A Multivariate Analysis of demographic influence on Consumer Behaviour towards Organic and Conventional products using MANOVA and Hotelling's T² Test

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ABSTRACT

The rising demand for organic products, fuelled by increasing health and environmental awareness, highlights the need to understand consumer behaviour in emerging markets. This study examines consumption patterns of organic versus conventional products in Himachal Pradesh, India, using MANOVA and Hotelling's T-squared test to assess the impact of demographics such as district, gender, age, education, occupation, family type and income. Significant differences were found across most variables, with higher organic consumption among females, middle-aged individuals, the well-educated and higher-income groups, while marital status, family size, accommodation type and diet category showed no notable effect. High consumer satisfaction with organic products indicates strong market potential and supports the development of targeted, demographically informed marketing and policy initiatives.

Keywords: Organic product, Consumer behaviour, Demographic impact and Organic vs Conventional consumption

INTRODUCTION

The global surge in demand for organic products, propelled by heightened health consciousness and sustainability concerns, has positioned organic farming as a pivotal component in achieving the Sustainable Development Goals (SDGs) of the 2030 Agenda. In India, this movement resonates deeply with traditional agricultural practices that emphasize ecological balance. The COVID-19 pandemic further amplified this trend, as consumers became more vigilant about their dietary choices, leading to a notable increase in the consumption of organic foods. This shift has not only expanded domestic markets but also bolstered exports, offering substantial economic opportunities, particularly for small-scale farmers who benefit from higher profit margins in organic agriculture. Recognizing these advantages, the Indian government has implemented initiatives like the National Programme for Organic Production (NPOP) to standardize and certify organic products. Himachal Pradesh, with its agriculture-centric economy, is actively embracing this transformation by developing 200 bio-villages and bringing an additional 2,000 hectares under organic cultivation. These efforts aim to preserve soil health, ensure food security and promote sustainable livelihoods. Given this context, there is a pressing need for comprehensive research to assess consumer awareness and market potential for organic products in regions like Himachal Pradesh, facilitating informed strategies to advance organic farming and enhance public health.

India promotes millets nutritious, drought-resistant crops as part of sustainable agriculture. The UN declared 2023 the International Year of Millets, boosting global awareness. Indian consumers are increasingly choosing organic products for health and environmental reasons. The organic food market reached $1,278 million in 2022 and is expected to grow to $4,602 million by 2028 (CAGR: 23.8%). Organic farming has long existed in Himachal due to traditional practices. Recent efforts through the 'Prakritik Kheti Khushhal Kisan Yojana' and support from agencies like CSK HPKV have expanded organic areas. The state plans to develop 200 bio villages and convert 2,000 hectares to organic farming. Figure displays the Organic products of Himachal Pradesh.

Figure 1: Organic Products of Himachal Pradesh
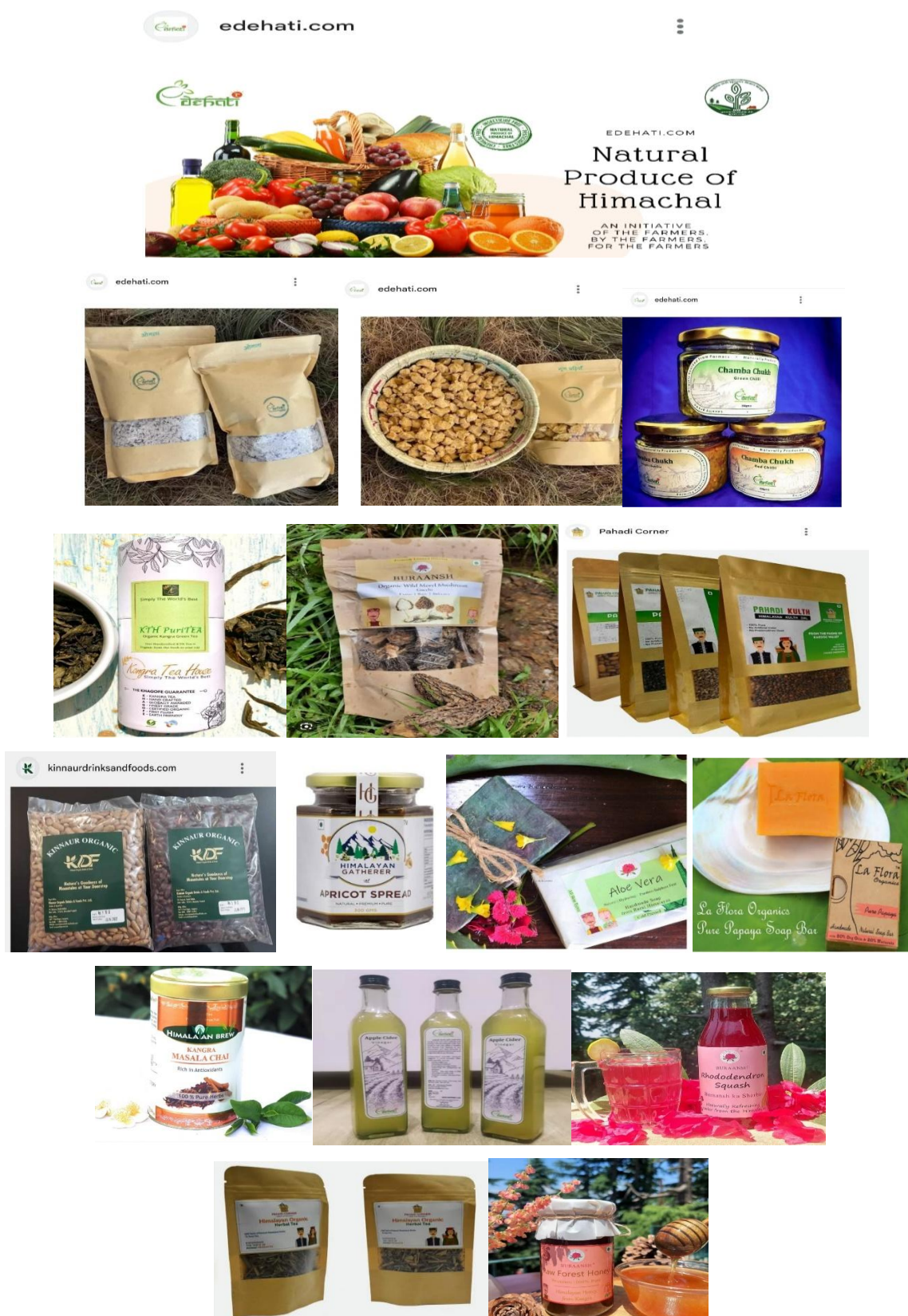
Author's compilation

REVIEW OF LITERATURE

A Systematic review mythology has been conducted to analyse various literature depicting the effect of demographic variables on consumer's Organic and Conventional product consumption. Articles were extracted from scholarly databases of Scopus, Web of Science and Google Scholar between year 2020 and 2024, have been accessed for inclusion and exclusion criterion fulfilment. Figure 1illustrates PRISMA flow diagram of selected studies.

Figure 1: PRISMA flow diagram of study selection
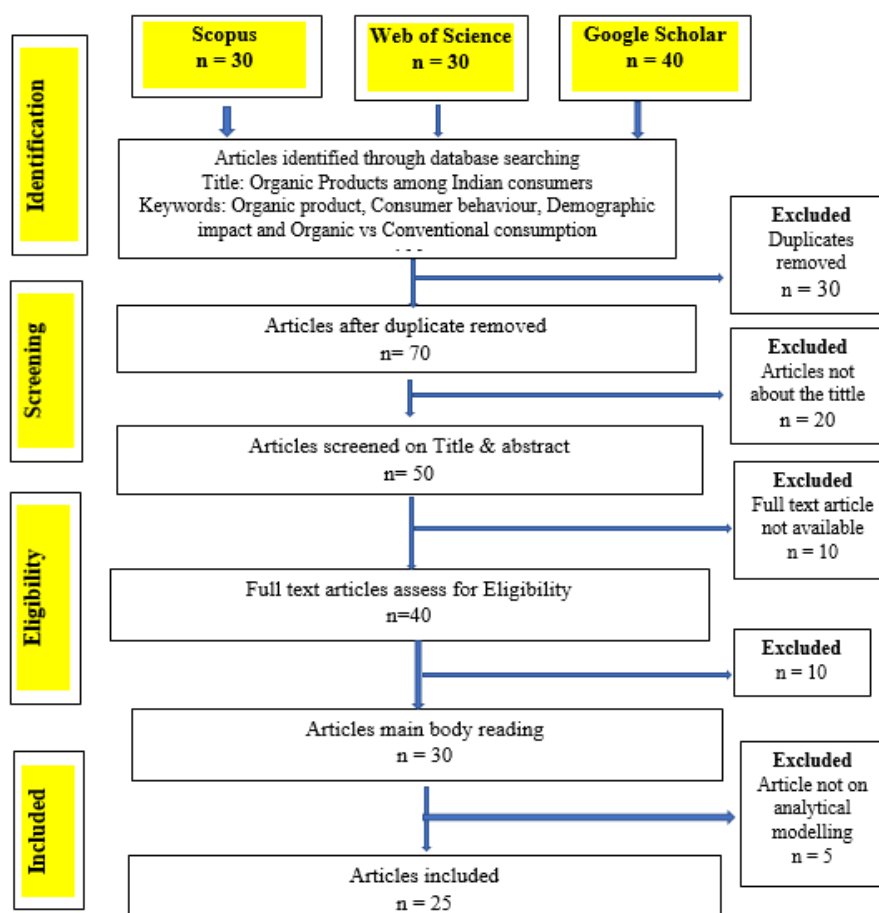
Recent literature underscores a significant shift in consumer behaviour, with a growing preference for organic products driven by health consciousness and environmental concerns. While studies have predominantly focused on metropolitan areas, there's a notable research gap in understanding consumer behaviour towards organic products in regions like Himachal Pradesh. This state has witnessed initiatives promoting organic farming, yet comprehensive studies examining consumer awareness, preferences and the challenges faced by stakeholders in the organic market remain scarce. Addressing this gap is crucial for developing strategies that enhance the adoption and accessibility of organic products in such regions.

RESEARCH METHODOLOGY

Present study titled "A Multivariate study of Consumer behaviour towards Organic and Conventional products based on demographic variables" adopted a Mixed-method approach combining exploratory and descriptive research designs. The exploratory component investigates consumer awareness and the emerging market potential for organic products in Himachal Pradesh, while the descriptive aspect examines the impact of demographic variables such as age, gender, income, education and occupation on consumption patterns of organic and conventional products. Primary data were collected through structured

questionnaires (designed in both English and Hindi language), telephonic interviews, personal visits and Google Forms. Target population of the present study were Urban area Consumers who were systematically sampled. Sampling frame was developed from the list sourced from the Subhash Palekar Jaivik Kheti Portal, Registrar of Companies and the Department of Labour & Employment, Government of Himachal Pradesh. Secondary data were obtained from academic and institutional repositories such as Scopus, Web of Science, Google Scholar, FiBL, IFOAM, APEDA, NPOP, CGIAR, the Ministry of Agriculture & Farmers Welfare, State Agriculture and Certification Agencies and SDG Reports under the 2030 Agenda. For data analysis, One-way Multivariate Analysis of Variance (MANOVA) and Hotelling's T-squared test were employed to assess whether multiple dependent variables, such as organic and conventional product consumption, differ significantly across demographic groups of Himachal Pradesh. The key assumptions of MANOVA are random and independent sampling, interval-level dependent variables, multivariate normal distribution within groups and homogeneity of variances which were validated to ensure accurate analysis.

Objective of the study

To examine the effect of demographic variables on consumer's organic and conventional product consumption.

DATA ANALYSIS

Presents study consists of demographic profile of consumers of Himachal Pradesh which comprised of District, Gender, Age group, Educational Qualification, Occupation, Marital Status, Family type, Family size, Type of Accommodation, Monthly Income and Category of Food Consumption. To test and analyze the framed hypothesis on evaluating the effect of demographic variables on consumer's Organic and Conventional product consumption Multivariate analysis and Hotelling's T-squared test is employed in the study. Table 1 illustrates Statistical analysis methods: One Way MANOVA Analysis and Hotelling's T squared Test

Table1: Statistical analysis methods: One Way MANOVA Analysis and Hotelling's T squared Test

Hypothesis	Demographic Variable	Analysis technique
H01.1: There is no significant difference between consumption of Organic and Conventional products across Districts.	**District**	One way- MANOVA test
	Shimla	
	Solan	
	Kangra	
	Una	
	Mandi	
	Hamirpur	
H01.2: There is no significant difference between consumption of Organic and Conventional products based on Gender	**Gender**	Hotelling's T-squared test
	Male	
	Female	
H01.3: There is no significant difference between consumption of Organic and Conventional products across Age.	**Age**	One way- MANOVA test
	Below 20 years	
	21-30 years	
	31 to 40 years	
	41-50 years	
	51-60 years	
	Above 61 years	
H01.4: There is no significant difference between consumption of Organic and Conventional products based on Educational Qualification.	**Educational Qualification**	One way- MANOVA test
	SSC 10th or below	
	HSC 12th	
	Graduate	
	Post Graduate and above	
	Professional Degree	
	Illiterate	
H01.5: There is no significant difference between consumption of Organic and Conventional products based on Occupation.	**Occupation**	One way- MANOVA test Post hoc test
	Government Employee	
	Private Employee	
	Businessman	
	Housewife	
	Student	
	Retired Employee	
H01.6: There is no significant difference	**Marital Status**	
	Married	

between consumption of Organic and Conventional products across Marital Status.	Unmarried	One way- MANOVA test Post hoc test
	Divorcee	
	Widow	
	Separated	
H01.7: There is no significant difference between consumption of Organic and Conventional products based on Family Type.	**Family Type**	Hotelling's T-squared test
	Joint family	
	Nuclear family	
H01.8: There is no significant difference between consumption of Organic and Conventional products across Family Size.	**Family Size**	One way- MANOVA test Post hoc test
	1- 4 Members	
	5-7 Members	
	Above 7 Members	
H01.9: There is no significant difference between consumption of Organic and Conventional products based on Type of Accommodation.	**Type of Accommodation you live in**	One way- MANOVA test Post hoc test
	Own Accommodation	
	Paying Guest (PG)	
	Rented Room/Flat	
	Hostel	
	Guest House	
	Relative's Accommodation	
H01.10: There is no significant difference between consumption of Organic and Conventional products across Monthly Income.	**Monthly Income (In Rs.)**	One way- MANOVA test Post hoc test
	Below Rs.20,000	
	Rs.20,001-40,000	
	Rs.40,001-60,000	
	Rs.60,001-80,000	
	Rs. 80,001-1,00,000	
	Above 1,00,000	
H01.11: There is no significant difference between consumption of Organic and Conventional products based on Category of food.	**Category of food you consume**	One way- MANOVA test Post hoc test
	Vegetarian	
	Non-vegetarian	
	Both	

Source: Author's compilation from primary data

H01.1: There is no significant difference between consumption of Organic and Conventional products across Districts.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products across Districts**.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) across Districts

Effect		F	*Sig. p-value	Partial Eta squared
District	Wilks' Lambda	16.791	.000	.331
Result: Significant difference (Null Rejected)				

*Level of Significance= 5%

The MANOVA results showed a statistically significant difference in the combined consumption of Organic and Conventional products across Districts at the 5% significance level (Wilks' Lambda = 0.685, F $(2,379)$ = 16.797, p = 0.000 < 0.05), with a large effect size (Partial Eta squared = 0.331). This provided strong evidence to reject the null hypothesis, indicating that product consumption patterns significantly varied by District in Himachal Pradesh. As a result, follow-up univariate ANOVA tests were conducted, with two sub-null hypotheses formulated and evaluated to assess the individual effects on Organic and Conventional product consumption.

H01.1 (a):   There is no significant difference between consumption of Organic products across Districts.

H01.1 (b): There is no significant difference between consumption of Conventional products across Districts.

Univariate ANOVAs of Difference between individual Organic and Conventional products consumption across Districts

Independent variable Source	Dependent variable	F	*Sig. p-value	Partial Eta squared
District	Organic products consumption	18.11	.000	.381
	Conventional Product consumption	13.21	.000	.304

*Level of Significance= 5%

Using the Bonferroni method with an alpha level of 0.025, both Organic (F = 18.11, p = 0.000 < 0.025, Partial Eta squared = 0.381) and Conventional product consumption (F = 13.21, p = 0.000 < 0.025, Partial Eta squared = 0.304) showed statistically significant differences across Districts, with large effect sizes. This indicates that consumption of both product types varied significantly by District in Himachal Pradesh. Follow-up Tukey's HSD post hoc tests at the 5% significance level revealed that Organic product consumption in Shimla differed significantly from Una (p = 0.027), Mandi (p = 0.041) and Hamirpur (p = 0.017), while Conventional product consumption in Shimla differed from Una (p = 0.047) and Solan differed from Hamirpur (p = 0.033).

H01.2: There is no significant difference between consumption of Organic and Conventional products based on Gender.

Effect		F	*Sig. p-value	Partial Eta squared
Gender	Hotelling's Trace	23.175	.033	.18
Result: Significant difference (Null Rejected)				

*Level of Significance= 5%

The results of Hotelling's T² test showed that at the 5% significance level, there was a statistically significant difference between Gender on the combined dependent variables of Organic and Conventional product consumption (Hotelling's Trace = 0.271, F(2,383) = 23.175, p = 0.033 < 0.05), with a large effect size (Partial Eta squared = 0.18). This provided sufficient evidence to reject the null hypothesis, indicating that consumption patterns differ significantly by Gender. Following this, univariate ANOVA tests were conducted to examine differences in each product type separately, with two sub-null hypotheses formulated to meet ANOVA assumptions.

H01.2 (a):   There is no significant difference between consumption of Organic products based on Gender.

H01.2 (b):   There is no significant difference between consumption of Conventional products based on Gender.

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Univariate ANOVAs of Difference between individual Organic and Conventional products consumption

Independent variable Source	Dependent variable	F	*Sig. p-value	Partial Eta squared
Gender	Organic products consumption	24.01	.000	.21
	Conventional Product consumption	19.23	.021	.16

*Level of Significance= 5%

Using the Bonferroni method with an alpha level of 0.025, both hypotheses showed statistically significant differences, leading to the rejection of H01.2 (a) for Organic product consumption (F = 24.01, p = 0.000 < 0.025, Partial Eta squared = 0.21) and H01.2 (b) for Conventional product consumption (F = 13.21, p = 0.021 < 0.025, Partial Eta squared = 0.01). Both results indicate a large effect size, concluding that consumption of Organic and Conventional products significantly differed between males and females in Himachal Pradesh.

H01.3: There is no significant difference between consumption of Organic and Conventional products across Age.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products across Age**.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) across Age

Effect		F	*Sig. p-value	Partial Eta squared
Age	Wilks' Lambda	21.670	.027	.19
Result: Significant difference (Null Rejected)				

*Level of Significance= 5%

The MANOVA results indicated that at the 5% significance level, there was a statistically significant difference between Age groups on the combined dependent variables of Organic and Conventional product consumption (Wilks' Lambda = 0.745, F(2,383) = 21.670, p = 0.027 < 0.05), with a large effect size (Partial Eta squared = 0.19). This provided sufficient evidence to reject the null hypothesis, concluding that consumption of these products varies significantly across Age groups. Consequently, follow-up univariate ANOVA tests were conducted to examine differences for each dependent variable separately, with two sub-null hypotheses formulated and evaluated to meet ANOVA assumptions.

H01.3 (a): **There is no significant difference between consumption of Organic products across Age.**

H01.3 (b): **There is no significant difference between consumption of Conventional products across Age.**

Univariate ANOVAs of Difference between individual Organic and Conventional products consumption across Age

Independent variable Source	Dependent variable	F	*Sig. p-value	Partial Eta squared
Age	Organic products consumption	31.21	.000	.224
	Conventional Product consumption	17.62	.211	--

*Level of Significance= 5%

Using the Bonferroni method with an alpha level of 0.025, a statistically significant difference was found only for Organic product consumption (F = 31.21, p = 0.000 < 0.025, Partial Eta squared = 0.224), while no significant difference was observed for Conventional product consumption (F = 17.62, p = 0.211 > 0.025). This indicates that Organic product consumption varied across age groups in Himachal Pradesh, whereas Conventional product consumption did not. Following this, Tukey's HSD post hoc test at the 5% significance level revealed that individuals below 20 years consume significantly fewer organic products compared to the 41–50, 51–60 and above 61 age groups (p = 0.027 for each comparison).

H01.4: There is no significant difference between consumption of Organic and Conventional products based on Educational Qualification.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products across Educational Qualification**

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) based on Educational Qualification

Effect		F	*Sig. p-value	Partial Eta squared
Educational Qualification	Wilks' Lambda	16.791	.000	.331
Result: Significant difference (Null Rejected)				

*Level of Significance= 5%

The MANOVA results showed that at the 5% significance level, there was a statistically significant difference between Districts on the combined dependent variables of Organic and Conventional product consumption (Wilks' Lambda = 0.685, F(2,381) = 16.797, p = 0.000 < 0.05), with a large effect size (Partial Eta squared = 0.331). This provided enough evidence to reject the null hypothesis, indicating that consumption of these products differed significantly across Districts. Consequently, follow-up univariate ANOVA tests were conducted to examine differences for each dependent variable separately, with two sub-null hypotheses formulated and evaluated to meet ANOVA assumptions.

H01.4 (a):   There is no significant difference between consumption of Organic products across Educational Qualification.

H01.4 (b):   There is no significant difference between consumption of Conventional products across Educational Qualification.

Table 4.4.22: Univariate ANOVAs of Difference between individual Organic and Conventional products consumption across Educational Qualification

Independent variable Source	Dependent variable	F	*Sig. p-value	Partial Eta squared
Educational Qualification	Organic products consumption	18.11	.000	.381
	Conventional Product consumption	13.21	.000	.304

*Level of Significance= 5%

Using the Bonferroni method with an alpha level of 0.025, both Organic (F = 18.11, p = 0.000 < 0.025, Partial Eta squared = 0.381) and Conventional product consumption (F = 13.21, p = 0.000 < 0.025, Partial Eta squared = 0.304) showed statistically significant differences across Districts, with large effect sizes. This indicates that consumption of both product types varied significantly by District in Himachal Pradesh. Additionally, Tukey's HSD test at the 5% significance level revealed that consumers with an HSC qualification differed significantly in organic product consumption from Graduates (p = 0.035) and Postgraduates (p = 0.019), while for conventional products, HSC-qualified consumers differed significantly from those with a Professional degree (p = 0.041).

H01.5: **There is no significant difference between consumption of Organic and Conventional products based on Occupation.**

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products based on Occupation**.

Multivariate analysis of Difference between Organic and Conventional product consumption (combined) based on Occupation

Effect		F	*Sig. p-value	Partial Eta squared
Occupation	Wilks' Lambda	16.791	.000	.331
Result: Significant difference (Null Rejected)				

The MANOVA results indicated that at the 5% significance level, there was a statistically significant difference between Districts on the combined dependent variables of Organic and Conventional product consumption (Wilks' Lambda = 0.685, F(2,379) = 16.797, p = 0.000 < 0.05), with a large effect size (Partial Eta squared = 0.331). This provided sufficient evidence to reject the null hypothesis, concluding that consumption of these products significantly differed across Districts. Given the large effect, follow-up univariate ANOVA tests were conducted to examine variations in each dependent variable separately, with two sub-null hypotheses formulated to meet ANOVA assumptions.

H01.4 (a): **There is no significant difference between consumption of Organic products based on Occupation.**

H01.4 (b): **There is no significant difference between consumption of Conventional products based on Occupation.**

Univariate ANOVAs of Difference between individual Organic and Conventional products consumption based on Occupation

Independent variable Source	Dependent variable	F	*Sig. p-value	Partial Eta squared
Occupation	Organic products consumption	11.01	.000	.06
	Conventional Product consumption	9.21	.412	---

*Level of Significance= 5%

Using the Bonferroni method with an adjusted alpha level of 0.025, the analysis showed a statistically significant difference only for the consumption of Organic products (F = 11.01, p = 0.000 < 0.025) with a medium effect size (Partial Eta squared = 0.06), while no significant difference was found for Conventional product consumption (F = 9.21, p = 0.412 > 0.025). This indicates that Organic product consumption varied across occupations in Himachal Pradesh, whereas Conventional product consumption did not. Further, at the 5% significance level, Tukey's HSD test revealed that government and private employees consumed organic products significantly differently compared to students (p = 0.027, 0.041) and housewives (p = 0.027, 0.000).

H01.6: There is no significant difference between consumption of Organic and Conventional products across Marital Status.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products across Marital Status**.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) across Marital Status

Effect		F	*Sig. p-value	Partial Eta squared
Marital Status	Wilks' Lambda	7.73	.086	---
Result: Non- Significant difference (Null Accepted)				

*Level of Significance= 5%

results of the MANOVA yielded that at 5% level of significance there was a no statistically significant difference between Marital Status on the combined dependent variables (Organic and Conventional products consumption), Wilks' Lambda =0.286, *F* (2,381) = 7.73, p value = 0.086 > 0.05 (level of significance= 0.05). Based on the results it can be concluded that the consumption of Organic and Conventional products did not differ across Marital Status.

H01.7: There is no significant difference between consumption of Organic and Conventional products based on Family Type.

Hotelling's t test was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products based on Family Type**.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) based on Family Type

Effect		F	*Sig. p-value	Partial Eta squared
Family Type	Hotelling's Trace	19	.030	.06
Result: Significant difference (Null Rejected)				

*Level of Significance= 5%

The results of Hotelling's T² test indicated that at the 5% significance level, there was a statistically significant difference between Family Type on the combined dependent variables of Organic and Conventional product consumption (Hotelling's Trace = 0.189, F(2,383) = 19, p = 0.030 < 0.05), with a medium effect size (Partial Eta squared = 0.06). This provided sufficient evidence to reject the null hypothesis, concluding that consumption patterns of Organic and Conventional products vary significantly by Family Type. Following this, univariate ANOVA tests were conducted to explore differences for each dependent variable separately, with two sub-null hypotheses formulated to meet ANOVA assumptions.

H01.7 (a): **There is no significant difference between consumption of Organic products based on Family Type**.

H01.7 (b): **There is no significant difference between consumption of Conventional products based on Family Type**.

Table 4.4.35: Univariate ANOVAs of Difference between individual Organic and Conventional products consumption

Independent variable Source	Dependent variable	F	*Sig. p-value	Partial Eta squared
Family Type	Organic products consumption	18.11	.010	.11
	Conventional Product consumption	13.21	.077	---

*Level of Significance= 5%

Using the Bonferroni method (α = 0.025), the analysis revealed a statistically significant difference in organic product consumption across family types (F = 18.11, p = 0.010), allowing rejection of the null hypothesis H01.7(a), with a moderate effect size (Partial Eta squared = 0.21). However, no significant difference was found for conventional product consumption (F = 12.21, p = 0.077), indicating that while family type influences organic consumption in Himachal Pradesh, it does not significantly affect conventional product usage.

H01.8: There is no significant difference between consumption of Organic and Conventional products across Family Size.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products across Family Size**.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) across Family Size

Effect		F	*Sig. p-value	Partial Eta squared
Family Size	Wilks' Lambda	19.552	.073	---
Result: Non-Significant difference (Null Accepted)				

 *Level of Significance= 5%

Results of the MANOVA yielded that at 5% level of significance there was a no statistically significant difference between **Family Size** on the combined dependent variables (Organic and Conventional products consumption), Wilks' Lambda =0.286, F (2,382) = 19.552, p value = 0.073 > 0.05 (level of significance= 0.05). Based on the results it can be concluded that the consumption of Organic and Conventional products did not differ across Marital Status.

H01.9: There is no significant difference between consumption of Organic and Conventional products based on Type of Accommodation.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products based on Type of Accommodation**.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) based on Type of Accommodation

Effect		F	*Sig. p-value	Partial Eta squared
Type of Accommodation	Wilks' Lambda	16.791	.25	---
Result: Non-Significant difference (Null Accepted)				

 *Level of Significance= 5%

 Results of the MANOVA yielded that at 5% level of significance there was a no statistically significant difference between Type of Accommodation on the combined dependent variables (Organic and Conventional products consumption), Wilks' Lambda =0.165, F (2,382) = 13.502, p value = 0.25 > 0.05 (level of significance= 0.05). Based on these results it can be concluded that the consumption of Organic and Conventional products did not differ across Type of Accommodation.

H01.10:   There is no significant difference between consumption of Organic and Conventional products across Monthly Income.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if **there was a significant difference between consumption of Organic and Conventional products across Monthly Income**.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) across Monthly Income

Effect		F	*Sig. p-value	Partial Eta squared
Monthly Income	Wilks' Lambda	12	.000	.201
Result: Significant difference (Null Rejected)				

*Level of Significance= 5%

At the 5% significance level, MANOVA results indicated a statistically significant difference in the combined consumption of organic and conventional products across monthly income groups (Wilks' Lambda = 0.557, F(2,379) = 12, p = 0.000), with a large effect size (Partial Eta squared = 0.201). These findings led to the rejection of the null hypothesis, confirming that income significantly influences consumption patterns. Consequently, follow-up Univariate ANOVA tests were conducted to examine the individual effects of monthly income on organic and conventional product consumption.

Further to determine the variation between each individual dependent variable (Organic and Conventional products consumption) from independent variable (Monthly Income), Univariate ANOVA test was performed.

H01.10 (a): **There is no significant difference between consumption of Organic products across Monthly Income**.

H01.10 (b): **There is no significant difference between consumption of Conventional products across Monthly Income**.

Univariate ANOVAs of Difference between individual Organic and Conventional products consumption across Monthly Income

Independent variable Source	Dependent variable	F	*Sig. p-value	Partial Eta squared
Monthly Income	Organic products consumption	20.10	.000	.21
	Conventional Product consumption	19.11	.081	---

 *Level of Significance= 5%

Using the Bonferroni method (α = 0.025), the study found a statistically significant difference in organic product consumption across monthly income groups (F = 11.01, p = 0.000), while no significant difference was observed for conventional products (F = 9.21, p = 0.412). Post hoc analysis with Tukey's HSD test further revealed that consumers earning below Rs. 20,000 differed significantly in organic product consumption compared to those earning Rs. 80,001–1,00,000 (p = 0.038 and 0.022), indicating that income level notably influences organic consumption patterns in Himachal Pradesh.

H01.11: There is no significant difference between consumption of Organic and Conventional products based on Category of food.

A one-way Multivariate Analysis of variance (MANOVA) was conducted to investigate if there was a significant difference between consumption of Organic and Conventional products across Category of food.

Multivariate analysis of Difference between Organic and Conventional products consumption (combined) across Category of food

Effect		F	*Sig. p-value	Partial Eta squared
Category of food	Wilks' Lambda	26.100	.59	---
Result: Non-Significant difference (Null Accepted)				

 *Level of Significance= 5%

Results of the MANOVA yielded that at 5% level of significance there was a no statistically significant difference between Category of food (Vegetarian, Non-vegetarian, Both) on the combined dependent variables (Organic and Conventional products consumption), Wilks' Lambda =0.165, F (2,382) = 26.100, p value = 0.59 > 0.05 (level of significance= 0.05). Based on the results it can be concluded that the consumption of Organic and Conventional products did not differ across Category of food.

CONCLUSION

The study conclusively demonstrated that key demographic factors such as District, Gender, Age, Educational Qualification, Occupation, Family Type and Monthly Income significantly influence consumers' consumption patterns between organic and conventional products. Conversely, demographic variables like Marital Status, Family Size, Type of Accommodation and Category of Food did not exhibit a significant impact on consumption choices. Additionally, a majority of consumers expressed high satisfaction with organic products and showed a strong willingness to recommend these products to others, highlighting positive consumer perception and acceptance of organic alternatives. Overall, this research underscores the importance of demographic characteristics in understanding consumer behaviour related to organic products and suggests that marketing strategies should consider these factors to effectively target potential organic product consumers.

IMPLICATIONS FOR MARKETING AND POLICY

Targeted Marketing Strategies: Understanding that psychological factors significantly influence purchasing behaviour suggests that marketing campaigns should focus on enhancing positive attitudes and perceptions towards organic products.

Demographic-Specific Approaches: Recognizing the role of demographics in consumer behaviour implies that marketing and educational initiatives should be tailored to specific groups to effectively increase awareness and adoption of organic foods.

Gender-Sensitive Messaging: Given the observed gender differences in attitudes and intentions, developing gender-sensitive marketing messages could enhance the effectiveness of promotional efforts.

In conclusion, MANOVA analyses provide valuable insights into the multifaceted factors influencing consumer behaviour towards organic products. These findings can inform more effective marketing strategies and policy decisions aimed at promoting organic food consumption.

FUTURE SCOPE

The global organic market is experiencing significant growth, propelled by rising consumer demand for healthier and more sustainable products. This expansion opens numerous avenues for future research within the organic sector. Key areas include investigating the barriers and perceptions of non-organic consumers to understand their reluctance toward organic products; extending studies to neighbouring districts of Himachal Pradesh, such as Bilaspur, Chamba, Kinnaur, Kullu, Lahaul Spiti and Sirmaur, to assess regional market potentials; exploring the organic product market in non-metropolitan cities, which differ from metropolitan areas in economic structure and access to resources; examining psychographic traits like traditional values and beliefs that influence organic product purchases and a return to traditional food habits for health and well-being; and comparing the supply chains of organic versus non-organic products to identify unique challenges and solutions in organic supply management.

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