

A Study on the Consumption Pattern of Organic Spices amongst the Students of Baihata Chariali, Assam: A Gender Based Statistical Analysis

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ABSTRACT

Green consumption means both health consciousness and environmental consciousness. Green consumption is expressed in the use of products and services that meet user needs while minimizing the use of resources from nature and substances harmful to the environment as well as polluting emissions. Green consumption also means finding solutions to social and environmental imbalances through more responsible consumption behavior. This study investigates the awareness, purchase behavior, and motivating factors influencing the use of organic spices among students, with a specific focus on gender-based differences. Primary data was collected through a structured questionnaire and analyzed using statistical tools. The analysis revealed that while awareness of organic spices is high among both male and female students, significant differences exist in the challenges faced. This paper focuses on the consumption behavior and awareness of the concept and importance of green consumption of the students of 16-21 age group. This paper emphasizes on the awareness of the students of Baihata Chariali, Assam regarding green consumption with special reference to usage of organic spices in their daily life.

Keywords: Organic Spices, Gender Differences, Consumer Behavior, Student Awareness, Sustainability.

Introduction

Different authors have defined sustainable consumption differently. However, this usually suggests where one considers basic human needs and avoid excessive consumption. It also focuses on care for environmental well-being and need satisfaction for future generations. Furthermore, it also considers quality of life rather than material living standards (UNEP, 2010). So adopting "sustainable consumption" is up to each individual behavior and awareness to make efforts to avoid over consumption and careless consumption, which could have a negative impact on environment.

While reduction in synthetic chemical use is environmentally beneficial compared to industrial agriculture, these methods may not promote long-term sustainability because non-agricultural inputs often require heavy use of fossil fuels than on-farm inputs. Consumption of organic food is also increasing in India. Although nearly half of organic food production in India is for export, many reputable customers have started buying organic food for domestic consumption. **Stolz (2010)** He made an effort to evaluate how people felt about conventional and organic food items. The results verified that organic consumers have a wide range of preferences. While some people are more price sensitive and prefer conventional products, others are less price sensitive and continue to utilize organic items. In recent years, there has

been a notable shift in consumer preferences toward health-conscious and environmentally sustainable food practices. Among these emerging trends, the use of organic spices has gained considerable attention, particularly in the context of rising concerns over food safety, pesticide residue, and lifestyle-related diseases. Organic spices are cultivated without the use of synthetic fertilizers, pesticides, or genetically modified organisms, making them a cleaner and safer alternative to conventional spices. They not only contribute to human well-being but also support ecological balance by promoting biodiversity and reducing chemical runoff into the environment.

In developing countries like India, where spices play a central role in daily cooking and cultural identity, the transition to organic alternatives is both promising and challenging. Despite the availability and proven benefits of organic spices, adoption rates remain modest due to factors such as limited awareness, higher costs, and perceived lack of brand authenticity. Young consumers, especially students, represent a key demographic in influencing future market patterns. Their awareness, purchasing behavior, and advocacy potential can significantly shape the trajectory of organic product consumption in the coming years.

This study aims to explore the awareness, willingness to purchase, motivations, challenges, and advocacy behavior related to organic spices among male and female students. It employs a gender-based analytical lens to examine whether significant differences exist in perception and behavior, which can provide insights for marketers, policymakers, and educators seeking to promote sustainable consumption.

The paper further applies statistical tools such as Chi-Square tests to determine whether observed differences are statistically significant, ensuring that conclusions are rooted in data-driven analysis. The findings not only contribute to the academic understanding of consumer behavior in the organic sector but also hold practical relevance in designing targeted interventions to encourage a shift toward healthier and more sustainable food choices.

Advantages of Organic Farming

- **Reduction in Pollution**

Pesticides etc used to improve agricultural performance cause a variety of environmental problems such as biofouling and eutrophication. Since organic farming removes these factors from agricultural indicators, it also provides a guilt-free conscience.

- **Improved Personal Health**

These pesticides and fertilizers by entering the water supply, often accumulate on fish, plants, and more. Eating these types of fish releases accumulated toxins into the body, which has dire consequences and causes various diseases. Organic farming guarantees a better path towards health.

- **Less Use of Artificial Drugs**

In livestock farming, animals are injected with antibiotics to extend their lifespan and increase productivity. This process is not necessary in organic farming. Therefore, we are protected from these antibiotics that we may be exposed to when we consume eggs, milk and meat.

- **Improved Taste**

Organic foods generally taste better, thanks to environmentally friendly farming methods. By reducing the use of preservatives and fertilizers, we can restore the original taste of food.

- **Providing Fresh Products**

It is almost always sold fresh as it does not contain preservatives. because of this farmers markets are a known phenomenon in the world, such as the United States and Japan.

- **Reduce Agricultural Costs**

Organic farming uses the locally produced pesticides, as they are cheaper as compared to factory-made pesticides that uses expensive chemicals. Additionally, organic fertilizers are much cheaper than synthetic fertilizers. This reduces agricultural costs and eases the burden on farmers.

Review of Literature

- **Lockie et al. (2004)** contends that the propensity to purchase organic food is significantly influenced by age and money.

- **Onyango et al (2008)** investigated customer perceptions of the effects of several food qualities and individual traits on organic foods. They emphasized that natural food qualities, vegetarianism, and the location of production, among other things, are significant determinants of consumers' decisions to buy organic goods.
- **Mohammed et al. (2012)** determined the elements that influence Egyptians' use of organic goods. The factors that influence the consumption of organic food are categorized as follows based on the findings: health issues, the safety of organic food, and the idea that eating organic food benefits the environment
- **Laheri and Arya(2015)** The survey's findings indicate that more awareness campaigns from governments, marketers, and environmental organizations are required to inform people about the use of healthy, eco-friendly products. both safe for the environment and good for human health. The primary barriers to their purchases, according to the poll results, are the cost and accessibility of organic products. As a result, marketers should concentrate on these obstacles to breaking into the Indian market for organic products. Marketers can learn more about consumer attitudes and preferences regarding organic food goods by examining the obstacles to buying organic food products that this study found. muscle.
- **(2015)** According to this report, consumers weigh health as a crucial factor when making purchases. Preferences are also influenced by a wide range of factors, including customer demographics.
- **Mehla et el (2018)** sought to determine the elements affecting the ecology and health of organic food. Environmentally friendly, perception-friendly, and obstacle-friendly characteristics are the most important, according to the survey, and businesses should take these things into account more for a larger market share.
- **Sharma and singhvi (2018)** According to their research, customer preferences and decisions about the purchase of organic food items might be influenced by market availability. As a result, this book offers crucial information about the impending rise in demand for food products farmed organically. Therefore, it is now time for producers, traders, consumers, and governments to concentrate on the organic product niche market.
- **Chattopadhyay (2019)** intends to This article is a meager attempt to determine Bangalore residents' awareness of organic food goods. Understanding Bangalore residents' consumption habits is another goal of this article. Despite being in the high-income group themselves, the majority of these individuals defend the high cost of these things. The availability of these goods in nearby areas also affects consumption. Given how hectic Bangalore life is, many individuals do not have the time to look for organic items if they are difficult to locate, even if there are ways to solve this issue.
- **Barua et el(2023)** This study's primary goal was to create a standardized knowledge exam to gauge respondents' familiarity with organic foods and investigate the factors that contribute to high levels of knowledge. According to the results of the standardized knowledge test, 23.5 and 14.5% of respondents were extremely and very educated about organic food, while the majority (62.0%) had very low, low, and moderate knowledge levels. The knowledge level of respondents is positively correlated with independent variables such gender, education, family size, family income, Internet, media exposure, and social activity.

Objective of the Study

This study is focused on organic spices , spice which is widely used food item in every household. This paper emphasises on knowing the consumption behaviour of organic spices of the students who are the future of the nation ; it eventually also puts lights on the level of awareness of the students regarding the concept organic which is a input to sustainable consumption.

- To assess awareness level among students regarding organic spices.
- To explore the motivating factors and challenges in the use of organic spices.
- To analyze gender-wise differences in attitudes and behavior regarding organic spice usage.

Hypotheses

H₁: There is a significant association between gender and awareness of organic spices.

- H₂:** There is a significant association between gender and the purpose for using organic spices.
- H₃:** There is a significant association between gender and reasons for purchasing organic spices.
- H₄:** There is a significant association between gender and challenges faced in using organic spices.
- H₅:** There is a significant association between gender and the source of purchasing organic spices.
- H₆:** There is a significant association between gender and inspiration for purchasing organic spices.
- H₇:** There is a significant association between gender and willingness to motivate others to use organic spices.

Methodology

Research Design

The study employs a **quantitative descriptive research design** aimed at evaluating students' awareness, purchasing behavior, and attitudes toward organic spices. The structured design enables statistical interpretation of consumer patterns, enabling data-driven insights relevant for public health promotion, environmental education, and sustainable marketing.

Population and Sample

The target population consists of college and university students, as they represent an educated demographic increasingly engaged in health-conscious and environmentally sustainable practices. A total of **200 respondents** were selected using **purposive sampling**, consisting of an equal number of **male (n=100)** and **female (n=100)** participants. This sampling approach was chosen to facilitate gender-based comparative analysis.

Data Collection Tool

Primary data were collected through a **structured questionnaire**, developed based on existing literature and refined through a pilot study. The questionnaire was divided into several sections covering:

- Awareness of organic spices
- Willingness and practice of purchase
- Purpose of purchase
- Motivating factors and challenges
- Source of purchase
- Influence of promotional campaigns
- Propensity to advocate for organic spice usage

The questionnaire used a **close-ended format**, allowing for easy coding and statistical evaluation.

Data Collection Procedure

Field surveys were conducted within educational institutions where students voluntarily participated in the study. All responses were anonymized, and informed consent was obtained to ensure ethical compliance. Respondents were instructed to provide answers based on their actual behaviors and opinions.

Data Analysis Techniques

The collected data were coded and analyzed using **SPSS** and **Python-based statistical tools**. The following statistical methods were applied:

- **Descriptive Statistics:** Frequencies and percentages were used to summarize basic demographic and response patterns.
- **Chi-Square Tests for Independence:** Used to examine associations between gender and variables such as awareness, willingness to purchase, purpose of purchase, source of purchase, etc.
- **Cross-tabulation:** Presented in tables to visualize relationships between male and female responses across variables.

A **significance level of 5% ($p < 0.05$)** was adopted for all hypothesis testing.

Ethical Considerations

Participants' confidentiality was maintained throughout the study. Participation was voluntary, and respondents were informed about the purpose of the research. The study adhered to ethical guidelines related to social science research.

Analysis and Interpretation

Response regarding whether the students are aware of the importance of using organic spices in the context of environment:

Table 1: Awareness of Organic Spices

	Male	Female
Aware	90	95
Not aware	10	5
Total	100	100

Source : field survey

Chi-Square = 1.15, p = 0.28

Interpretation: No significant difference exists between males and females regarding awareness of the importance of organic spices. The analysis indicates no statistically significant difference ($\chi^2 = 1.15$, $p = 0.283$) between male and female respondents regarding their awareness of organic spices. Both genders show a high level of awareness (90% males and 95% females), implying a shared understanding of the role of organic spices in promoting health and environmental sustainability. This suggests that awareness campaigns may have effectively reached a broad demographic, or that the concept of organic products is now well-ingrained in youth culture. However, the minimal difference could be attributed to variations in information access or educational exposure, which may still exist subtly but do not influence awareness to a statistically meaningful extent.

Response regarding how many of them purchase or willing to purchase organic spices:

Table 2: Willingness to Purchase Organic Spices

	Male	Female
Purchasing or Willing to purchase	60	80
Not purchasing or not willing to purchase	40	20
Total	100	100

Source: field survey

- Chi-Square = 8.60, p = 0.003
- Significant

Interpretation: A significantly higher proportion of females are willing to purchase organic spices compared to males. A significant difference is observed between genders regarding willingness to purchase organic spices ($\chi^2 = 8.60$, $p = 0.003$). Female respondents (80%) demonstrate notably higher willingness than their male counterparts (60%). This reflects a gender-based behavioral divergence in sustainable consumption, potentially driven by the traditional role of women in household decision-making, particularly in food procurement. It may also suggest that women are more responsive to health-related messaging and more attuned to the long-term benefits of consuming organic food. Marketers and policymakers should thus consider gender-sensitive promotional strategies that align with these psychological and social drivers.

Response regarding for whom they buy organic spices as it is mainly used for cooking purpose:

Table 3

	Male	Female
For family	74	95
For own cooking purpose	26	5
total	100	100

Source : field survey

- Chi-Square = 15.27, p < 0.001
- Highly Significant

Interpretation: Females are more likely to buy organic spices for family use, whereas males tend to buy them for personal use. There is a highly significant association ($\chi^2 = 15.27$, $p < 0.001$) between gender and the stated purpose for buying organic spices. A large proportion of females (95%) purchase for family use, compared to 74% of males, while 26% of males report buying for personal cooking compared to only 5% of females. These results reinforce traditional gender roles and familial responsibilities, especially in contexts where women often prepare meals for the household. Conversely, the male inclination towards personal use may stem from interest in culinary experimentation, dietary goals, or fitness-driven food practices. Understanding such differences is essential for segmenting the consumer base.

Response regarding the reason behind purchase of organic spices:

Table 4

	Male	Female
Health benefit	95	97
Environmental concern	5	3
total	100	100

Source : field survey

- $\text{Chi-Square} = 0.13$, $p = 0.72$

Interpretation: Both genders overwhelmingly cite health benefits as the primary reason for purchasing organic spices. No significant difference. Both male (95%) and female (97%) respondents predominantly cite health benefits as their primary reason for buying organic spices, with minimal concern for environmental issues (5% and 3%, respectively). The Chi-square value ($\chi^2 = 0.13$, $p = 0.72$) confirms no statistically significant gender difference in motivation. This finding aligns with global consumer trends where personal health outweighs environmental ethics in influencing organic product adoption. While the ecological impact of organic agriculture is acknowledged academically, consumers often prioritize direct and tangible health outcomes. Future promotional campaigns could benefit by integrating health messaging with subtle environmental awareness to balance both motivators.

Response regarding challenges behind usage of organic spices:

Table 5

Challenges	Male	Female
Non availability	45	23
High cost	40	59
Unknown brand	15	18
total	100	100

Source : field survey

- $\text{Chi-Square} = 11.04$, $p = 0.004$
- Significant

Interpretation: Males are more concerned about non-availability, while females see high cost as a greater barrier. This table reveals a statistically significant gender-based difference ($\chi^2 = 11.04$, $p = 0.004$) in perceived barriers to organic spice usage. Males report non-availability (45%) as the main issue, whereas females emphasize high cost (59%). Females are also slightly more concerned about unknown branding (18% vs. 15%). These results may be reflective of the differing consumer journeys: men may face difficulty in sourcing products due to limited store visits, while women, typically more engaged in household budgeting, are sensitive to price premiums. Retailers could address this gap by improving both the availability and affordability of branded organic options in physical and digital marketplaces.

Response regarding source of purchase of organic spices:

Table 6

	Male	Female
Local stores	23	12
Online stores	77	88
total	100	100

Source : field survey

- Chi-Square = 3.46, $p = 0.063$
- Not Significant (but borderline)

Interpretation: Both genders mostly prefer online stores for buying organic spices, though males lean slightly more toward local stores. While the Chi-square value ($\chi^2 = 3.46$, $p = 0.063$) is not statistically significant, the data show a clear preference among both males (77%) and females (88%) for purchasing organic spices online. This trend indicates a shift toward digital platforms for health-conscious food shopping, likely influenced by post-pandemic e-commerce adoption and convenience factors. However, the slightly higher preference among females suggests they may be more comfortable navigating online marketplaces or have greater exposure to online organic product advertisements. These findings call for strengthening the digital supply chain and ensuring authenticity and trust in online organic offerings.

Response regarding who inspire them to purchase the organic spices:

Table 7

	Male	Female
Inspired by shopkeeper	2	4
Inspired by promotion for environment protection	25	33
Inspired by promotion for health benefits	67	49
Inspired by family members	6	14
Total	100	100

Source : Field Survey

- Chi-Square = 7.76, $p = 0.051$
- Just Above Significance Threshold

Interpretation: The major influence for males is health promotion, while females are influenced by a broader mix, including environmental campaigns and family. Slight gender differences in influence. Although the Chi-square result ($\chi^2 = 7.76$, $p = 0.051$) is just above the threshold for significance, the data suggest notable patterns in influence. Males are predominantly influenced by health-promoting advertisements (67%), whereas females are affected by a broader range of factors including environmental promotions (33%) and family members (14%). This broader base of influence among females reflects greater emotional and social connectivity in their consumption behavior. The marginal p -value indicates a trend worth further exploration, possibly through qualitative interviews or focus groups. Marketers could benefit by designing multi-layered campaigns that incorporate emotional, social, and ethical triggers.

Response regarding whether they will motivate others to switch to organic spices from the conventional spices?

Table 8

	Male	Female
Yes	99	25
No	1	0
Total	100	100

Source : field survey

- Chi-Square = 0.0, $p = 1.0$

Interpretation: Both genders are overwhelmingly willing to motivate others to adopt organic spices. An overwhelmingly positive response from both genders is observed regarding willingness to advocate for organic spices, with 99% of males and 100% of females indicating "yes." The Chi-square test ($\chi^2 = 0.00$, $p = 1.00$) confirms no significant gender difference. This strong consensus suggests that the student community not only adopts organic practices but also embodies a multiplier effect by spreading awareness. This potential for peer influence can be effectively leveraged in grassroots campaigns or institutional initiatives, where students act as ambassadors promoting sustainable food systems within their communities and families.

Interpretation Highlights

- Females are more proactive in purchasing and doing it for their families.
- High cost is a barrier predominantly for females; non-availability affects males more.
- Health benefits are the dominant motivator across genders.
- Online purchase is the dominant mode.
- Most participants are willing to promote organic spices further.

Statistical Analysis and Interpretation of Organic Spices Survey Data

Table No.	Variable	Chi2 Value	p-Value	Significant?
Table 1	Awareness	1.15	0.283	No
Table 2	Willingness to Purchase	8.6	0.003	Yes
Table 3	Purpose of Purchase	15.27	<0.001	Yes
Table 4	Reason Behind Purchase	0.13	0.72	No
Table 5	Challenges	11.04	0.004	Yes
Table 6	Source of Purchase	3.46	0.063	No
Table 7	Influence Factors	7.76	0.051	Borderline
Table 8	Motivating Others	0.0	1.0	No

Results Overview

The data analysis revealed that a large proportion of students were aware of organic spices and understood their benefits for health and the environment. Both male and female respondents demonstrated willingness to use organic spices, although females reported slightly higher levels of purchase intent. Family influence and health considerations emerged as key motivating factors.

Significant gender-based differences were observed in the challenges faced: females commonly noted non-availability of products in local stores, while males were more likely to express concern over unfamiliar or uncertified brands. Despite these challenges, nearly all respondents indicated they would recommend organic spices to others, reflecting a strong underlying support for sustainable consumption.

Findings

Based on the statistical analysis of the primary data collected from 200 respondents (100 male and 100 female students), the following key findings emerged:

- **High Awareness Across Genders:** Both male and female students demonstrated a high level of awareness about organic spices, with no statistically significant difference. This indicates widespread dissemination of knowledge about organic products in educated youth segments.
- **Significant Gender Difference in Willingness to Purchase:** Female students were significantly more willing to purchase organic spices compared to their male counterparts. This suggests a stronger inclination among women towards health and environmental consciousness in food choices.
- **Purpose of Use Differs by Gender:** A significant difference was found in the purpose of purchasing organic spices. Female respondents predominantly purchased them for family use, while males were more likely to buy them for personal consumption.
- **Health Benefits as Primary Motivation:** Both male and female participants overwhelmingly identified health benefits as their main reason for choosing organic spices. Environmental concerns were secondary for both groups.
- **Barriers to Usage Differ by Gender:** While males cited non-availability as the major barrier to using organic spices, females were more affected by high cost. This gendered perception of challenges reflects different roles in household shopping and budgeting.
- **Online Platforms Are the Preferred Source:** Although the preference for online sources was not statistically different, the data clearly showed a strong lean toward online purchasing among both genders, especially among female respondents.

- **Different Influencing Factors Across Genders:** Males were more influenced by health promotion campaigns, whereas females were inspired by a broader set of factors including environmental messages and family influence.
- **Strong Advocacy Potential:** Nearly all respondents expressed willingness to motivate others to switch from conventional to organic spices. This indicates strong potential for peer-driven organic advocacy among student populations.

Conclusion

This study provides important insights into the consumer behavior of young adults regarding the use of organic spices, with a particular focus on gender-based differences. The findings reveal that while awareness is universally high, significant differences exist in purchasing intent, motivation, purpose of use, and perceived barriers between male and female students.

Females demonstrated greater willingness to purchase and were more influenced by holistic factors, such as family needs and environmental promotions. Males, on the other hand, were more influenced by personal health benefits and faced challenges in product availability. These gendered patterns suggest the need for targeted marketing strategies and policy interventions that address specific motivators and barriers.

Moreover, the widespread willingness to promote organic spice usage highlights an opportunity for leveraging peer influence and educational initiatives to accelerate adoption. Retailers and policymakers should collaborate to improve accessibility, reduce costs, and enhance brand transparency to convert awareness into sustained behavioral change.

In conclusion, the study contributes to the literature on sustainable consumer behavior and offers actionable insights for enhancing the penetration of organic spices in mainstream markets, especially among the young, educated demographic.

Recommendations

- **Improve Local Availability:** Retailers and distributors should ensure consistent availability of organic spices, especially in areas with a high student population.
- **Promote Certified Brands:** Publicize certified organic brands through university outreach programs, advertisements, and influencer partnerships.
- **Affordable Options:** Introduce trial packs and student discounts to reduce price sensitivity.
- **Awareness Campaigns:** Conduct college-level campaigns highlighting both health and environmental benefits.
- **Peer-Led Initiatives:** Leverage peer influence by involving students in organic food clubs and sustainability drives.

Conclusion

Although the study has been conducted in Baihata Chariali, Assam, there is much scope of extending the study such as inclusion of more age groups or conducting a comparative study between Baihata Chariali and Guwahati city or any other area. This research underscores the high level of awareness and willingness among students to embrace organic spices, despite certain gender-specific challenges. Addressing these barriers through tailored interventions can lead to broader acceptance and consistent usage. As consumer preferences continue to shift toward sustainable products, understanding and acting upon these insights becomes imperative for stakeholders across the organic food value chain. The most of organic food consumers believe that organic food products do not contain pesticides, while most non-organic products consumers believe that the former products are natural. The most common reason to buy an organic food product is consciousness towards health. Although organic products are considered healthy, less trustworthiness towards the origin of organic food products is another reason why people do not buy organic food products in my area of study. Therefore, companies that produce and sell organic food products should find ways to build up trust in consumers to extend their purchasing intentions. It is also seen that consumers of organic food are strongly mastered by psychological aspects such as awareness, attitude and intention to buy organic food products.

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