Comparative Analysis Of Consumer Perceptions And Preferences Towards Functional Foods In India And Bangladesh: A Study Of Awareness, Preference Factors, And Socio-demographic Influences.

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ABSTRACT:
The study examines the variables influencing Bangladeshi and Indian beliefs about functional foods. This study attempts to emphasize the functional food market with the help of investigating consumer awareness, views, and why they don't choose functional meals. The study uses statistical analysis and quantitative methodologies, such as surveys, to identify significant patterns and behaviors among Generation Y consumers. The findings indicate that respondents from both Bangladesh and India are more cognizant of functional foods compared to what they are, yet a significant proportion of respondents in both countries are unaware of these. The primary barriers to the adoption of functional foods are determined to be taste preferences, expenses, and availability. The research additionally demonstrates that crucial aspects influencing consumer perceptions are health advantages rather than sociodemographic status, which have no apparent effect on awareness. Policymakers and marketers may utilize the information to help develop strategies that may give rise to the acceptance of functional foods in Bangladesh and India.

Keywords: *Functional Food, Awareness Level, Consumer Perceptions, Socio-demographic Factor, India, Bangladesh*

Background

Due to prospective health benefits, functional foods have drawn considerable attention over the last decades. The idea of "functional foods" primarily revolved around fixing nutritional deficiencies, but the concept has since broadened to include goods that offer health benefits in addition to primary nutrition (Arai, 2002; Ashwell, 2003). Although the global market of functional foods is growing, nations may have a lot of diverse degrees of understanding and acceptance (Fitzpatrick, 2003). This study analyzes consumer knowledge and view of functional foods in the historical setting of Bangladesh and India, considering the cultural and economic aspects that impact their dietary choices.

Foods that provide nutritional benefits that exceed the benefit of fundamental nourishment are known as functional foods (Health Canada, 2006). These consist of unmodified goods like fruits and vegetables, modified goods like foods enriched with nutrients, and enhanced goods like probiotics (Kaur & Singh, 2017). Foods for Specified Health Use (FOSHU) was a concept developed in Japan in the 1980s that indicated the starting point of the growth of functional foods (Arai, 2002). Since that time, functional foods have grown more and more appreciated across the globe, with noteworthy development in regions like North America and Europe (Ashwell, 2003).

Price, quality, packaging, and brand image are the factors that influence consumers' perceptions of functional meals (Kotler & Armstrong, 2010). Research has indicated that socio-demographic, cognitive, and attitudinal factors influence the consumers' acceptance (Wim Verbeke, 2004; Lähteenmäki et al., 2004). For instance, Urala and Lähteenmäki (2003) discovered that health claims and individual health motivation have a noteworthy effect on consumers' acceptance of functional food. Moreover, customer acceptance and perception can be made better by marketing techniques that highlight the health advantages of functional meals (Doyon & Labrecque, 2008).

Functional foods are subject to the prevention of chronic diseases, such as cancer and cardiovascular diseases, since they contain bioactive compounds (Block et al., 2014; Srivastava et al., 1995). For example, cruciferous vegetable consumption reduces the cancer risk (Verhoeven et al., 1996). Functional foods also play a role in weight management, improved digestive health, and enhanced immune function (Granato et al., 2010). In the context of the COVID-19 pandemic, Zhang and Liu (2020) emphasized the importance of dietary supplementation with vitamins and minerals to support immune health.

Objective of the Study

This study's main objective is to investigate and compare Bangladeshi and Indian consumers' views and preferences for functional food, and at the same time, the study considers socio demographic characteristics, awareness levels, and non-preference explanations. The specific objectives are outlined as follows:

-To assess consumer awareness of Functional food in the contexts of India and Bangladesh.

- To systematically identify and categorize the reasons why consumers may not prefer Functional food products..

-To investigate the impact of socio-demographic factors on consumer awareness of functional foods.

- To investigate the factors influencing consumers' perception of functional food products in the context of health benefits and consumer preferences.

Hypothesis Development

Based on the literature review, the following hypotheses were developed:

H1: There is a significant difference in consumer awareness regarding Functional food between India and Bangladesh.

H2: There exist identifiable reasons that contribute to consumer preference against Functional food products.

H3: Consumer awareness of functional foods is significantly influenced by socio-demographic factors.

H4: There is a positive relationship between perceived health benefits of functional foods and consumer willingness to purchase them.

4. Methodology

4.1 Research Design

This study adopts a conclusive research design, combining descriptive and causal research methods. The objective is to explore and compare consumer perceptions and preferences towards functional foods in India and Bangladesh, considering awareness levels, reasons for non-preference, and the influence of socio-demographic factors.

4.2 Target Population

The target population for this study consists of Generation Y consumers (those born between 1981 and 1996) in India and Bangladesh. This demographic is chosen due to their increasing health consciousness and significant influence on market trends.

4.3 Sampling Method and Sample Size

A technique of purposive sampling was applied to select participants for the survey. The sample measurements consist of 172 consumers, with 92 respondents from India and 80 from Bangladesh. This approach ensured a sufficient representation of the target demographic while maintaining feasibility in data collection.

4.4 Data Collection

An online questionnaire was distributed through various social media platforms, email, and consumer forums to assemble data. The survey was conducted through a questionnaire to gather information on the following aspects:

- **Demographics:** Includes age, gender, income, education, and occupation.
- **Awareness of Functional Foods:** Questions to evaluate the level of understanding and knowledge about functional foods.
- **Perceptions and Preferences:** Questions to identify perceptions and preferences towards functional foods, including taste, cost, availability, and health benefits.
- **Causes of lack of preference:** Questions to identify specific reasons for not preferring functional foods.
- **Socio-demographic Influences:** Questions to explore the influence of socio-demographic factors on awareness and perceptions.

The questionnaire was pre-tested with a small sample to ensure clarity and reliability. Based on the feedback, necessary adjustments were made before the final distribution.

4.5 Reliability and Validity

To ensure the reliability and validity of the data collection instrument, Cronbach's Alpha was calculated to assess the internal consistency of the scales used in the questionnaire. The overall Cronbach's Alpha for the questionnaire was 0.906, indicating high reliability.

4.6 Data Analysis

Data were analyzed using SPSS, employing statistical techniques such as descriptive statistics, Chi-Square tests, Factor Analysis, Likert Scale analysis and Principal Component Analysis (PCA)

5. Data Analysis and Hypothesis Testing

5.1 Consumer Awareness (H1)

The analysis of consumer awareness regarding functional foods reveals significant differences between India and Bangladesh. In India, 60.9% of

respondents are aware of functional foods, compared to only 43.8% in Bangladesh, indicating higher awareness in India. Overall, 41.9% of respondents in both countries are aware of functional foods, while 58.1% are not. This substantial lack of awareness underscores the need for increased educational and marketing efforts to raise awareness about the benefits and availability of functional foods in these regions. Despite the relatively higher awareness in India, a significant portion of the population in both countries remains unaware, highlighting the importance of targeted interventions.

Table 1 : Awareness details of the respondents

Country	Category	Frequency		%	
		Aware	Not Aware		
India	Aware	56	36	60.9	39.1
Bangladesh	Not Aware	35	45	43.8	56.2

Table 2: Overall Awareness details of the respondents

Awareness (in both countries)	Yes	No
Number	72	100
%	41.9	58.1

5.2 Consumer preference against Functional food products (H2)

This study investigates the factors influencing consumer preferences against Functional food products. Out of 172 respondents surveyed, 100 indicated a reluctance to consume Functional foods. The analysis identified eight primary reasons contributing to this reluctance (Table 3 and Figure 1). Among these reasons, taste and personal dietary preferences emerged as predominant factors, with 15.10% of respondents citing these as barriers despite the acknowledged health benefits associated with Functional foods. Similarly, perceived dietary needs aligned closely with taste preferences, also accounting for 15.10% of respondents who opted against Functional foods. Conversely, the perceived promise of ensuring a long and healthy life constituted the least cited reason for consumer reluctance, with only 7.60% of respondents attributing their disinterest in Functional foods to this factor. These findings underscore the complex interplay of taste preferences and dietary habits in shaping consumer choices towards Functional foods, highlighting avenues for targeted intervention and market strategies to enhance consumer acceptance.

Table 3: Reason for not choosing functional food

Reason for not Choosing Functional Food	N	Responses	% of Cases
	23	%	
For a healthy person it is worthless to use functional food	14	13.40%	23.00%
If used in excess ff can be harmful to health	26	8.10%	14.00%
For me good taste is more important than health effects in a food product	25	15.10%	26.00%
I do not buy FF unless I know how they taste	24	14.50%	25.00%
Functional foods are costly	21	14.00%	24.00%
Functional food are not available in my area	13	12.20%	21.00%
I do not believe that functional foods will ensure a long and healthy life for me.	26	7.60%	13.00%
Functional foods are consumed mostly by people who have need for them	172	15.10%	26.00%
Total		100.00%	172.00%

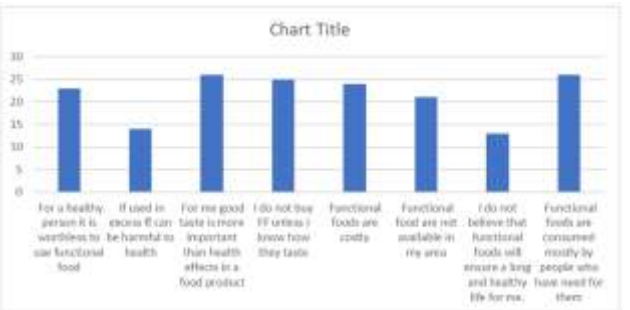

Figure 1: Reason for not choosing functional food

5.3 Socio demographic Analysis (H3)

The sample consisted of 56.3% males and 43.8% females from Bangladesh, and 39.1% males and 60.9% females from India. The majority of respondents were aged between 20-25 years (83.7% in India and 52.5% in Bangladesh). Income levels varied, with most respondents earning less than 5 lakhs annually (50% in both countries). The demographic details (Table 4) indicate that younger consumers are more engaged in the study, which aligns with the target generation Y.

Table 4: Demographic Details of the Consumers

		Frequency		%	
Variables	**Category**	**India**	**Bangladesh**		
Gender	Male	36	45	39.1	56.3
Gender	Female	56	35	60.9	43.8
Age	<20	5	2	5.4	2.5
Age	20-25	77	42	83.7	52.5
Age	25-30	5	31	5.4	38.8
Age	30-35	5	5	5.4	6.3
Income	<5 Lakhs	46	40	50	50
Income	5-10 Lakhs	25	22	27.2	27.5
Income	10-15 Lakhs	9	6	9.8	7.5
Income	15-20 Lakhs	3	6	3.3	7.5
Income	20-25 Lakhs	0	2	0	2.5
Income	25-30 Lakhs	0	1	0	1.3
Income	>30 Lakhs	9	3	9.8	3.8

Chi-Square tests revealed (Table 5) no significant relationship between demographic factors (age, income, gender) and awareness of functional foods. The analysis confirmed that price and quality are crucial determinants of consumer preference for functional foods. For instance, 80% of respondents indicated that they would choose functional foods if they were more affordable.

Table 5: Chi-Sqaure value of Socio demographic factors

Hypothesis	Chi-Square Value	p-value	Decision
Age does not affect the awareness of FF	3.661	0.309	Do not reject Null Hypothesis
Income does not affectthe awareness of FF	8.673	0.193	Do not reject Null Hypothesis
Gender does not affect the awareness of FF	0.420	0.517	Do not reject Null Hypothesis

5.4 Perception Analysis (H4)

Consumer perception was analyzed using Factor Analysis, identifying key factors such as health benefits, taste compromise, and information seeking behavior. The Kaiser-Meyer-Olkin (KMO) (Table 6) measure of sampling adequacy was 0.898, indicating that the data was suitable for factor analysis. Bartlett's Test of Sphericity was significant ($p < 0.001$), confirming the appropriateness of factor analysis.

Table 6: KMO and Bartlett's Test

KMO and Bartlett's Test		0.898
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Approx. Chi-Square	2103.83
	Df	435
Bartlett's Test of Sphericity	Sig.	0

Principal Component Analysis (PCA) was used to extract factors. The PCA shows that there are four major factors affecting consumers' perception towards Functional food of generation. The Factors were named according to the variables that correlated within them. The below table 7 shows the name of the factors and the variables under them.

Table 7: Factor details

Factor Name	**Factor Loadings**
Factor 1: Health benefits and awareness campaign	0.622
The idea that I can take care of my health by eating FF gives me a pleasure	0.709
Special campaigns must be organized for creating the awareness of functional food	0.678
It is great that modern technology allows the development of functional food	0.775
Functional foods make it easier to follow a healthy lifestyle	0.604
Special organized market should be formed for making easy availability of high-quality functional food	

Functional foods are needed by people who have specific health problems	0.709
FF must gain specialization in super markets	0.655
User manual should be provided with the purchase of FF describing the various ways of using them and their health benefits	0.631
FF act as precautionary measures to enhance our immune system	0.781
I would recommend my friends and relatives to consume functional food in their diet on regular basis	0.708
Factor 2: Lifestyle	
My activity improves when I eat FF	0.616
FF can repair the damage caused by an unhealthy diet	0.508
I am prepared to compromise on the taste of food if the product is functional	0.767
I actively seek out information about FF	0.761
FF is completely necessary	0.606
I am ready to compromise the taste for the health benefit of FF	0.753
I am trying my level best to include functional food in my daily diet	0.693
The safety of FF has been very thoroughly studied	0.538
I get pleasure from eating functional foods	0.657
Factor 4: Reliability and quality	
FF are science-based top products	0.473
I trust the information given about health effects	0.692
Using functional foods is completely safe	0.749
I believe that functional foods fulfil their promises	0.542

The analysis revealed several key factors with eigenvalues greater than 1, explaining a significant portion of the variance. These factors were interpreted based on the factor loadings of the variables.

The factor analysis revealed that health benefits were the most significant factor influencing consumer perception, followed by taste and quality. Respondents showed willingness to compromise on taste for health benefits, indicating a positive attitude towards functional foods.

Overall Findings:

The study revealed a higher awareness of functional foods in India (60.9%) compared to Bangladesh (43.8%); however, a significant portion of respondents in both countries lacked awareness (58.1%), indicating a substantial gap in knowledge and highlighting the need for increased educational and marketing efforts. Among the 172 respondents, 100 expressed reluctance to consume functional foods, with primary reasons including taste and personal dietary preferences (15.10% each), and the cost and availability of functional foods (14% and 12.2%, respectively), while the least cited reason was the perception that functional foods do not ensure a long and healthy life (7.6%). The demographic profile showed a majority of younger respondents, aged between 20-25 years, with most earning less than 5 lakhs annually, and Chi-square tests revealed no significant relationship between demographic factors and awareness of functional foods, suggesting that awareness campaigns should target all demographic groups, focusing on affordability and quality. Factor analysis identified four key factors influencing consumer perception: health benefits and awareness campaigns, lifestyle, social and cultural aspects, and reliability and quality, with health benefits being the most significant factor, indicating a generally positive attitude towards functional foods if their health benefits are well communicated and trusted.

Conclusion

The research provides a comprehensive analysis of consumer awareness, preferences, socio-demographic factors, and perceptions towards functional foods in India and Bangladesh. Key findings indicate that:

1. There is a considerable lack of awareness about functional foods, necessitating targeted educational and marketing efforts to bridge this gap.

2. Taste preferences, cost, and availability are major barriers to the adoption of functional foods. Addressing these barriers through targeted interventions can enhance consumer acceptance.

3.Younger consumers are more

engaged, yet awareness and preference for functional foods are not significantly influenced by demographic factors. This suggests a universal approach in promoting functional foods could be effective.

4.Health benefits are the most influential factor in shaping consumer perceptions. Campaigns emphasizing the health benefits and safety of functional foods can drive positive consumer attitudes and behaviors.

Overall, the study reveals that in efforts to improve the knowledge and acceptance of functional foods in both nations, it is crucial to apply various techniques, such as education, affordability, and targeted marketing. These results offer insightful inform ation that helps guide plans to raise consumer knowledge, acceptance, and consumption of functional foods in Bangladesh and India.

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