ISSN 3049-317X (Online)

Consumer preferences and perception towards buying organic food

Niharika Gupta
Sri Balaji University, Pune,
Maharashtra, India, 411033
guptaniharika2426@gmail.com

Dr. Nilam Upasani
Associate Professor,
Sri Balaji University, Pune
nilam.upasani@bitmpune.edu.in

Abstract

This research paper examines consumer preferences and perceptions of organic food purchases. A structured survey was administered to a diverse demographic that captured various factors that influence consumer behavior, including age, gender, income level, and education. The data cleaning process is strictly done using Python, solving the loss of missing values, deleting useless reactions and analyzing standardized data sets. These findings indicate that health benefits for health are set as a key motivation for buying decisions. However, it also emphasizes obstacles such as limited availability, high costs and lack of knowledge of organic products that show the scope of market access improvement and consumer education. In addition, the analysis shows that preferences based on statistical factors of the population are significantly different, which emphasizes the importance of target marketing strategies. This study helps understand consumer behavior in the organic food industry and provides valuable insights for stakeholders, including manufacturers, retailers, and policymakers, to increase consumer engagement and promote sustainable food practices.

Keywords: Consumer preference, organic food, Text mining, Neural Network Analysis

1 Introduction

Recently, the growth of the organic food market has been driven by consumers' understanding of health, environmental sustainability and food security. With consumers' awareness of diet, organic food has become a popular alternative to traditional products. This shift in consumer behavior highlights the need to understand the factors affecting consumer preferences and perceptions of organic food.

The objective of the study is to check the relationship between consumer preferences and perceptions of purchasing organic food, to study the correlation between purchase frequency and perceptions of health benefits, the impact of preferences on purchase frequency, the impact of income level on purchase perceptions, and the role of demographics. When considering these objectives, this study provides valuable insight into traders, policy makers and stakeholders who are trying to promote organic food consumption and inform about strategies to improve market involvement and sustainability.

1.1 Research Problem

Is there a significant correlation between the consumers' preferences and perceptions of organic food and the frequency of organic food purchases, particularly regarding its perceived health benefits over non-organic options?

1.2 Objectives

1. To analyze the relationship between consumers' perception and the frequency of buying organic food.
2. To evaluate how consumers' choice of organic food affects their purchase level.
3. To identify how different income levels affect the consumers buying perception of organic food
4. To analyze demographic factors e.g. different regions have a major impact on consumer preference, perception, and buying capacity

2 Literature Review

The literature survey discusses majorly 3 different

methodologies: Text Mining, Neural Network Analysis, and Structural Equation Model.

2.1 Text Mining

Rajeshwari, B. Madhavan in their research paper researched the customer's sentiment score of organic products and regular products using text mining by scrapping the reviews of products from Amazon [1]. The results were the mean sentiment score of organic products was higher than that of regular products. Singh A. and Glińska-Neweś A. in their research paper scrapped tweets from Twitter having organic food as keywords and applied text mining to it to analyze the sentiments of customers on organic food [2]. The results found that organic food is viewed positively by people however, people are doubtful of the claims about organic food that they do not have harmful chemicals and are natural. Tao D. and Yang P. in their research paper provided insights for making smart decisions for improving the safety of food, production of food, and nutrition of humans [3]. Chaudhary M. and Pancholi N. in their research paper obtained the emotions and sentiments of the consumers using spiritual brands by scraping the product reviews [4]. Pindado, E., and Barrena, R. in their research paper investigated the new food trends across different regions across the world [5]. The results show that there is a positive but weak attitude for food the trends of food and also found a good number of differences between different areas showing cultural context also determines the attitude of users towards food innovations.

2.2 Neural Network Analysis

Lyu F. and Choi J. in their research paper tried predicting the sales volume, factors affecting the sales, and strategies for marketing on online platforms for organic products using neural network analysis [6]. The study resulted in knowing all the factors affecting sales of organic food. Vatambeti R. and Mantena S. V in their research paper scraped the reviews of Zomato, Swiggy, and UberEats from Twitter and after analyzing got to know that Zomato has got the most positive feedback of the three and fewer bad reviews of the two [7].

2.3 Structural Equation Model

Nagaraj S. in his research paper researched how consumer health consciousness, food safety, and attitude affect purchasing behavior [8]. The results show that the health consciousness of consumers does not impact food safety concerns, attitude of consumers does not affect food safety concerns on purchase intention, both food safety concerns and consumer attitudes together positively influence the human consciousness on purchasing intention. Melovic B. and Cirovic D. in their research paper used a structural equation model in their survey to gather insights on the factors affecting the purchase intentions of the buyers [9]. The results showed that the price of the product and promotion impacts the decisions of buyers the most. Cachero-Martínez S. in his research paper analyzed consumer behavior towards organic products [10]. This resulted in the understanding that trust, satisfaction and attitude are related to the intention of purchase and word-of-mouth intention. Tandon A. and Dhir A. in their research paper tried to understand the reasons for buying organic food [11]. There is an association between autonomous regulators and internal motives of conduct with customers' favorable attitudes toward purchasing of organic food. Watanabe E. A. D. M. and Alfinito S. in their research paper researched the relationship between trust of consumers and their intention of purchase [12]. Results were that there is no direct relationship between intention of purchase and trust of consumers. Iqbal J. and Yu D. in their research paper tried to understand the relationship between food safety concerns, the purchase intention, and health consciousness of consumers for organic food [13]. Results show that there is a negative association between food safety concerns, purchase intentions, and health consciousness. Nosi C. and Zollo L. in their research paper try to understand the reason the customers buy quinoa [14]. The results showed that consumer attitude is an important predictor of behavioral intention.

2.4 Miscellaneous

Cognitive Survey

Ismael D. and Ploeger A. in their research paper did an emotional profiling under informed and uninformed conditions, a cognitive survey, & a rapid force choice test on 46 consumers to better understand their emotional attitudes towards organic vs conventional food [15]. The results showed that although during the cognitive survey, consumers exaggerated their positive emotions towards organic food & negative emotions towards conventional food during the emotional profiling there was equal emotion towards both organic & conventional food.

Stimulus-Organism-Response (S-O-R) Framework

Tandon A. & Jabeen F. in their research paper try to understand the relationship between the health consciousness & all the facilitators & inhibitors [16]. Results were, the relationship between health consciousness & the facilitators and inhibitors comes out to be positive.

Behavioral Reasoning Theory

Tandon A. and Dhir A. in their research paper studied the moderating role of concerns in the safety of food and involvement in purchasing [17]. Relationship between concerns in the safety of food and involvement in purchasing is positively associated.

Multigroup Analysis

Bhutto M. Y. and Rūtelionė A. in their research paper use multigroup analysis to identify the differences

between different customer segments [18]. The results showed that the purchase intention is affected by usage, risk, tradition, and image barriers, whereas there is no significant influence of value barriers on purchase intention.

Stimulus Organism Behavior Consequence (SOBC)

Talwar S. and Jabeen F. in their research paper try to understand the willingness to purchase and consumer buying behavior toward organic food [19]. The results show that food safety concern and health consciousness has a positive relation with openness to change and ethical self-identity.

Akter, S., Ali, S. in their research paper identifies the factors influencing the purchase intention of consumers [20]. Results show people's concern about trust, eco-levels and climate change have a significant influence on consumer buying intention.

All the research papers conclude the positive emotion for organic food. Some of the common factors affecting the buying behavior of organic food are trust, cultural differences, price, food safety concerns, consumer attitude, and promotion which helps in the decision-making processes.

3 Research Methodology

3.1 Research Design

This study uses a qualitative research design to analyze consumer behavior towards organic food, utilizing a cross-sectional survey method for data collection.

3.2 Population and Sample

- **Population:** The targeted population consists of consumers who purchase organic food products.
- **Sampling Method:** A stratified random sampling technique was utilized to ensure that data collected is across various demographic groups (age, gender, income level, and education).
- **Sample Size:** A total of 268 participants were surveyed to achieve a sufficient level of statistical power for the analyses.

3.3 Data Collection

- **Instrument:** Data collection was conducted using a structured online survey questionnaire, which included:
- Demographic information (age, gender, income, education)
- Perception of health benefits associated with organic food (measured on a Likert scale)
- Consumer preferences for organic food (measured through multiple-choice questions)
- Frequency of organic food purchases (measured on a Likert scale)
- **Administration:** The survey was distributed online through survey platforms, and participants were recruited via social media and email invitations.

3.4 Variables

- Independent Variables
- Perception of Health Benefits
- Consumer Preferences
- Income Level
- Demographic Factors
- Dependent Variables
- Frequency of organic Food Purchases
- Buying Perception of organic Food
- Buying Capacity

3.5 Hypothesis

- **H1:** The type of organic food chosen by consumers significantly affects their purchase level.
- **H2:** Income levels significantly affect consumers' buying perception of organic food.
- **H3:** Demographic factors such as regions significantly impact consumer preferences, perceptions, and buying capacity.

3.6 Data Analysis

Software Used: Data analysis was done using SPSS

Statistical Techniques:

One Way ANOVA

Chi-square test

4 Data Analysis And Interpretation

H1: The type of organic food chosen by consumers significantly affects their purchase level.

Independent Variable: Type of organic food chosen

Dependent Variable: Monthly spending on organic food

Statistical Analysis: One-Way ANOVA

ANOVA

Spending ranges

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.524	4	0.131	0.083	0.988
Within Groups	233.359	148	1.577		
Total	233.882	152			

Interpretation

- The F-statistic (0.083) and p-value (0.988) suggest that there is no statistically significant difference in the mean spending on organic food across the groups.
- The p-value indicates that the likelihood of observing this result under the null hypothesis (that all group means are equal) is 98.8%, meaning there is no evidence to reject the null hypothesis.

- **H2:** Income levels significantly affect consumers' buying perception of organic food.

Independent Variable: Income levels

Dependent Variable: Perception of organic food

Statistical Analysis: Chi-Square Test

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	33.710[a]	25	0.114
Likelihood Ratio	33.82	25	0.112
N of Valid Cases	268		

a. 26 cells (72.2%) have expected count less than 5. The minimum expected count is .03.

Interpretation

Since the p-values from both the Pearson Chi-Square and Likelihood Ratio tests are greater than 0.05, we **fail to reject the null hypothesis.** This means there is **no significant association** between income levels and perception of organic food, based on this dataset. However, the small expected cell counts indicate that further investigation with a different method (or larger sample sizes in each income group) might be required for more reliable conclusions.

H3: Demographic factors such as regions significantly impact consumer preferences, perceptions, and buying capacity.

Independent Variable: Region

Dependent Variables:

- Consumer preferences
- Consumer perceptions
- Buying capacity

Statistical Analysis: Chi-Square Test

Geographical categorization * List of items

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	36.750[a]	28	0.124
Likelihood Ratio	51.188	28	0.005
N of Valid Cases	268		

a. 45 cells (77.6%) have expected count less than 5. The minimum expected count is 0.31.

Interpretation

The Pearson Chi-Square p-value (0.124) is greater than 0.05, suggesting no statistically significant relationship between geographical categorization and the list of items purchased (possibly organic food items).

Geographical categorization * Agreement levels

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.530[a]	4	0.821
Likelihood Ratio	1.539	4	0.82
N of Valid Cases	268		

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 4.96.

Interpretation

The p-value (0.821) is much greater than 0.05, indicating no statistically significant relationship between geographical categorization and agreement level. This suggests that people's agreement level (likely with organic food perceptions) does not vary significantly based on their geographical location.

Geographical categorization * Spending ranges

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.100[a]	4	0.717
Likelihood Ratio	2.159	4	0.706
N of Valid Cases	268		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.53.

Interpretation

The p-value (0.717) is also greater than 0.05, indicating no statistically significant relationship between geographical categorization and spending ranges. This implies that spending ranges on organic food are not significantly influenced by geographic location

5. Findings

- The type of organic food chosen (e.g., fruits, vegetables, dairy) does not significantly impact monthly spending levels. This suggests that purchasing decisions are not strongly category-dependent.
- No significant association was found between income levels and perceptions of organic food (e.g., agreement with quality and health benefits). However, small sample sizes in specific income groups suggest the need for further investigation.
- Regional demographics (urban, suburban, rural) do not significantly influence consumer preferences, perceptions, or spending capacity on organic food. This indicates that preferences and perceptions may be consistent across regions.

6. Recommendations And Suggestions

- The study used a relatively small sample size (268 participants), limiting the generalizability of the results. Larger sample sizes across diverse income levels and regions are recommended for future research.
- The study focused on a limited set of independent variables (e.g., health perception, income, region). Including additional factors like lifestyle choices, family size, or environmental awareness could provide deeper insights.
- Reliance on self-reported survey data may lead to response bias, where participants might exaggerate their preferences or perceptions.
- The study's cross-sectional design limits its ability to observe changes in consumer behaviour over time. Longitudinal studies could better capture evolving trends.
- Simplifying income levels and spending ranges into ordinal categories may have reduced the sensitivity of the analysis. Future studies should consider more granular or continuous data.

7. Conclusion

This study highlights that health benefits are the primary driver of organic food purchases, while barriers such as high costs, limited availability, and lack of awareness hinder broader adoption. Surprisingly, factors like income and geographic location showed no significant influence on consumer perceptions or spending patterns, indicating a universal appeal for organic food. Addressing these barriers through targeted strategies and enhancing consumer trust and awareness can significantly boost organic food consumption and promote sustainable food practices.

References

Akter, S., Ali, S., Fekete-Farkas, M., Fogarassy, C., and Lakner, Z. (2023). Why Organic Food? Factors influence the organic food purchase intension in an emerging country (study from northern part of Bangladesh). Resources, 12(1), 5.

Bhutto, M. Y., and R telion , A. (2024). Analyzing organic food purchase intentions: eco-literacy and innovation resistance. British Food Journal.

Cachero-Martínez, S. (2020). Consumer behaviour towards organic products: The moderating role of environmental concern. Journal of Risk and Financial Management, 13(12), 330.

Chaudhary, M., Pancholi, N., and Pralhad, N. S. (2023, December). Emotion Analysis of Consumer Experience of Spiritual Brands. In 2023 4th International Conference on Computation, Automation and Knowledge Management (ICCAKM) (pp. 01-06). IEEE.

Iqbal, J., Yu, D., Zubair, M., Rasheed, M. I., Khizar, H. M. U., and Imran, M. (2021). Health consciousness, food safety concern, and consumer purchase intentions toward organic food: The role of consumer involvement and ecological motives. Sage Open, 11(2), 21582440211015727.

Ismael, D., and Ploeger, A. (2020). Consumers' emotion attitudes towards organic and conventional food: a comparison study of emotional profiling and self-reported method. Foods, 9(1), 79.

Lyu F, Choi J. The Forecasting Sales Volume and Satisfaction of Organic Products through Text Mining on Web Customer Reviews. Sustainability. 2020; 12(11):4383. https://doi.org/10.3390/su12114383

Melovic, B., Cirovic, D., Dudic, B., Vulic, T. B., and Gregus, M. (2020). The analysis of marketing factors influencing consumers' preferences and acceptance of organic food products—Recommendations for the optimization of the offer in a developing market. Foods, 9(3), 259.

Nagaraj, S. (2021). Role of consumer health consciousness, food safety and attitude on organic food purchase in emerging market: A serial mediation model. Journal of Retailing and Consumer Services, 59, 102423.

Nosi, C., Zollo, L., Rialti, R., and Ciappei, C. Sustainable consumption in organic food buying behavior: the case of quinoa. (2020). British Food Journal, 122(3), 976-994.

Pindado, E., and Barrena, R. (2021). Using Twitter to explore consumers' sentiments and their social representations towards new food trends. British Food Journal, 123(3), 1060-1082.

Rajeswari, B., Madhavan, S., Venkatesakumar, R. and Riasudeen, S. (2020), "Sentiment analysis of consumer reviews – a comparison of organic and regular food products usage", Rajagiri Management Journal, Vol. 14 No. 2, pp. 155-167. https://doi.org/10.1108/RAMJ-05-2020-0022

Singh, A., and Gli ska-Newe , A. (2022). Modeling the public attitude towards organic foods: A big data and text mining approach. Journal of big Data, 9(1), 1-21.

Talwar, S., Jabeen, F., Tandon, A., Sakashita, M., and Dhir, A. (2021). What drives willingness to purchase and stated buying behavior toward organic food? A Stimulus–Organism–Behavior–Consequence (SOBC) perspective. Journal of Cleaner Production, 293, 125882.

Tandon, A., Dhir, A., Kaur, P., Kushwah, S., and Salo, J. (2020). Why do people buy organic food? The moderating role of environmental concerns and trust. Journal of Retailing and Consumer Services, 57, 102247.

Tandon, A., Jabeen, F., Talwar, S., Sakashita, M., and Dhir, A. (2021). Facilitators and inhibitors of organic food buying behavior. Food Quality and Preference, 88, 104077.

Tandon, A., Dhir, A., Kaur, P., Kushwah, S., and Salo, J. (2020). Behavioral reasoning perspectives on organic food purchase. Appetite, 154, 104786.

Tao, D., Yang, P., and Feng, H. (2020). Utilization of text mining as a big data analysis tool for food science and nutrition. Comprehensive reviews in food science and food safety, 19(2), 875-894.

Vatambeti, R., Mantena, S. V., Kiran, K. V. D., Manohar, M., and Manjunath, C. (2024). Twitter sentiment analysis on online food services based on elephant herd optimization with hybrid deep learning technique. Cluster Computing, 27(1), 655-671.

Watanabe, E. A. D. M., Alfinito, S., Curvelo, I. C. G., and Hamza, K. M. (2020). Perceived value, trust and purchase intention of organic food: a study with Brazilian consumers. British Food Journal, 122(4), 1070-1184.