

Nutritional Concerns: A Study of Millennials' Perception and Purchase Behaviour for Organic Food Products

Dr. Gunjan Gumber

Assistant Professor

J.C. Bose University of Science and Technology, YMCA, Faridabad
Haryana, India

Abstract

According to some studies, organic foods are believed to be more nutritious than conventionally grown foods, and organic farming practices have advantages such as reducing pesticide exposure and promoting environmental sustainability. However, there is no scientific proof that organic food is more nutritious than conventionally grown food. This study's objective is to determine how millennials perceive and purchase organic food products. The researchers collected primary data from 418 millennials in the National Capital Region through a structured questionnaire. The results show that millennials consider organic food to be nutritious and safe for consumption. They believe that organic food can help prevent diseases and is grown without chemical pesticides and fertilizers. Despite having positive perceptions, this study found that it did not have a significant impact on their buying behavior. The relationship between positive perceptions and buying frequency was found to be weak.

Keywords: Organic food, Nutrition, Safe, Millennials, Purchase behaviour, Perceptions

1. INTRODUCTION

The twentieth century witnessed a technological revolution in agricultural methods. Invention of machinery has put traditional labour out of the farm while the large variety of chemical fertilizers have increased yield without any concern for health and environmental measures. Although this technical method of agriculture is still dominant, but since the outbreak of COVID 19 pandemic, consumers of have shown great interest towards organic products (Mutlu, 2007).

Healthy lifestyle under lied by the slogan “*back to nature*” has become a nouveau for the global society. This movement is based on the fact that everything coming from nature is good and beneficial and ensures the existence of balance between human and nature (Chan, 2001). People have realized that the use of chemical pesticides and fertilizers in agricultural production may cause negative effects on the health of people and on the environment (Suprpto and Wijaya, 2012).

Today's educated society is showing great interest in their own and their children's health and prefer foods with more nutritional values and less additives, those that come from natural

production methods. Food safety and quality issues have triggered awareness among consumers and people are becoming suspicious of conventional products (Mutlu, 2007). Moreover, due to an increase in food-related diseases in the last two decades such as mad-cow disease and bird flu; and an increase in the use of genetically modified food (Essoussi and Zahaf, 2008), the issues of quality and safety in food have attracted the interest of consumers and affected their buying behaviour (Laroche et al., 2001).

Kuhar and Juvancic (2010) also stated that due to increased environmental concern and worry about the nutritional value of food and health issues, the food consumption pattern is rapidly changing. The demand for environment friendly products such as organic food has increased significantly (Loureiro et al., 2001, Nair, 2005; Briz and Ward, 2009).

Organic food eliminates a number of concerns that consumers hold towards conventional food. Organic food production integrates all aspects of pesticide and fertilizer free production process using specific standards and is subject to a rigorous certification system (Lampkin, 1999). Salleh et al. (2010) stated that today, organic consumption is closely associated not only with health concerns, but also with social, economic and ecological sustainability. Agricultural and food industry experts agree that the peak of the organic food products trend has not yet been reached but there is plenty of international growth potential in the organic food market (Ebrahimi, 2007).

According to the report, “Organic Food Market – Global Industry Size, Share, Trends, Analysis And Forecasts 2012 – 2018”, the global organic food market is expected to grow from US\$ 57.5 billion in 2010 to US\$ 104.7 billion in 2015 at an estimated CAGR (Compound Annual Growth Rate) of 12.9%. Economies like North America are expected to grow at a CAGR of 12% from 2010 to 2015 and Europe has the largest market share with revenue of \$28 billion. The Rest of the World (ROW), which includes Latin America, Australasia, and others, are expected to grow at the highest CAGR of 16.5 %.

According to the report, “India Organic Food Market Forecast and Opportunities, 2017”, the trend of organic food that was initiated in the developed regions such as Europe and North America is expanding to developing countries like India and China. The organic food market in Asia is likely to account for the highest growth rate over the next five years. The concept of organic food is gaining widespread acceptability and the market is growing rapidly in countries like India and China. Indian organic food market is anticipated to grow at a significant CAGR of around 19% during 2012-2017.

According to Kumar and Ali (2011), India has experienced phenomenal growth in production of organic foods in the recent decade, and it primarily focuses on the export market. Organic agricultural export market is one of the major drivers of organic agriculture in India. The country is best known as an exporter of organic tea, organic fruits, organic spices and organic rice. Over the past several years, the organic food industry in India has been experiencing an annual growth between 20-22 % (Indian Organic Foods Market, 2012).

2. LITERATURE REVIEW

The existing literature suggests that the demand for organic food is associated with the rising demand for high vitamins, minerals, and non-genetically modified organisms, free of chemical pesticides, fertilizers, and natural ingredients (Oroian, 2017). Studies by Hughner et al. (2007), Gracia & Magistris (2008) and Azzurra & Paola (2009) in Italy, Ahmad & Juhdi (2010) in Malaysia, Salleh et al. (2010) in Malaysia, Kuhar & Juvancic (2010) in Slovenia, Chakrabarti, (2010), Kumar & Ali (2011), and Paul & Rana (2012) in India, Shamsollahi et al. (2013) in Malaysia, and Thogerson et al. (2015) in China and Brazil found that health and nutritional concern has most substantial relationship with intention to buy organic food. Organic food products are considered safer and healthier than conventional food. Voon et al. (2011) stated that consumers' worry and concern for health drops after consuming organic food. However, a study by Tsakiridou et al. (2008) found that organic food buyers are slightly more conscious about their health. Tarkiainen & Sundqvist (2005) found that health concerns did not have a significant relationship with attitude towards buying organic food in the case of organic bread and flour.

There have been several studies that suggest that organic foods are more nutritious than conventionally grown foods. One such study by Baranski et al. (2014) analyzed 343 peer-reviewed publications and found that organic crops contained significantly higher concentrations of certain nutrients such as vitamin C, iron, and zinc than conventionally grown crops. Another study by Brandt et al. (2011) concluded that crops grown using organic fertilizers had higher concentrations of certain minerals such as calcium, magnesium, and iron than those grown using conventional fertilizers.

Additionally, a review of 67 studies by Smith-Spangler et al. (2012) found that organic foods had a lower incidence of pesticide residues and higher levels of beneficial compounds such as polyphenols and omega-3 fatty acids. While the evidence is inconclusive, several studies suggest that organic foods may be more nutritious than conventionally grown foods.

Similarly, a study published in the Journal of Agricultural and Food Chemistry in 2011 found no significant differences in the nutrient content of organic and conventional strawberries.

Furthermore, a report from the UK Food Standards Agency published in 2009 found no substantial evidence to support the claim that organic food is more nutritious than non-organic food. While organic farming practices may have other benefits, such as reducing pesticide exposure and promoting environmental sustainability, scientific evidence does not support the claim that organic food is more nutritious than conventionally grown food

3. OBJECTIVES

- To determine millennials' perceptions about organic food concerning nutritional values and safe consumption.
- To find out the difference in perception of millennials based on gender.
- To examine the relationship between millennials' perceptions and their organic food purchase behavior.

To achieve the above objectives, we designed the following hypotheses:

H1₀: Millennials do not perceive organic food as nutritious.

H2₀: Millennials do not perceive organic food as safe for consumption.

H3₀: There is no significant difference in millennials' perception based on gender.

H4₀: There is no significant relationship between millennials' perception of organic food and purchase behavior.

4. METHODOLOGY

First, existing literature related to organic food was studied to achieve the objectives. A structured questionnaire was developed, including questions on demographic variables like age and gender and some statements on a five-point scale to examine millennials' perceptions about organic food and their purchase behavior.

In the second step, organic food consumers were contacted weekly at organic farmers' markets and stores selling organic food in NCR (Delhi, Gurgaon, Faridabad, and Noida). Information was collected from 450 respondents, of which 418 questionnaires were validated and used for analysis. In the third step, data analysis was done through statistical techniques like frequency, mean, independent T-test, cross-tabulation, and correlation with the help of SPSS.

5. ANALYSIS AND RESULTS

5.1 Millennials perception of organic food as nutritious

To find out millennials' perception of organic food as nutritious, respondents were asked to rate their agreement with the statement that organic food is nutritious and helps to resist diseases. It was found that (refer to Table 1) 31.1 percent of respondents strongly agreed, 41.1 percent agreed, 19.4 percent were neutral, 7.4 percent disagreed, and 1 percent strongly disagreed with the statement. The mean score of the statement is 3.94, and the standard deviation is 0.941 (refer to Table 3).

Table 1: Organic food as Nutritious and help to resist diseases

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	4	1.0	1.0	1.0
Disagree	31	7.4	7.4	8.4
Valid Neutral	81	19.4	19.4	27.8
Agree	172	41.1	41.1	68.9
Strongly Agree	130	31.1	31.1	100.0
Total	418	100.0	100.0	

Source: Based on primary data

Hence, by considering the results, it can be concluded that more than 70 percent of millennials perceive organic food to be nutritious and helps to resist diseases.

5.2 Millennials perception of organic food as safe

To find out millennials' perception of organic food as safe, respondents were asked to rate their level of agreement with the statement that organic food is safe, as regular food may affect health because of the residue of chemical pesticides and fertilizers. It was found that (refer to Table 2) 45.7 percent of respondents strongly agreed, 45.9 percent agreed, 6.5 percent were neutral, 1.9 percent disagreed, and 0 percent strongly disagreed with the statement. The mean score of the statement is 4.3541, and the standard deviation is 0.688 (refer to Table 3).

Table 2: Organic food as Safe

	Frequency	Percent	Valid Percent	Cumulative Percent
Disagree	8	1.9	1.9	1.9
Neutral	27	6.5	6.5	8.4
Valid Agree	192	45.9	45.9	54.3
Strongly Agree	191	45.7	45.7	100.0
Total	418	100.0	100.0	

Source: Based on primary data

Table 3: Descriptive Statistics

	N	Minimu m	Maximu m	Mean	Std. Deviation
Nutritious	418	1.00	5.00	3.9402	.94133
Safe	418	2.00	5.00	4.3541	.68837
Valid N (listwise)	418				

Source: Based on primary data

Hence, by considering the results, it can be concluded that more than 90 percent of millennials perceive organic food to be safe, as regular conventional food may affect their health because of leftover remains of chemical pesticides and fertilizers.

5.3 Millennials perception of organic food based on gender

To find out the difference in perception of millennials based on gender, independent t-test was applied. Millennials perception for organic food as nutritious and organic food as safe was studied.

5.3.1 Organic food is nutritious and helps to resist diseases

It was found that the mean score of males with the statement organic food is nutritious and helps to resist diseases is 3.8465. In contrast, females' mean score is 4.0392 (refer Table 4), and the p-value 0.035 (refer Table 5) is less than 0.05, so we can conclude that there is a difference in millennials perceptions of organic food as nutritious. Females more strongly perceive organic food to be nutritious.

5.3.2 Organic food is safe, as regular conventional food may affect health

It was found that the mean score of males with the statement organic food is safe, as regular conventional food may affect health because of the residue of chemical pesticides and fertilizers, is 4.4140. In contrast, females' mean score is 4.2906 (refer Table 4), and the p-value 0.067 (refer Table 5) is more than 0.05, so we can conclude that there is no significant difference in millennials' perceptions of organic food as safe. Both males and females perceive organic food as safe because it does not contain residual chemical fertilizers and pesticides used in conventional farming.

Table 4: Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Nutritious	Male	215	3.8465	.95197	.06492
	Female	203	4.0394	.92191	.06471
Safe	Male	215	4.4140	.64184	.04377
	Female	203	4.2906	.73070	.05129

Source: Based on primary data

Table 5: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Nutritious	Equal variances assumed	2.948	.087	2.103	416	.036	-.19290	.09175	-.37324	-.01255
	Equal variances not assumed			2.104	415.730	.036	-.19290	.09166	-.37308	-.01272
Safe	Equal variances assumed	.681	.410	1.836	416	.067	.12331	.06718	-.00873	.25536
	Equal variances not assumed			1.829	402.090	.068	.12331	.06743	-.00924	.25586

Source: Based on primary data

5.4 Relationship between millennials' perception of organic food and their purchase behaviour.

To study the relationship between millennials' perception and their purchase behaviour, cross-tabulation and correlation tests were applied. Millennials perception for organic food as nutritious and organic food as safe was studied.

5.4.1 Relationship between millennials' perception of organic food as nutritious and their purchase behaviour.

Table 6 presents the cross-tabulation result of millennials' perception of organic food as nutritious and their purchase behaviour. It is found that more number of respondents are buying more of conventional food and less of organic food. But, respondents who strongly perceive organic food as nutritious, buy organic food more and conventional food less. Table

7 presents correlation coefficient, that is 0.204, which suggests a weak relationship between consumers' perception of organic food as nutritious and their purchase behaviour.

Table 6: Nutritious * Purchase Behaviour Crosstabulation

Count		Purchase Behaviour					Total
		Always Conventional Food	Conventional Food More; Organic Less	Indifferent to both	Organic Food More, Conventional Less	Always Organic Food	
Nutritious	Strongly Disagree	1	2	0	1	0	4
	Disagree	7	14	1	6	3	31
	Neutral	15	47	2	15	2	81
	Agree	27	79	10	47	9	172
	Strongly Agree	9	52	5	52	12	130
Total		59	194	18	121	26	418

Table 7: Correlations

		Nutritious	Purchase Behaviour
Nutritious	Pearson Correlation	1	.204**
	Sig. (2-tailed)		.000
	N	418	418
Purchase Behaviour	Pearson Correlation	.204**	1
	Sig. (2-tailed)	.000	
	N	418	418

** . Correlation is significant at the 0.01 level (2-tailed).

5.4.2 Relationship between millennials' perception of organic food as safe and their purchase behaviour.

Table 8 presents the cross-tabulation result of millennials' perception of organic food as safe and their purchase behaviour. It is found that more number of respondents are buying more of conventional food and less of organic food. But, respondents who strongly perceive organic food as safe, buy organic food more and conventional food less compared to their counterparts. Table 9 presents the correlation coefficient, that is 0.102, which suggests a negligible relationship between consumers' perception of organic food as safe and their purchase behaviour.

Table 8: Safe * Purchase Behaviour Crosstabulation

Count	Purchase Behaviour					Total
	Always Conventional Food	Conventional Food More; Organic Less	Indifferent to both	Organic Food More, Conventional Less	Always Organic Food	
Disagree	2	4	2	0	0	8
Neutral	3	13	1	8	2	27
Safe Agree	30	96	9	45	12	192
Strongly Agree	24	81	6	68	12	191
Total	59	194	18	121	26	418

		Safe	Purchase Behaviour
Safe	Pearson Correlation	1	.102*
	Sig. (2-tailed)		.038
	N	418	418
Purchase Behaviour	Pearson Correlation	.102*	1
	Sig. (2-tailed)	.038	
	N	418	418

*. Correlation is significant at the 0.05 level (2-tailed).

Table 9: Correlations

6. CONCLUSION

From the above findings, we can conclude that more than 70 percent of millennials perceive organic food to be nutritious and help prevent diseases. More females perceive organic food to be nutritious than males. More than 90 percent of millennials perceive organic food to be safe. Both males and females perceive organic food as safe because it does not contain residual chemical fertilizers and pesticides used in conventional farming. Regarding purchase behavior, more respondents are buying more conventional food and less organic food. There is a weak relationship between consumers' perception of organic food and their purchase behaviour.

7. MANAGERIAL IMPLICATIONS

Post covid - 19, consumers are more concerned about their and their families' health. They look for healthier alternatives that can help in preventing diseases. In this study, it is found that millennials perceive organic food to be nutritious and safe for consumption as it helps prevent diseases and is grown without the use of chemical pesticides and fertilizers. It is essential to understand that despite having positive perceptions, it is not reflected in their buying behavior. There can be a number of factors, like limited availability and accessibility to organic food products, premium prices, and credibility factors. It is pertinent for organic food producers, sellers, and policymakers to address the hurdles or barriers to purchasing organic food.

REFERENCES

- Ahmad, S. N. B., & Juhdi, N. (2010). Organic Food: A Study on Demographic Characteristics and Factors Influencing Purchase Intentions among Consumers in Klang Valley, Malaysia, *International Journal of Business & Management*, 5(2), 105-118.
- Azzurra, A., & Paola, P. (2009). *Consumers' behaviours and attitudes toward healthy food products: The case of organic and functional foods*. Paper prepared for presentation at the 113th EAAE Seminar: A Resilient European Food Industry and Food Chain in A Challenging World, Chania, Greece.

- Baranski, M., Srednicka-Tober, D., Volakakis, N., Seal, X., Sanderson, R., Stewart, G. B., et al. (2014). Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: a systematic literature review and meta-analyses. *Br. J. Nutr.*, *112*, 794-811.
- Brandt, K., Leifert, C., Sanderson, R., & Seal, C. J. (2011). Agroecosystem management and nutritional quality of plant foods: the case of organic fruits and vegetables. *CRC. Crit. Rev. Plant Sci.*, *30*, 177-197.
- Briz, T. & Ward, R. W. (2009). Consumer awareness of organic products in Spain: an application of multinomial logit models, *Food Policy*, *34*(3), 295–304.
- Chakrabarti, S. (2010). Factors influencing organic food purchase in India – expert survey insights. *British Food Journal*, *112*(8), 902-915.
- Chan, R. Y. K. (2001). Determinants of Chinese consumers green purchase behavior. *Psychology & Marketing*, *8*, 389-413.
- Ebrahimi, M. (2007). *Global appetite for organic drives organic market*. Retrieved from [http://persianoad.wordpress.com/2007/11/30/globalappetite-for-organic-drives-organic-mark et/](http://persianoad.wordpress.com/2007/11/30/globalappetite-for-organic-drives-organic-mark-et/)
- Essoussi. L. H., & Zahaf. M. (2008). Decision making process of community organic food consumers: an exploratory study. *Journal of Consumer Marketing*, *25*(2), 95-104.
- Gracia, A., & Magistris, T. D. (2008). The demand for organic foods in the South of Italy: A discrete choice model. *Food Policy*, *33*, 386–396.
- Hughner, R. S., McDonagh, P., Andrea, P., Shultz, C. J., & Stanton, J. (2007). Who are organic food consumers? A compilation and review of why people purchase organic food. *Journal of Consumer Behaviour*, *6*(2-3), 1-17.
- Kuhar, A., & Juvancic, L. (2010). Determinants of purchasing behaviour for organic and integrated fruits and vegetables in Slovenia. *Agricultural Economics Review*, *11*(2), 70-83.
- Kumar, S., & Ali, J. (2011). *Analyzing the Factors Affecting Consumer Awareness on Organic Foods in India*. Paper prepared for presentation in 21st Annual IFAMA World Forum and Symposium on the Road to 2050: Sustainability as a Business Opportunity, Frankfurt, Germany.
- Lampkin, N. (1999). *From niche to mainstream for EU organic farming*. In Euro-Organics '99 Agra Europe Conference Proceedings, London.
- Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, *18*, 503–520.
- Loureiro, M. L., McCluskey, J. J., & Mittelhammer, R. C. (2001). Assessing consumer preferences for organic, eco-labeled, and regular apples. *Journal of Agricultural and Resource Economics*, *26*(2), 404-416.
- Mutlu, N. (2007). *Consumer Attitude and Behavior towards Organic Food: Cross-Cultural study of Turkey and Germany (Master Thesis)*. Universitat Hohenheim, Institute for Agricultural Policy and Markets.

- Nair, G. K. (2005). *Organic food growth up on consumer awareness*. The Hindu. Retrieved from <http://www.thehindubusinessline.com/2005/11/12/stories/2005111201751200.htm>
- Oroian, C. F., Safirescu, C. O., Harun, R., Chiciudean, G. O., Arion, F. H., Muresan, I. C., & Bordeanu, B. M. (2017). Consumers' Attitudes towards Organic Products and Sustainable Development: A Case Study of Romania. *Sustainability*, 9(1559), 1-14.
- Paul, J., & Rana, J. (2012). Consumer behavior and purchase intention for organic food. *Journal of Consumer Marketing*, 29(6), 412-422.
- ResearchAndMarkets.com. (2021). Organic Food Market - Growth, Trends, COVID-19 Impact, and Forecasts (2021 - 2026). Retrieved from <https://www.researchandmarkets.com/reports/5232232/organic-food-market-growth-trends-covid-19>
- Salleh, M. M., Ali, S. M., Harun, E. H., Jalil, M. A., & Shaharudin, M. R. (2010). Consumer's Perception and Purchase Intentions towards Organic Food Products: Exploring Attitude among Academician. *Canadian Social Science*, 6(6), 119-129.
- Shamsollahi. A., Chong C. W., & Nahid. N. (2013). Factors Influencing on Purchasing Behaviour of Organic Foods. *Human and Social Science Research*, 1(2), 93-104.
- Smith-Spangler, C., Brandeau, M. L., Hunter, G. E., Bavinger, J. C., Pearson, M., Eschback, P. J., et al. (2012). Are organic foods safer or healthier than conventional alternatives? A systematic review. *Ann. Intern. Med*, 157, 348-366.
- Suprpto, B., & Wijaya, T. (2012). Model of Consumer's Buying Intention towards Organic Food: A Study among Mothers in Indonesian. In *2012 International Conference on Economics, Business and Marketing Management*, 173-180. Singapore: IACSIT Press.
- Tarkiainen, A. & Sundqvist, S. (2005). Subjective Norms, Attitudes and Intentions of Finnish Consumers in buying organic food. *British Food Journal*, 107(11), 808-822.
- Techsci (2013). *India Organic Food Market Forecast and Opportunities 2017*. Retrieved from <https://www.techsciresearch.com/report/india-organic-food-market-forecast-and-opportunities-2017/325.html>
- Thøgersen, J., Barcellos, M. D., Perin, M. G., & Zhou, Y. (2015). Consumer buying motives and attitudes towards organic food in two emerging markets China and Brazil. *International Marketing Review*, 32(3/4), 389-413.
- Tsakiridou, E., Boutsouki, C., Mattas, Y. Z. K. (2008). Attitudes and behaviour towards organic products: An Exploratory Study. *International Journal of Retail & Distribution Management*, 36(2), 158-175.
- Voon, J. P., Ngui, K. S., & Agrawal, A. (2011). Determinants of Willingness to Purchase Organic Food: An Exploratory Study Using Structural Equation Modeling. *International Food and Agribusiness Management Review*, 14(2), 103-120.