weight	56.1% (n=46)	43.9% (n=36)
Start or do more Exercise	31.7% (n=26)	68.3% (n=56)

***Multiple Responses**

The above table narrates that most of the respondents 62.2% (n=51) with hypertension have received the advice to reduce salt intake. Out of 82 total respondents, 52.4% (n=43) respondents are currently taking Anti-hypertensive drugs in past two weeks. 56.1% (n=46) respondents and 31.7% (n=26) respondents have received the advice to lose weight and start or do more exercise respectively.

Table 30: Distribution of respondents taking any herbal or traditional remedy from homeopathic, ayurvedic, herbalist etc for raised blood pressure. (n=200).

Taking any herbal remedy	Frequency (n)	Percentage (%)
Yes	5	2.5
No	195	97.5
Total	200	100.0

This table shows that of overall respondents very minor amount of respondents 2.5% (n=5) have seen homeopathic, ayurvedic, herbalist etc and currently taking any herbal or traditional remedy.

Table 31: Distribution of respondent's response to blood sugar measurement by health professional in last 12 months (n=200).

Blood sugar measured	Frequency (n)	Percentage (%)
Yes	143	71.0
No	57	29.0
Total	200	100.0

This table shows nearly 2/3rd of respondents 71.0% (n=143) have measured their blood pressure in last 12 months by any by health professional. Remaining 29% (n=57) respondents have not measured their blood sugar in last 12 months.

Table 32: Distribution of respondents presence of raised blood sugar or diabetes during the past 12 months (n=200).

Presence of Diabetes	Frequency (n)	Percentage (%)
Yes	76	38.0
No	124	62.0
Total	200	100.0

Table 32 illustrates that during past 12 months 38% (n=76) respondents mentioned the presence of raised blood sugar or diabetes which was measured by a doctor or other health worker. Remaining 62% (n=124) did not experience diabetes.

Table 33: Distribution of respondents currently receiving treatments/advice for diabetes prescribed by a doctor or other health worker (n=76).

Treatment / Advice	YES	NO
Insulin	19.7% (n=15)	80.3% (n=61)
Oral Drug Medication	85.5% (n=65)	14.5% (n=11)
Special Prescribed Diet	89.5% (n=68)	10.5% (n=8)
Lose Weight	30.3% (n=23)	69.7% (n=53)
Start or do more Exercise	35.5% (n=27)	64.5% (n=49)
Treatment / Advice	YES	NO

***Multiple Responses**

The above table shows that most of the respondents 89.5% (n=68) with diabetes have received the advice to take special prescribed diet. Out of 76 total respondents, mostly 85.5%m (n=65) respondents are currently taking oral drug medication in past two weeks and 19.7% (n=15) respondents are dependent on insulin currently. 30.3% (n=23) respondents and 35.5% (n=27) respondents have received the advice to lose weight and start or do more exercise respectively.

Table 34: Distribution of respondents taking any herbal or traditional remedy from homeopathic, ayurvedic, herbalist etc for raised blood sugar. (n=200).

Taking any herbal remedy	Frequency (n)	Percentage (%)
Yes	8	4.0
No	192	96.0
Total	200	100.0

This table shows that of overall respondents very minor amount of respondents 4.0% (n=8) are currently taking any herbal or traditional remedy after seing homeopathic, ayurvedic, herbalist etc.

Table 35: Characteristics of height and weight of respondents (n=200).

	Height in cm	Weight in Kg
Mean	155.44	62.47
Std. Deviation	7.859	8.709
Minimum	140	48
Maximum	170	82
Mean BMI = 26.50		

The table shows that respondents mean height was 155.44 cm with a SD of 7.859. On the other hand mean weight of respondents was 62.47kg with a SD of 8.709. The mean BMI of total respondents was 26.50.

Table 36: Distribution of respondent's nutritional status (n=200).

Nutritional Status	Frequency (n)	Percent (%)
Under weight (less than 18.5)	11	5.5
Normal (18.5 – 24.99)	74	37.0
Over Weight (25-29.9)	103	51.5
Obese (more than 30)	12	6.0
Total	200	100.0

The above table shows 5.5% (n=11) of the respondents were under weight, 37.0% (n=74) were normal, 51.5% (n=103) were overweight and rest 6.0% (n=12) were obese.

Table 37: Distribution of respondent's waist circumference (n=200).

Waist Circumference (cm)	Frequency (n)	Percentage (%)
Less than 70	19	9.5
71-80	57	28.5
81-90	82	41.0
91-100	32	16.0
More than 100	10	5.0
Total	**200**	**100.0**
Mean = 78.65 cm, Minimum = 68cm, Maximum = 103cm		

Table 37 illustrates the waist circumference of 200 respondents of which most of the respondents 41% (n=82) had their waist circumference between 81-90 cm. The mean waist circumference was 78.65 cm and the minimum and maximum waist circumference were 68 cm and 103 cm respectively.

Table 38: Distribution of respondent's pulse rate (n=200).

Pulse Rate (beats/min)	Frequency (n)	Percentage (%)
<80	15	7.5
81-90	123	62.4
91-100	52	25.1
>100	10	5.0
Total	**200**	**100.0**
Mean ± SD = 88.75 ± 6.73		

The above table shows the respondent's pulse rate. Majority of respondents 62.4% (n=123) had their pulse rate between 81-90 beats/min. The mean pulse was 88.75 ± 6.73 beats/min.

Table 39: Distribution of respondent's systolic pressure (n=200).

Systolic Pressure (mm of Hg)	Frequency (n)	Percentage (%)
100.00	37	18.5
110.00	47	23.5
120.00	60	30.0
130.00	18	9.0
140.00	13	6.5
150.00	25	12.5
Total	**200**	**100.0**
Mean = 124.75 mm of Hg		

The above table shows the respondent's systolic pressure. Majority of respondents 30% (n=60) had their systolic pressure at 120 mm of Hg. The mean systolic pressure was 124.75 mm of Hg.

Table 40: Distribution of respondent's diastolic pressure (n=200).

Diastolic Pressure (mm of Hg)	Frequency (n)	Percentage (%)
50.00	11	5.5
60.00	50	25.0
70.00	64	32.0
80.00	27	13.5
90.00	6	3.0
100.00	35	17.5
110.00	**7**	3.5
Total	**200**	**100.0**
Mean = 74.30 mm of Hg		

The above table shows the respondent's diastolic pressure. Majority of respondents 32% (n=64) had their diastolic pressure at 70 mm of Hg. The mean diastolic pressure was 74.30 mm of Hg.

5.1 DISCUSSION

According to WHO, Non communicable diseases (NCDs), also known as chronic diseases, which are not passed from person to person. They are of long duration and generally slow progression. The 4 main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.[2] This cross sectional study has looked into non-communicable diseases like hypertension and diabetes. Bangladesh 2010 step survey report[10] focused their survey on both urban-rural area and male-female population. This similar form of study was done to focus on urban housewives to see their NCD status. WHO also mentions non-communicable diseases have modifiable risk factors, which are easy to measure and can help in planning effective interventions. Thus targeting the risk factors for non-communicable diseases is recognized as an essential preventive strategy. So to established risk factor that determines the major disease burden, the WHO STEPwise approach to non-communicable disease (NCD) risk factor surveillance is introduced.

According to the World Health Report 2002 there eight major behavioral and biological risk factors which are included in STEPS chronic disease risk factor surveillance.[24]

The major (modifiable) behavioral risk factors identified are:

- Tobacco use
- Harmful alcohol consumption
- Unhealthy diet (low fruit and vegetable consumption)
- Physical inactivity.[24]

The major biological risk factors identified are:

- Overweight and obesity
- raised blood pressure
- raised blood glucose
- Abnormal blood lipids and its subset raised total cholesterol[24].

This study focus on all the above mentioned behavioral and biological risk factors except harmful alcohol consumption and abnormal blood lipids and its subset raised total cholesterol.

Behavioral risk factors

Tobacco use

Tobacco remains the most important avoidable risk factor of NCDs. It increases the risk of dying from coronary heart disease and cerebrovascular disease 2–3 fold. Studies conducted in Zambia[26] and Saudi Arabia reported only 1.5% and 1.2% use of tobacco by females respectively. Same prevalence is reported in STEPwise Survey Bangladesh 2010 of 1.3%. In current study the result was found quite similar 1.5%. 42% non-smokers were exposed to second hand smoke at home or workplace[10] where as this percentage was found fairly low at 17.5%.

Interestingly pattern of smokeless tobacco consumption was higher in older age groups and this trend was more prominent in women. Compare to STEPwise Survey Bangladesh 2002 to 2010 the prevalence has reduced from 67.6% to 30.8%. The percentage seems to reduce much lower in this current study to 14%.

Dietary Habit

In STEP wise Bangladesh 2010 Survey it was found that the frequency of vegetables consumption was particularly high in Bangladeshi population[10] unlike Saudi population where women consumed Less than 1 serving fruit and vegetable per day was 63.2% and 49.8% resp.[28] In spite of fruits and vegetables being one of the cheapest meals, Bangladesh 2010 Survey found 95.7% did not consume minimum recommended amount fruit or vegetables on an average day.[10] Comparatively current study found vegetable been consumed at minimum recommendation by study population but fruits consumption is still fairly low.

Considering the type of oil used for cooking in Bangladesh 2002 Survey among urban household maximum uses soybean oil and palm oil scored 0%. Whereas in rural area oil used was divided into mustered oil (42.1%) and soybean oil (58%). Saudi Arabia 2005 survey too reported maximum use of Vegetable oil (83.4%).[27,28] Current study have found 76% users use soybean oil and only 6% uses mustard oil.

It is reported that Bangladesh household follows a usual practice to add extra salt while taking rice. Overall prevalence reported in Bangladesh 2002 Survey that though urban class proportion ranged to 37.8%.[27] This percentage is three times than a person requires for physiological functions of the body. This study gives fairly higher percentage of extra salt consumption by almost 51.5%.

Physical activity

Several study review reports women esp. housewives are more prone to physical inactivity. In a recent study on Malaysian adult's physical inactivity 33,949 adults were studied and it was reported the prevalence of overall physical inactivity was 43.7% at 95% CI. Authors also found housewife those with no formal education; high income earners and old age respondents were significantly associated with physical inactivity.[29]

In studies conducted in Bangladesh, one third of surveyed housewives did not engage in moderate activity (such as brisk walking, household chores) and 62% people usually did not engage into any vigorous physical activities such as running, cycling, swimming, climbing, lifting heavy weights etc. High physical activity was more in rural women than their urban counterparts.[10] The current study on urban women gives the same interpretation regarding less engage in physical activity.

Overweight and obesity

Worldwide, overweight affects 1.2 billion people of which 300 million are clinically obese. Several survey report worldwide reports Asian population's women are 31.8% overweight or obese.[25] Same findings are found among African population where higher proportions of females (48.6%) are overweight or obese than males (20.6%).[26]

Whereas in Bangladesh 2010 STEPwise survey it was interesting to see one fourth (25%) of the population were underweight (BMI<18.5 kg/m2), 57% were normal weight and 18% were overweight.[10] The scenario of Bangladesh since 2010 has changed and especially among urban women the percentage is quite high. In current study about have of population was found over weight and mean BMI was 26.50.

Waist circumference

Among Bangladeshi population it is reported 33.7% women had increased waist circumference (>_80 cm in women). Higher prevalence of both central and general obesity in

women may predispose them to an increased risk of NCDs.[10] Similar increased waist circumference (>_80 cm in women) was found in the current study.

Hypertension

Hypertension is a disease of its own as well as a risk factor for other major disease such as stroke, coronary heart disease, heart failure and renal insufficiency. It is very common in Bangladeshi people but its detection and treatment status is far from adequate, as mentioned in 2010 STEP survey report of Bangladesh. It was also reported that One third (32.9%) of the population never measured their blood pressure. Among the urban housewives almost 1/3rd have measured their blood pressure within past 12 months.

The prevalence of hypertension is more in urban area (19.9%)[10] prevalence of hypertension at 32% was found in the current study.

Blood Glucose

Bangladesh indicates an increasing trend in diabetes prevalence especially in urban areas. A higher prevalence of diabetes mellitus in the urban population was also observed compared with rural subjects by another population-based study by Mr. Hussain A.[33] The current study has found 38% reporting of documented diabetes mellitus.

The literature associated with these non-communicable diseases in developed countries is abundant. And most of them have reported study population has at least one risk factors and great proportion of people have 2 or more risk factors. Similar findings have been reported from this current study.

5.2 CONCLUSION

The current study reveals that majority of respondents were middle aged, educated urban housewives. Among the 200 respondents, the prevalence of hypertension of the study population was found to be 32.1% and diabetes to be 38%. Almost all respondents have at least one risk factors and great proportion of people have 2 or more risk factors. Respondents were mostly of age group 31-40 years and have completed university. 56% were taking oral contraceptives of which combined form of pill was most popular which may contribute as one of the factors for raised prevalence of hypertension.

Behavioral risk factors like tobacco use reveals that 14%of total respondents are using smokeless form of tobacco of which 60.7% are daily users. Zorda is most popular than sada

pata and gul. Dietary pattern of overall surveyed population took fruits and vegetables on an average 4.42 and 6.23 days in a week respectively of which servings of intake varied from 2 - 3 numbers in a typical day. Salt intake separately during meals was found to be fairly high (51.5%), in spite of having profound knowledge among the respondents (56.5%) regarding its harmful health effects. Oil or fat used for meal preparation is mostly soybean oil 76% and 71% respondents' eats averagely 2 days in a week.

Overall physical activity of respondents is quite low as 28.5% respondents walk for at least 10 minutes in a typical day. Performance of moderate intensity physical activity like walking, jogging or carrying light load is comparatively higher than vigorous intensity physical activity like carrying heavy load, washing heavy clothes by 66.5%. Physical activities in sports and travel from place to place were found to be considerably less at 1.73 ± 0.69 hours in a week. About 75.5% have measured their blood pressure within past 12 months of which 59% was not found to be hypertensive. Hypertensive respondents mostly 52.4% took anti-hypertensive drugs and received advice to reduce salt intake (62.2%) and loose weight (56.1%), but very few were told to do more exercise (31.7%). Blood sugar was also been measured by 71% respondents of which 62% were found non diabetic. Among the diabetic respondents 19.7% were on insulin and 85.5% were on oral drug medication.

Respondents mean BMI was 26.50 and 51.5% of total surveyed population were overweight. The mean blood pressure was 127/74mmof Hg. The mean waist circumference was 78.65cm.

5.3 RECOMMENDATIONS

- There is an urgent need for promoting good dietary habits and emphasis to do more physical activity among urban housewives.
- This study was conducted only in 1 selected area of Dhaka city. Therefore, further large scale study including other areas of Bangladesh is recommended.

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