

## **A cross sectional survey on health and nutritional status among the people of Chittagong city corporation, Bangladesh**

Jakaria M.<sup>1\*</sup>, Hasan M.<sup>1</sup>, Hossain MS.<sup>1</sup>, Hasanat A.<sup>1</sup>, Sayeed MA.<sup>2</sup>

1. Department of Pharmacy, Faculty of Science & Engineering, International Islamic University Chittagong (IIUC), Bangladesh
2. Department of Pharmacy, Faculty of Science & Engineering, International Islamic University Chittagong (IIUC), Bangladesh

### **ABSTRACT**

**Purpose:** To determine the health and nutritional status of people in the Chittagong city corporation area of Bangladesh.

**Materials and methods:** A face-to-face interview methodology was used for this survey. The study sites were located in 15 thanas of the Chittagong city corporation area. The study was also designed with interview questions closely related to health.

**Results:** Among the total 620 respondents, 453 respondents were males and 167 respondents were females. 471(75.96%) of the total respondents had positive comments about the health status of their community. 169(27.52%) respondents had poor or fair appetites but the rest of them had good, very good or excellent appetites. 360(58.07%) of the respondents reported they had been eating a minimum of one fruit per day and 85(13.7%) people drank 5 to 8 glasses of water daily. 441(71.12%) of their diets more or less met daily vitamin and nutrient requirements and 338(54.51%) were nonsmokers. 407(65.64%) were

married, and 388 (62.58%) were more or less satisfied about their sexual life. 441(71.12%) respondents performed physical exercise more or less habitually. A lower number of respondents had a major disease. For instance, 155(25%) suffered from high blood pressure, and 150(24.19%) suffered from diabetes. In the case of minor diseases, 399(64.35%) of the respondents had been suffering from GIT disease and 416(67.09%) were taking proton pump inhibitors or a H2 receptor blockers. 205(33.06%) respondents were taking antibiotics regularly.

**Conclusions:** One third of the people had hypertension and diabetes. According to the biomedical concepts, peoples were not healthy. However, according to the ecological and psychological concepts of health, this survey proved that the people of the Chittagong city corporation area were comparatively healthy.

**Key words:** health, nutritional status, Chittagong city, survey, respondents

---

#### **\*Corresponding author:**

Md. Jakaria  
Department of Pharmacy, International Islamic University Chittagong  
109 Chatteswary Road, Chawkbazar, Chittagong-4203, Bangladesh  
Tel.: 008801823618436  
e-mail: pharmajakaria@rocketmail.com

Received: 19.04.2015

Accepted: 21.05.2015

Progress in Health Sciences

Vol. 5(1) 2015 pp 114-119

© Medical University of Białystok, Poland

## **INTRODUCTION**

Health is the level of functional or metabolic efficiency of a living organism. In humans it is the ability of individuals or communities to adapt and self-manage when facing physical, mental or social challenges [1]. The most ambitious definition of health is that proposed by WHO in 1948: "health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. This definition – criticized because of the difficulty in defining and measuring well-being – remains an ideal. The World Health Assembly resolved in 1977 that all people should attain a level of health permitting them to lead socially and economically productive lives by the year 2000. This commitment to the "health-for-all" strategy was renewed in 1998 and again in 2003. Practical definitions of health and disease are needed in epidemiology, which concentrates on aspects of health that are easily measurable and amenable to improvement [2]. This definition has been subject to controversy, in particular as lacking operational value and because of the problem created by use of the word "complete" [3-4]. Other definitions have been proposed, among which a recent definition that correlates health and personal satisfaction [5]. According to WHO the new philosophy of health: it is a fundamental human right; it is the essence of productive life and not the result of ever increasing expenditure on medical care; it is intersectoral; an integral part of development; central to the concept of quality of life; it involves individuals, state and international responsibility; maintenance of it's is a major social investment; it is worldwide social goal [6]. Many factors combine together to affect the health of individuals and communities. Whether people are healthy or not, is determined by their circumstances and environment. In addition to health care interventions and a person's surroundings, a number of other factors are known to influence the health status of individuals, including their background, lifestyle, and economic, social conditions, and spirituality; these are referred to as "determinants of health." Studies had shown that high levels of stress can affect human health [7]. According to the World Health Organization [8], the main determinants of health include the social and economic environment, the physical environment, and the person's individual characteristics and behaviors. These determinants—or things that make people healthy or not:

- Income and social status - higher income and social status are linked to better health. The greater the gap between the richest and poorest people, the greater the differences in health.
- Education – low education levels are linked with poor health, more stress and lower self-confidence.

- Physical environment – safe water and clean air, healthy workplaces, safe houses, communities and roads all contribute to good health. Employment and working conditions – people in employment are healthier, particularly those who have more control over their working conditions
- Social support networks – greater support from families, friends and communities is linked to better health. Culture - customs and traditions, and the beliefs of the family and community all affect health.
- Genetics - inheritance plays a part in determining life span, healthiness and the likelihood of developing certain illnesses. Personal behavior and coping skills – balanced eating, keeping active, smoking, drinking, and how we deal with life's stresses and challenges all affect health.
- Health services - access and use of services that prevent and treat disease influences health
- Gender - Men and women suffer from different types of diseases at different ages.

Bangladesh is a country at the southern edge of the Asian continent, covering an area of 142,300 km<sup>2</sup> [9]. The population in 1991 was 111.4 million with a population density of 780 persons per km<sup>2</sup>. India and Myanmar are Bangladesh's neighboring countries and in the south is the Bay of Bengal. Health and education levels remain relatively low, although they have improved recently as poverty (31% at 2010) levels have decreased. Malnutrition in Bangladesh has been a persistent problem for the poverty-stricken country. The World Bank estimates that Bangladesh is ranked 1<sup>st</sup> in the world of the number of children suffering from malnutrition. In Bangladesh, 26% of the populations are undernourished and 46% of the children suffer from moderate to severe underweight problem. 43% of children under 5 years old are stunted. One in five preschool age children are vitamin A deficient and one in two are anemic. Women also suffer most from malnutrition [10].

To provide their family with food they pass on quality foods which are essential for their nutrition.

A cross sectional study can give idea about total population in a country. For our study we select Chittagong city corporation area. In our present study, we aimed to determine the health and nutritional status of people in the Chittagong city corporation area by using a face to face survey study.

## **MATERIALS AND METHODS**

A face to face interview methodology was used for this survey [11]. The study sites were located in 15 thanas of Chittagong city corporation area and also designed with some important questions for

interviews these were closely related to health. Chittagong district (*Chittagong Jela* also *Chittagong Zila*) is a district located in Bangladesh. It is a part of the Chittagong division. Mughals established Chittagong as a district in 1666 including three hill districts. The Chittagong hill tracts were separated from Chittagong in 1860. After the liberation of Bangladesh, Cox's Bazar district was separated in 1984. Later, Chittagong district was further divided into Chittagong and Cox's Bazar districts. The district consists of one city corporation, seven municipalities, 16 thanas, 14 upazilas, 197 union parishads and 1,319 villages. Total 15 thanas selected for study, named was Akbar Sha, Panchlaish, Double Mooring, Kotowali, Khulshi, Phartali, Halishahar, E.P.Z, Chawkbazar, Potenga, Kornofully, Bayezid, Bakolia, Chandgaon, Bondor [12-13].

This cross-sectional study was conducted during September 12, 2014 to December 12, 2014. 620 people were taken randomly as a sample from different location of selected thana. The largest number of samples was collected (47 males) from Bayezid thana and 16 females from Chawkbazar thana. In all situations lower, middle and rich classes peoples were selected for interview. This study designed with some important questions these were closely related to health like habits, pattern of food in taking, diseases or drugs information's and about the sample includes his/her name, age, sex, general status etc. Some important questions in questionnaire were as follows.

- How would rate your community as a "Healthy community"?
- How would describe your appetite?
- How many pieces of fruit do you eat in a day?
- How much water do you drink in a day?
- Do you maintain daily vitamins and nutrients requirement for your body?
- Are you smoker?
- Are you married or unmarried?
- Are you satisfied about your sexual life?
- Do you suffer from any medical condition?
- What type of medication do you take?

Each thana was visited once by one or two investigators (total of 4 male pharmacy students participated). The investigators asked questions by face to face interviewing system and respondents given answer. Before left the place investigator filled the data with information's collected from respondents. After the completion of field works the chief investigator accumulated all data.

Simple statistical methods were used to calculate the data. Microsoft Office Excel is one of most widely used application to calculate and present data. We used Microsoft Office Excel 2003 to present data. The study was conducted principle (section 12)

of the WMA declaration of Helsinki. This survey study was logistically supported by the Department of Pharmacy, International Islamic University Chittagong. The human subjects involved in this study did not use any hazardous agents and samples were not collected from them. As the human subjects only participated in the interview, it was not a prerequisite to take any further approval from the institutional ethics committee to conduct this survey based research.

## RESULTS

Among the total 620 respondents, 453 respondents were males and 167 respondents were females. The social status of respondents was, 143 respondents belong to poor class, 435 were middle class and only 42 respondents belong to rich class (Table 1 and Table 2).

**Table 1:** Male and female respondents

Sex	No. of respondents	Percentage
Male	453	73.06%
Female	167	26.93%

**Table 2:** Poor, middle and rich respondents on the basis of income status

Status	No. of respondents	Percentage
Poor	143	23.06%
Middle	435	70.16%
Rich	42	6.77%

The questionnaire comprised 3 important parameters like diet, medical history and psychology of person. 471(75.96%) of total respondents their comment was good about the healthy status of their community. Question about appetite 169(27.52%) respondents had poor or air appetite, but other rest respondents had good, very good or excellent appetite. 360(58.07%) of respondents was eaten any fruit in a day and 85(13.7%) people drank 5 to 8 glasses water in a day. From the total respondents 441(71.12%) more or less maintained daily vitamin and nutrient requirement. From the total respondents 338(54.51%) respondents were nonsmokers. Since 407(65.64%) married respondents, 63(10.16%) were very satisfied, 77(12.42%) were moderately satisfied, 248(40%) were satisfied, 49(7.90%) were dissatisfied and moderately dissatisfied about their sexual life. 401(64.67%) respondents habituated with physical exercise.

In case of major diseases, 8(1.29%) of respondents suffered from kidney disease, 155(25%) suffered from high blood pressure, 150(24.19%) suffered from diabetes, 124 people (20%) suffered from rheumatoid arthritis, only 24(3.87%) and 38 (6.12%) of people suffered from Parkinson's and heart disease respectively, and 124(20%) did not suffer from any kind of diseases (Fig. 1).

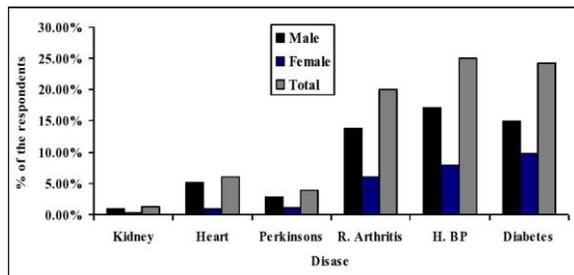


Fig. 1. Major diseases of respondents

In case of minor diseases, 44(7.09%) of respondents suffered from minor respiratory diseases, 36(5.80%) suffered from obesity, 159(25.64%) of people suffered from skin diseases and 399(64.35%) of people suffered from GIT diseases (Fig. 2).

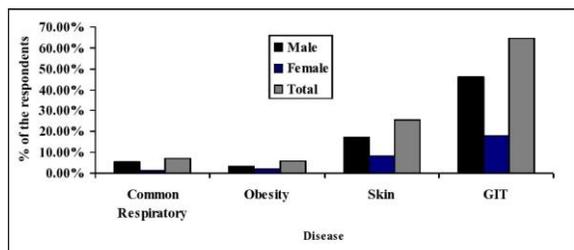


Fig.2. Minor diseases of respondents

From the major drug users, 115(18.54%) respondents were taking anti-hypertensive drugs, 131 (21.12%) were taken anti-diabetic drugs, 205(33.06%) respondents were taking antibiotics regularly and the rest of them had been used all three categories of drug as well as other drugs in an irregular fashion through they suffered from various diseases. Only 67(10.81%) respondents did not use any drugs (Fig. 3).

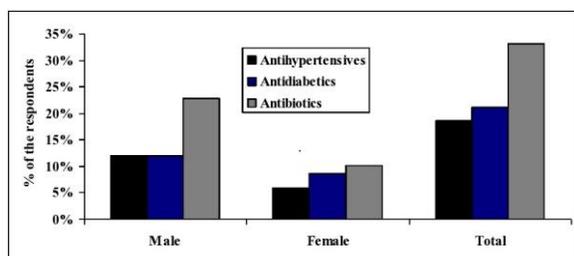


Fig. 3. Major categories of drugs used by respondents

The largest number of respondents was taking minor drugs such as 416(67.09%) respondents were taking proton pump inhibitors or H2 receptor blockers, but 168(27.09%) respondents used NSAIDs and 258(41.61%) respondents used antihistamine other H2 receptor blockers (Fig. 4).

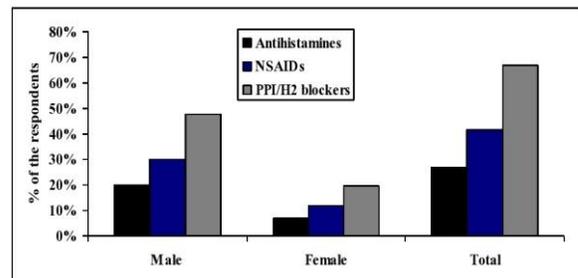


Fig. 4. Minor categories drugs used by respondents

## DISCUSSION

Health is one of the basic requirements for improvement in the quality of life [9]. According to biomedical concept of health, a person is considered as healthy if he or she is free from disease or absence of disease [6]. Among the selected diseases high blood pressure and diabetes are major diseases. Based on the above data, the majority of people were completely free from major diseases. It was a positive sign of good health in the Chittagong city area. Smoking is a major concern to develop some major diseases [14]. Most people had known to harmful effect of smoking, so they were not habituated with smoking. Drug use and disease are very closely related. Regular major drug intake for special disease is the sign of a chronic disease. Although the minor diseases and minor drugs users, especially GIT problems and PPI/H2 blockers drugs users were high. But after the completion of this study it was observed that regular major drug users were less in the Chittagong city area.

The ecologist viewed health as a dynamic equilibrium between man and his environment and disease a maladjustment of the human organism to environment. The ecological concept raises two issues: imperfect man and imperfect environment [6]. The healthy status of community has greatest impact on health status of peoples in a community [15]; the environment has an impact on health and illness, housings, sanitation, climate and pollution of air, food and water are aspects of environmental dimension. Maximum peoples had positive comments about their community. According to psychological concept, health is not only a biomedical phenomenon, but one which is influenced by social, psychological, cultural, economic and political factors of the people concerned.

According to the Mayo Clinic, sexual health is important at any age. From Relationship and sexual satisfaction are important boosters of quality of life [16]. From our study also confirmed that maximum number of people comparatively happy about their sexual life and it was also a mental satisfaction. Our study revealed that people were free from sedative and hypnotic drugs it was also proved that they were psychologically strong.

The characteristics of a physically healthy person are a good complexion, a clean skin, bright eyes, lustrous hair with a body well clothed with firm flesh, not too fat, a good appetite, exercise tolerance are all within normal range. The state of positive health implies the notion of "perfect functioning" of the body and mind. It conceptualizes health, biologically, as a state in which every cell and every organ are functioning at optimum capacity and in perfect harmony with the rest of the rest of the body, psychologically, as a state in which the individual feels a sense of perfect well being and of mastery over his environment, and socially, as a state in which the individual's capacities for participation in the social system are optimal [6].

The appetite of maximum people was more or less good and people also habituated with exercise. For good health one fruit is recommended for each day and highest percentages of people was taken at least one fruit in a day.

As one third of people had hypertension and diabetes, according to biomedical concept people were not healthy but according to ecological and psychological concept of health this survey proved that the people of area were comparatively healthy. Biomedical concept suggested that regulatory authority of government should be taken necessary steps to minimize the risk of hypertension and diabetes otherwise in near future people will be face of health hazards. People also should careful about their nutritional states.

There were some limitations of this study such as it was a convenience sample which is inferior to probability sampling in its representative ness. Always respondents didn't feel encouraged provided accurate, honest answers. Sometimes the respondents didn't feel comfortable in providing an answer and didn't be fully aware of giving an answer because of lack of memory on this subject.

## **Acknowledgments**

The authors greatly acknowledge to the faculty members of the Department of Pharmacy, International Islamic University Chittagong (IIUC).

## **Conflicts of interest**

The authors have no conflict of interest to disclose.

## **Authors' contributions**

M.A.S and M.J developed the concept and designed the study. M.A.S. was also responsible for supervision of the whole project. M.J. M.H. S.H. and A.H. collected the data and contributed to the data analysis and statistical analysis.

## **REFERENCES**

1. Huber M, Knottnerus JA, Green L, van der Horst H, Jadad AR, Kromhout D, Smid H. How should we define health? *BMJ*. 2011 Jul 26;343:d4163.
2. Bonita R, Beaglehole R, Kjellström T. 2nd edition. *Basic epidemiology*. 2nd ed. WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland; 2006. Chapter 2, Measuring health and disease; p.15.
3. Callahan D. The WHO definition of 'health'. *Stud Hastings Cent*. 1973;1(3):77-88.
4. Taylor S, Marandi A. How should health be defined?. *BMJ*.2008; 337: a290.
5. Bellieni CV, Buonocore G. Pleasing desires or pleasing wishes? A new approach to pain definition. *Ethics Med*. 2009;25(1):7-12.
6. Park J.E. *Park's Textbook of Preventive and Social Medicine*. 22 ed. M/S Banarshidas Bhanot Publishers, India; 2013. Chapter 2, Concept of Health and Disease; p. 12-30.
7. BBC News "How stressed are you? *Bbc.co.uk*. 2013-11-06 Available from: <http://www.bbc.com/news/health-24756311>. [cited 2015 Oct 13].
8. World Health Organization (HIA). The determinants of health. Geneva. Available from: <http://www.who.int/hia/en/> [cited 2015 Oct 14].
9. Ruhul AM, Fukuda H, Nakajima K, Takatorige T and Tatara K. *Public Health Services in Bangladesh with Special Reference to Systems and Trends of Vital Statistics Environ Health Prev Med*. 1999 Jul;4(2):65-70.
10. *en.wikipedia.org*. Health in Bangladesh. Available from: [http://en.wikipedia.org/wiki/Health\\_in\\_Bangladesh](http://en.wikipedia.org/wiki/Health_in_Bangladesh) [cited 2015 Apr 15]
11. Kelley K, Clark B, Brown V and Sitzia J. Good practice in the conduct and reporting of survey research. *Int J Qual Health Care*. 2003 Jun;15(3):261-66.
12. *en.wikipedia.org*. Chittagong\_District Available from: [http://en.wikipedia.org/wiki/Chittagong\\_District](http://en.wikipedia.org/wiki/Chittagong_District) amardesh.com. [cited 2015 Apr 15].

13. Chittagong zila Available from: [http://amardesh.com/zila\\_chittagong.php](http://amardesh.com/zila_chittagong.php) [cited 2015 May 19].
14. Chiolo A, Faeh D, Paccaud F, and Cornuz J. Consequences of smoking for body weight, body fat distribution, and insulin resistance. *Am J Clin Nutr.* 2008 Apr;87(4):801-9.
15. [www.healthypeople.gov](http://www.healthypeople.gov). Determinants of Health, Healthy People 2020 Available from: <http://www.healthypeople.gov/2020/about/foundation-health-measures/Determinants-of-Health> [cited 2015 Apr 14].
16. Assalian P, Fraser R, Tempier R, Cohen C. Sexuality and quality of life of patients with schizophrenia. *Int J Psychiatry Clin Pract.* 2000;4 (1):29-33.