

Original Research Article

A Study on Consumer Knowledge, Attitude and Preference towards Safe foods among Consumers of Coimbatore City

ABSTRACT

Aims: The primary objective of this study is to employ the Mann-Whitney U test as a robust statistical tool to assess and establish the significance of the association between the education levels of the respondents and their behavior regarding checking for quality marks before initiating product purchases. By utilizing this non-parametric test, we intend to discern whether there exists a meaningful and statistically significant difference in the likelihood of individuals with varying educational backgrounds to prioritize the inspection of quality marks as part of their consumer decision-making process.

Study design: Exploratory research design

Place and Duration of Study: The research was carried out in ~~the~~ Coimbatore city. During the months of June and July of 2023, primary data was collected from a random sample of respondents.

Methodology: The study specifically targeted a sample size of 200 consumers (93 men, 107 Women). A well-structured questionnaire was used to collect data from the sample respondents. The study employed the Mann-Whitney test to assess if a significant relationship exists between respondents' education levels and their tendency to inspect quality marks before purchasing products. This analysis seeks to uncover potential distinctions in this behaviour based on educational backgrounds.

Results: This study identifies the significance between ~~the~~ education and ~~the~~ food safety practices from purchase to home. The results indicate that there is a significant difference between ~~the~~ education and ~~Check-Checking~~ for quality marks before buying the products. Results of ~~the~~ Mann-Whitney U-Test showed that the difference between Graduate (1) and non-Graduate (0) with respect to the dependent variable Check for quality marks before buying the products was statistically significant, $U=4158$, $p=.046$, $r=0.15$. Thus, the null hypothesis is rejected.

Conclusion: This study underscores a significant relationship between respondents' education levels and their practice of checking quality marks before product purchases. The Mann-Whitney U test demonstrates a statistically significant distinction between Graduates and Non-Graduates ($U=4158$, $p=.046$, $r=0.15$), highlighting the influence of education on consumer behavior. Consequently, the null hypothesis is rejected, emphasizing the importance of education in shaping consumer decision-making processes.

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Keywords: Food safety practices, Knowledge, Attitude, Awareness, Quality marks, Education

1. INTRODUCTION

Food safety is a critical public health and economic issue, as it affects the health and well-being of millions of people around the world. However, food safety is also a complex and challenging issue, as it involves various factors and actors

along the food chain, from production to consumption. Foodborne diseases, caused by contaminated or adulterated food, are a major threat to food safety, as they can cause serious illness, disability and death, especially among vulnerable groups, such as children, pregnant women and the elderly. Foodborne diseases also impose significant costs and losses to individuals, households, communities and countries, in terms of medical expenses, productivity losses, trade barriers and social impacts. Therefore, ensuring food safety requires a comprehensive and coordinated approach that involves multiple stakeholders, such as governments, the food industry, civil society, media and consumers.

According to the World Health Organization (WHO), an estimated 600 million people fall ill and 420 000 die each year from eating unsafe food, with children under five years of age accounting for 40% of the foodborne disease burden (WHO, 2020). In India, foodborne diseases are estimated to affect 100 million people and cause 38 000 deaths annually. India has one of the largest and most diverse food systems in the world, but also faces many challenges in ensuring food safety, such as inadequate infrastructure, weak regulatory enforcement, low consumer awareness, poor hygiene practices, rampant food adulteration and fraud, etc.

Consumers play a crucial role in shaping the demand and supply of safe foods in the market. However, consumers' knowledge, attitude and preference towards safe foods may vary depending on various factors, such as socio-demographic characteristics, income level, education level, media exposure, etc. (Sanlier et al., 2019). Several studies have indicated that consumers have insufficient knowledge and awareness about food safety issues and practices, such as the causes and effects of foodborne diseases, the sources and standards of food products, the methods and measures to prevent and control food contamination, etc. (Jevsnik et al., 2008; Medeiros et al., 2001). Moreover, consumers' attitude attitudes and preference preferences towards safe foods may be influenced by their beliefs, values, motivations, expectations, etc., as well as by other factors, such as taste, price, availability, convenience, culture, etc. (Angelillo et al., 2000; Eren et al., 2007).

Examining perceptions in North-West Romania, the investigation on organic food and questioned its associations with health, eco-consciousness, and luxury. Survey results highlighted environmental awareness, with most (87%) considering organic food healthier and aiding environmental protection (75%). Notably, a significant distinction emerged between individuals with higher education, underscoring differing beliefs about organic product consumption and its environmental benefits. (Dacina et al., 2015). Investigating student preferences, found that factors like "promotion decisions effect" and "product effect" significantly influenced fast-food choices. However, the role of the "psychological and social environment effect" was not statistically significant. Additionally, age and gender showed no meaningful differences in students' fast-food preferences. (Durmaz et al., 2016).

In an international survey encompassing 453 consumers in developing countries across Asia and Africa, uncovered distinct outcomes. Notably, significant disparities emerged between these regions, with consumers in Cameroon and Iran displaying lesser food safety knowledge compared to those in Ghana, Nigeria, Malaysia, and Pakistan. Although a majority were cognizant of food poisoning risks, a noteworthy proportion from both areas consumed food stored at room temperature for prolonged periods. The study suggests superior food safety knowledge, attitudes, and practices among Asian consumers in comparison to their African counterparts. (Olumide, A et al., 2018). Studying 430 food handlers in Kota Bharu, found their grasp of food safety. The study revealed gaps in knowledge (48.4%) and a significant lack of regular health check-ups (38.1%). Surprisingly, even though they received training, there wasn't much change in how they thought and acted about food safety. The research shows the need for health education to strengthen how they handle food safely, which could help lower the chances of getting sick from food. (Zain et al., 2002).

Study on food safety awareness in Izmir, Turkey, finding higher income, education, and age increased knowledge. Educational campaigns could enhance food safety awareness and welfare for low-income and less-educated individuals. (Bektas et al., 2011). These diseases have always been a major threat to vulnerable groups including the young. So, there is a need for broad-based food safety education among consumers, especially adolescents, who are the food handlers of the future (Haapala and Probate 2004). Demographics didn't impact practices; recommending national survey and public campaign for enhanced household food safety awareness. (Unusan, 2007). Education, income, concern, and risk perception were key factors. The study emphasized further research on consumer food safety beliefs, particularly in developing nations. (Zanetta et al., 2022). Polish and Thai consumers' food hygiene knowledge and practices, revealing incomplete knowledge and inaccurate practices. Improved education is urged to enhance food safety awareness and prevent poisoning. (Tomaszewska et al., 2022)

1.1 Theoretical Framework

The Mann-Whitney U test, also known as the Wilcoxon rank-sum test, is a non-parametric statistical test used to determine if there is a significant difference between the distributions of two independent groups.

The formula for calculating the Mann-Whitney U statistic is as follows:

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Comment [MS4]: Which study is that? The should also be a link or flow from one point of the paragraph to the next, or rather from one paragraph to the next.

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$$U = R - (n_1 * (n_1 + 1))/2$$

Where:

- U represents the Mann-Whitney U statistic,
- R denotes the sum of ranks for one of the groups,
- n1 indicates the sample size of the first group.

2. METHODOLOGY

The research was carried out in the Coimbatore city. The reason for choosing Coimbatore as the study area was because of its significance as a major urban [center](#) in Tamil Nadu, India. With a significant population and diverse food consumption patterns, Coimbatore City provided an ideal setting to examine consumer behaviours and perceptions related to safe food practices. The study specifically targeted a sample size of 200 consumers. A well-structured questionnaire was used to collect data from the sample respondents. The study's reference year is 2023. During the months of July and August of 2023, primary data was collected from a random sample of respondents.

Simple percentage analysis was worked out to study the general characteristics of the sample consumers like age, educational status, occupation, Income etc. Mann Whitney test was used to test whether there was significant difference between the Education of the respondents and Check for quality marks before buying the products

3. RESULTS AND DISCUSSION

3.1 Findings Related [to](#) Demographic Features

3.1.1 Gender

From the table 1, it could be inferred that male respondents accounted for 46.5 per cent and female respondents accounted for 53.5 per cent.

Table 1 Gender of the sample respondents

S.No	Gender	Number of respondents	Percentage (in per cent)
1	Male	93	46.5
2	Female	107	53.5
	Total	200	100

3.1.2 Age

It could be observed from the above Table 2, that 9 per cent of the respondents belonged to the age category 18-25 years, followed by 21.5 per cent of the respondents in the age group of 26-35 years, 26 per cent of the respondents in the age group of 36-45 years, 24 per cent of the respondents in the age group of 46-55 years and 19.5 per cent of the respondent in the age group of 56 and above.

Table 2. Age of the sample respondents

S.No	Age (in Years)	Number of respondents	Percentage (in per cent)
1	18-25	18	9
2	26-35	43	21.5
3	36-45	52	26
4	46-55	48	24
5	56 and above	39	19.5
	Total	150	200

3.1.3 Marital status

It could be observed from the table 3, majority of the respondents were married (86.5%) followed by [unmarried](#) (13.5%)

Table 3 Marital status of the sample respondents

S.No	Marital status	Number of	Percentage (in per
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Is Unmarried a formal Marital status?

		respondents	cent)
1	Married	173	86.5
2	Unmarried	27	13.5
	Total	200	100

3.1.4 Annual Income

It could be observed from the table 4, that 59 per cent of sample respondents' annual income was upto up to 20,0000 followed by 43.50 per cent of sample respondents with the annual income of 2,00,000-4,00,000, 27 per cent of sample respondents with the annual income of Rs. 4,00,000 – 6,00,000, 18 per cent of sample respondents with the annual income of Rs. 6,00,000-8,00,000 and 9 per cent of sample respondents with the annual income of above Rs. 8,00,000 respectively.

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Table 4 Annual income of the sample respondents

S.No	Annual income (in Rs)	Number of respondents	Percentage (in per cent)
1	Up to 200000	59	29.5
2	200000-400000	87	43.5
3	400000-600000	27	13.5
4	600000-800000	18	9
5	Above 800000	9	4.5
	Total	200	100

3.1.5 Education

It could be observed from the above table 5, that 46.5 per cent of sample respondents were Non-Graduates, followed by Graduate (53.5).

Table 5 Educational Status of the sample respondents

S.No	Educational Level	Number of respondents	Percentage (in per cent)
1	Non-Graduate	93	46.5
2	Graduate	107	53.5
	Total	200	100

3.1.6 Occupation

From the above table 6, it could be inferred that (51.5 per cent) of the respondents were Employed, followed by home maker (37 per cent), Unemployed (11.5 per cent).

Table 6 Occupational status of the sample respondents

S. No	Occupational Status	Number of respondents	Percentage (in per cent)
1	Employed	103	51.5
2	Unemployed	23	11.5
3	Homemaker	74	37
	Total	200	100

3.2 FOOD SAFETY PRACTICES FROM PURCHASE TO HOME

The Mann-Whitney U test, also known as the Mann-Whitney-Wilcoxon test, is a non-parametric statistical test used to compare two independent groups and determine if there is a significant difference between their distributions. In this study Mann-Whitney U test is used to find the significance between the Education of the respondents and Check for quality marks before buying the products

H_0 : There is no difference between the Non-Graduate (0) and Graduate (1) with respect to the dependent variable Check for quality marks before buying the products

H_1 : There is a difference between the Non-Graduate (0) and Graduate (1) with respect to the dependent variable Check for quality marks before buying the products

3.2.1 Man Whitney U Test

From the Table 7, it could be inferred that Graduate (n=93) showed a higher average tendency (mean=3.09) to check quality marks before purchases compared to Non-Graduate (n=107, mean=2.75). Both groups had similar median values (3), with Graduate displaying slightly greater variability (SD=1.36) than Non-Graduate (SD=1.08)

Table 7. Descriptive Statistics

	n	Mean	Median	Standard deviation	
Check for quality marks before buying the products	1	93	3.09	3	1.36
	0	107	2.75	3	1.08

Fig 1 illustrates the distribution of responses from two groups regarding checking for quality marks before buying products. The boxes represent the middle 50% of the data (interquartile range, IQR), with the median indicated by a horizontal line inside each box. Group 1 has a higher median (3.09) and a slightly greater spread (IQR=2.69 to 3.77) compared to Group 0, which has a median of 2.75 and a narrower spread (IQR=2 to 3.83). While both groups have similar median values (3), Group 1 tends to have more variability in their responses. There are no extreme outliers in either group. The boxplot suggests that Group 1 may exhibit a relatively stronger tendency to check for quality marks before purchases, and their responses show more variability compared to Group 0.

Fig 1 Box plot



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The Table 8 shows the mean ranks and sum of ranks for two groups. Group 1 (n=93) has a higher mean rank (109.29) and a greater sum of ranks (10164) compared to Group 0 (n=107) with a lower mean rank (92.86) and sum of ranks (9936). This suggests that, on average, Group 1 tends to have higher values in the variable being studied compared to Group 0. The total sum of ranks for both groups combined is 200.

Table 8 Mean Rank Values

	n	Mean Rank	Sum of Ranks
1	93	109.29	10164
0	107	92.86	9936
Total	200		

Table 9 shows that the Mann-Whitney U statistic for this comparison is 4158. The associated z-score is -2.06. The asymptotic $P=.039$, which indicates a statistically significant difference between the groups. The exact $P=.046$, further supporting the significance of the observed difference. This suggests that there is a meaningful distinction between the groups in terms of their tendency to check for quality marks before making purchases.

Table 9. Result of Mann- Whitney U-Test

	U	z	asymptotic P	exact P
Check for quality marks before buying the products	4158	-2.06	.039	.046

$P<0.05$

4. CONCLUSION

This study identifies the significance between the education and the food safety practices from purchase to home. The results indicate that there is significant difference between the education and Check for quality marks before buying the products. Results of Mann-Whitney U-Test showed that the difference between Graduate (1) and Non-Graduate (0) with respect to the dependent variable Check for quality marks before buying the products was statistically significant, $U=4158$, $p=.046$, $r=0.15$. Thus, the null hypothesis is rejected.

Consumers are strongly encouraged to exercise careful consideration of products bearing quality marks when making purchasing decisions, as these marks serve as reliable indicators of products that have met specific standards, ensuring quality, safety, and trustworthiness. By valuing and taking into account the presence of quality marks, consumers can make informed choices that minimize risks, enhance long-term satisfaction, and align with their preferences and needs.

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Comment [MS11]: You may want to provide more references for your study, they are quite minimal.

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World Health Organization

<https://www.who.int/news-room/fact-sheets/detail/food-safety>