

Study about Nutraceuticals and its Usage among General People in a District of Bangladesh

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Consumers' health is impacted by nutraceuticals in a variety of ways biochemically. Beyond their basic nutritional roles, nutraceuticals offer additional advantages. Identifying nutritional deficiencies from other physiological effects, like lowered disease risk, is crucial. Herbal supplements, refined foods, genetically modified foods, and dietary supplements are examples of nutraceuticals. A nutritional supplement survey was conducted in a few areas of the Narsingdi district. In total 210 men and women were enlisted, and the majority of them underwent methodical in-person interviews. This study's main objective was to determine how much knowledge and usage of nutritional supplements there was among people living in rural and urban areas. All findings are presented and clarified in result and discussion section. In summary, this study broadens the current understanding of the pattern of nutraceutical use among Bangladeshi urban and rural populations.

Key Words: Nutraceuticals; health; Bangladesh; refined grains; rural people; urban people.

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1. Introduction

These foods that have therapeutic or nutritional value are referred to as "nutraceuticals." Nutraceuticals, also known as medical foods, functional foods, phytochemicals, and nutritional supplements, include common items like fortified breakfast cereals and "bio" yoghurts, as well as vitamins, herbal remedies, and even foods and supplements that have been genetically or living modified. There can be confusion because different countries use a wide variety of terms and meanings. Nutraceuticals are often defined as "foods, or food components, that provide health benefits, including the prevention and treatment of disease" [1]. Nutraceuticals are health-promoting foods that enhance fitness, boost immunity, and improve general well-being, all of which help prevent and treat certain diseases [2]. Numerous nutraceuticals have been shown to have significant effects on immune response and the ability to fight off certain disease states. They additionally bring out illnesses that change markers associated with oxidative stress, such as allergies, obesity, Parkinson's disease, Alzheimer's disease, cardiovascular diseases, cancer, and eye problems [3].

Traditional Nutraceuticals are unprocessed foods that have been given new insights into their potential health benefits. They are essentially whole, natural foods. The only change that has occurred is in how the customer views the food, not in the food itself. Many fruits, vegetables, grains, fish, dairy, and meat products have natural components that offer health benefits beyond just nutrition. Examples of these include the antioxidant lycopene found in tomatoes, the omega-3 fatty acids in salmon, and the saponins found in soy [4]. Researchers have shown that two food, salmon and tomatoes, have components that go beyond basic nutrition—in this case, lycopene and omega-3 fatty acids [4]. Nutraceuticals that are not conventional include rice fortified with folic acid, cereals enhanced with vitamins or minerals, and orange juice fortified with calcium. They grow through agricultural breeding or by the addition of substances and/or nutrients [5]. Scientists studying agriculture have successfully created methods to raise the nutritional content of particular crops. Research is underway on many other crops to improve their nutritional value.

In Bangladesh, the prevalence of micronutrient deficiencies is rising daily. A previous study revealed that 25% of adults in Bangladesh between the ages of 46 and 60 had an undernourished or thin BMI of 18.5, and 14% of the population between the ages of 15 and 49 suffered from chronic energy deficiency or appearance [6]. According to a recent study, 70% of patients usually see a doctor either before or during traditional therapy, which suggests that natural therapy is not

well-liked [7]. The food system in Bangladesh is changing quickly. Changes in consumption and expenditure patterns are occurring in both urban and rural areas with regard to: (i) market purchases versus own production; (ii) the commodity base of diets; (iii) a long-term tendency towards a growing role of international trade in food commodities, and consequently greater influence of trade policies and international prices on domestic prices; and (iv) more food commodities being processed outside of the immediate producing or consuming households [8, 9]. Several studies reveal that people who take nutritional supplements develop a variety of beneficial health-related behaviors, such as improved eating habits, consistent exercise, and upholding a healthy body weight [10-13].

The current study aims is to determine the population's use, knowledge and awareness of nutritional supplements in a chosen districts in Bangladesh.

2. Methodology

This field study was performed out using a semi-structured questionnaire. Data for this study came from 210 respondents who were residents within the Narsingdi area. The study was carried out between a period of October to November 2023. Participants (age between 20-60 years old) were interviewed and data collection was done from that selected area. Every participant completed the anonymous questionnaire on their own, answering the questions to the best of their knowledge; some participants were unable to complete all the questions. Using Microsoft Office Excel, the survey data was calculated examined, and graphically displayed. This article was reviewed by ethical approval committee of Jahangirnagar University with approval number of (JU-4637), and all the information of respondents were kept private.



Figure 1: Study location in Bangladesh Map (Narsingdi district)

3. Results: All findings and results with percentages from this survey study are concluded in the table presented below.

Table 1: Demography of respondents

Variable	Response pattern	Number (N=210)	Percent
Age (year)	20 to 39	127	60.47%
	40 to 60	83	39.53%
Gender	Male	148	70.47%
	Female	62	29.53%

Occupation	Job holder	95	45.23%
	Student	35	16.66%
	Housewife	27	12.85%
	Unemployed	53	25.24%
Residence	Rural	103	49.04%
	Urban	107	50.96%

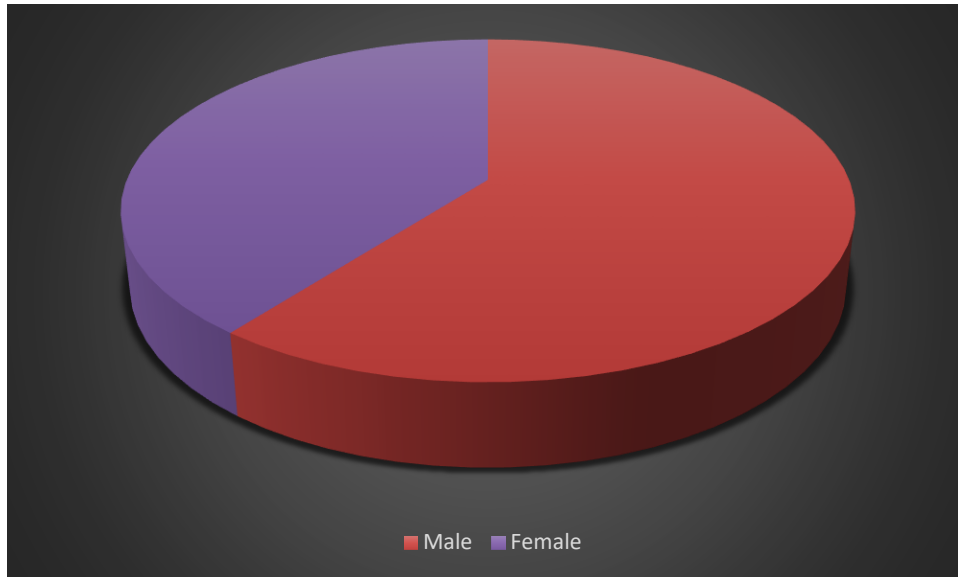


Figure 2: Gender distribution among the population

Table 2: Most commonly used nutraceuticals by respondents

Variable	Number of individuals	Percent
Traditional nutraceuticals	162	77.14%
Non-conventional nutraceuticals	48	22.86%

Table 3: Nutraceuticals used as dietary supplements

Variable	Respondents	Percent
Dairy foods	54	25.71%
Refined grains	67	31.90%
Glucosamine sulfate and chondroitin sulfate	29	13.80%
Different fruit juice	60	28.57%

Table 4: Nutraceuticals used to alleviate different types of diseases

Variable	Respondents	Percent
Diabetes	36	17.14%
Obesity	71	33.80%
Diarrhea	25	11.90%
Allergy	08	3.80%
Neuro disorder	03	1.42%
Constipation	37	17.62%
Appetite problem	30	14.28%

Table 5: Understanding and Observation regarding Daily Consumption of Nutritious Foods

Variable	Response pattern	Frequency (N=210)	Percent
Knowledge	Conscious	115	54.76%
	Unaware	79	37.62%
	No clear response	16	7.62%

Daily consumption of nutraceuticals	Highly sufficient	48	22.85%
	Sufficient	53	25.23%
	Not sufficient	109	51.90%
Source of information	TV	49	23.33%
	Google	87	41.42%
	Newspaper	52	24.76%
	Relatives	22	10.47%

4. Discussion

The study was performed on several town and village of this district using a typical organized survey. It was noted in the current study that a substantial portion of the study population (60.47%) is male. In case of occupation, 45.23% were job holder in different sectors, 12.85% were housewife, 16.66% were students and 25.24% were unemployed individuals. Residents from urban and local village are almost equal in terms of percentage shown in (table - 1). On the other hand 162 (77.14%) respondents told that they mostly use conventional (unprocessed) or traditional nutraceuticals while rest of the population 48 (22.86%) informed they use synthetic (processed) or non-conventional nutraceuticals, shown in (table - 2).

Table - 3 represents about different types of nutraceuticals and foods used as nutraceuticals, where most people prefer refined grains (31.90%) and fruit juice (28.57%) as nutraceuticals. Respondents used nutraceuticals to treat different types of diseases. According to their verses, most people prefer nutraceuticals for the treatment obesity, but it was found that very few people (1.42%) stated that they use it for neurological problems (table - 4).

(Table - 5) explaining about the knowledge, awareness and consumption of nutraceuticals, which not much satisfactory in terms of consumption of enough nutraceutical supplements for better health. It observed that a big portion of the participants about (38%) were ignorant of the need of consuming healthy food on a regular basis. Although a sufficient number of population are not aware of nutritional foods, more than half percent (54.76%) respondents are alert of it. Among all the responses (41.42%) respondent stated they gain information from google about nutrition and relevant studies constituting the most percentage of all, whereas, least number of people (10.47%) learned information about nutrition from their relatives and family members.

Common nutraceuticals: With an emphasis on this highly specialized area of science, this section aims to provide a summary of publicly available databases that contain natural chemical compounds [14]. The nutrients that are most well recognized include water, fat-soluble vitamins, and antioxidants. Using antioxidants as supplements or in food has been linked to a number of possible advantages. In general, antioxidants may help prevent cerebral vascular disease and cancer [15, 16]. Clinical trials have assessed the use of herbal extracts, such as β -sitosterols (found in Saw Palmetto berry), cernilton (pollen extract), and *pygeum africanum* (African plum), in the treatment of benign prostatic hyperplasia. It has been shown that using echinacea to prevent and treat colds and the flu is a common herbal remedy. The findings of five placebo-controlled trials assessing the usage of echinacea were inconsistent, which the authors explain away by either using healthy volunteers in lieu of patients or using extracts that weren't chemically defined mono-preparations or standardized.

After evaluating four nutraceuticals—sugar beet roots, cucumber fruits, New Zealand spinach leaves, and turmeric rhizomes—for their relative efficacy against skin tumors induced by di-methylbenz anthracene as well as those promoted by croton oil, it was discovered that turmeric was the most effective [17].

5. Conclusion

Numerous studies that have investigated into and reported on the effects of nutraceuticals, functional foods, and naturally occurring compounds have shown that these products are very active, have a significant impact on cell metabolism, and frequently have less negative effects. It makes sense that people's attention is turning to proactive illness prevention in order to maintain their health. It is essential that as a society member everyone should circulate knowledge about the health issues facing mass people to determine the underlying reasons for dietary supplement use, more additional research needed. In summary, this study broadens the current understanding of the pattern of nutraceutical use across Bangladeshi urban and rural populations.

Conflict of interest: The author(s) declare that no conflict of interest

Ethical consideration: Participants actively participated, knowing that any personal information they contributed would be kept private and that the data they provided would be utilized responsibly.

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