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A Study on Consumer Awareness, Purchase Frequency, and Satisfaction Regarding Tri Rice Blend Noodles

* Dr G. B. Karthikeyan, Associate Professor & Head of the Department, Department of Commerce (International Business), Government Arts College (A), Coimbatore - 18.
*Dr M. Vanishree, Associate Professor, Department of Commerce (International Business), Government Arts College (A), Coimbatore - 18.
* Mr B. Deravesh Kumar, Ms P. Lathika, Ms M. Priyanka, final-year B. Com (International Business), Government Arts College (A), Coimbatore- 18.

ABSTRACT:

This study examines consumer awareness, purchase frequency, and satisfaction regarding Tri Rice Noodles. As rice noodles grow in popularity for their nutritional benefits and convenience, the research aims to gauge how aware consumers are of Tri Rice Noodles, how often they buy them, and how satisfied they are after use. Data were gathered through a consumer questionnaire. The results help identify preferences, buying habits, and key factors influencing purchase decisions. These insights can guide improvements in product quality, marketing strategies, and customer satisfaction within the rice noodle market.

1.1 INTRODUCTION:

Rice is a vital staple food for millions worldwide, particularly in Asian nations, providing essential nutrients and energy for daily activities. Recently, rice has been transformed into various value-added products like rice noodles, appreciated for their flavour, convenience, and health benefits. These noodles are a common ingredient in both traditional and contemporary dishes and are growing in popularity. Thanks to their gluten-free qualities and adaptability, rice noodles are seen as a healthy alternative to wheat-based options. As a result, the production and consumption of rice noodles are becoming increasingly significant in the modern food industry.

Tri Rice Noodles are a unique and healthy food product created by blending three types of rice flour: white, red, and black rice. This mix boosts the nutritional content of traditional rice noodles while keeping them natural and wholesome. Unlike many typical instant noodles on the market, Tri Rice Noodles are made without frying or added oils, offering a healthier option for those seeking low-fat and natural foods.

Tri Rice Noodles offer a well-rounded combination of carbohydrates, dietary fiber, vitamins, minerals, and antioxidants. Black rice is recognised for its high antioxidant levels, red rice adds extra fiber and micronutrients, and white rice provides a smooth texture along with energy-dense carbohydrates.

The product is designed to meet the growing consumer demand for healthy, convenient, and minimally processed foods. As modern consumers become more focused on nutrition, there is a growing interest in products that avoid deep frying and excessive oil. Tri Rice Noodles meet this demand by offering a fast-cooking, nutritious, and natural meal solution suitable for all age groups.

Additionally, the product is easy to prepare at home, making it suitable for busy lifestyles. Its special mix of rice varieties enhances nutritional value and offers unique colour and flavour compared to typical noodles. As a result, Tri Rice Noodles embody a modern take on healthy, convenient foods while honouring the traditional importance of rice-based diets.

1.2 REVIEW OF LITERATURE:

1. **Bee Ling Tan (2025)** explains that the quality of rice noodles largely depends on the ingredients used and their functions. Rice flour and water create the basic structure, while salt and oil enhance texture and handling. Hydrocolloids and polyphosphates reinforce the noodle's structure, and preservatives extend shelf life. The study emphasises that choosing the right ingredient combination is crucial for producing high-quality rice noodles with improved texture, stability, and consumer appeal.
2. **Dr T. Unnamalai (2020)** conducted a study titled “Brand Preferences and Level of Satisfaction in Consuming Noodles among Working Women in Tiruchirappalli District.” The research explores how shifts in lifestyles, increased participation of women in the workforce, and changing economic conditions have boosted demand for convenient foods such as noodles.

The results show that working women favour noodles because they save time, are easy to prepare, help reduce stress, and support work–life balance. Additionally, noodles are frequently purchased alongside regular household necessities, highlighting their role as a staple in daily consumption.

3. **Manaois (2020)** examined the nutritional qualities, antioxidant properties, and sensory acceptance of fresh noodles made with rice bran, highlighting its potential as a functional, health-boosting ingredient. The study tested different rice bran levels- 2%, 5%, and 10%- to assess consumer acceptance and nutritional benefits. Results showed that adding rice bran did not significantly affect sensory qualities such as taste, texture, or overall acceptability, although higher levels did cause minor changes in colour preference.
4. **Niramon Utama-ang (2020)** investigated flavoured rice noodles and found that incorporating natural spices like garlic and pepper powder enhances aroma, taste, and consumer appeal. A small addition of garlic–pepper powder (around 2%) preserved good texture and cooking quality while boosting flavour and preference. The research also emphasises that herbs and spices possess beneficial bioactive compounds and can serve as natural alternatives to artificial additives. These results support the use of natural flavouring agents to create healthier and more attractive rice noodle products.
5. **G. Niharika (2019)** conducted a study titled "Optimisation of Parameters to Enhance Resistant Starch Content in Selected Rice Varieties," which aims to improve rice's nutritional quality by increasing resistant starch (RS). RS is important for reducing glycemic response and promoting gut health. The study investigates 25 rice varieties, analysing milling, physicochemical properties, cooking qualities, amylose content, starch content, and resistant starch levels using standardised methods. The results showed notable differences among the varieties in amylose content, protein fractions, crude fibre, ash, and cooking quality, highlighting the potential for selecting rice varieties based on nutritional goals.

1.3 SCOPE OF STUDY:

The research on Tri Rice Noodles investigates Indian consumers' awareness and understanding of this healthy product made from white, red, and black rice. It assesses whether consumers recognise its nutritional advantages, including protein, fibre, and antioxidants. The study also explores how much consumers know about healthier noodle options in comparison to regular noodles. Additionally, it aims to gauge the acceptance of Tri Rice Noodles among Indian consumers.

1.4 RESEARCH METHODOLOGY

SAMPLING TECHNIQUE:

This study involved 58 residents of Coimbatore city, all over 18 years old. They were selected using convenience sampling, allowing the researcher to gather responses from those readily available and willing to participate.

DATA COLLECTION:

The study relies solely on primary data gathered via a structured questionnaire to assess consumer awareness, preferences, satisfaction, and purchase intentions regarding Tri Rice Noodles. Participants were clearly briefed on the study's purpose before providing their responses to ensure clarity. The questionnaire featured statements evaluated using a three-point rating scale, with numerical values assigned to each response for analysis. After gathering the responses, the data were checked, organised, and entered into Microsoft Excel for initial processing.

STATISTICAL TOOLS APPLIED:

The data collected were analysed using both descriptive and inferential statistical methods. Frequency analysis was employed to examine respondents' demographic characteristics. Responses on the three-point scale were subsequently grouped into low, moderate, and high categories based on assigned numerical values. Additionally, the Chi-square test was utilised to assess the relationship between demographic factors and consumer preferences for Tri Rice Noodles.

SOFTWARE USED FOR ANALYSIS:

The data were first organised and cleaned in Microsoft Excel. Once verified, the dataset was imported into SPSS (Statistical Package for the Social Sciences) version 16 for statistical analysis. SPSS was then used to conduct frequency analyses and Chi-square tests to interpret the responses from the 58 participants.

1.5 DEMOGRAPHIC FACTORS

TABLE NO: 1 GENDER

S.no	Gender	Frequency	Percent
1	Male	30	51.7
2	Female	28	48.3
	Total	58	100.0

This table displays the gender distribution of respondents in the study. The total number of respondents is 58. Among these respondents, 30 are male, constituting 51.7% of the total sample. Conversely, 28 respondents are female, making up 48.3%.

TABLE NO:2 AGE

S.no	Age	Frequency	Percent
1	18-24	24	41.4
2	25-34	16	27.6
3	35-44	10	17.2
4	45-54	6	10.3
5	55+	2	3.4
	Total	58	100.0

This table details the age distribution of the 58 respondents in the study. The largest group is the 18–24 age range, with 24 respondents (41.4%). The 25–34 age group includes 16 respondents (27.6%), while the 35–44 group has 10 respondents (17.2%). Additionally, 6 respondents (10.3%) fall into the 45–54 category. The smallest group is those aged 55 and above, with 2 respondents (3.4%).

TABLE NO. 3 MARITAL STATUS

S.no	Marital status	Frequency	Percent
1	Single	26	44.8
2	Married	32	55.2
	Total	58	100.0

This table shows the marital status of the 58 respondents in the study. Among them, 26 are single, accounting for 44.8%, and 32 are married, making up 55.2%. This means that married respondents constitute the majority of the sample.

TABLE NO 4 EDUCATION

S.no	Education	Frequency	Percent
1	HSC	19	32.8
2	UG	21	36.2
3	PG	14	24.1
4	Others	4	6.9
	Total	58	100.0

This table details the educational qualifications of the 58 respondents who participated in the study. Of these, 19 respondents (32.8%) have completed a Certificate (HSC). Among them, 21 respondents (36.2%) have completed undergraduate (UG) education, making it the largest group. Additionally, 14 respondents (24.1%) hold a postgraduate (PG) degree. The "Others" category, which includes various other educational qualifications, comprises 4 respondents (6.9%).

TABLE NO 5 INCOME

S.no	Income	Frequency	Percent
1	Up to 10,000	29	50.0
2	10,001-25,000	17	29.3
3	25,001-50,000	10	17.2
3	Above 50,001	2	3.4
	Total	58	100.0

This table presents the income distribution of the respondents. The total sample consists of 58 individuals. Of these, 29 respondents earn up to ₹10,000, constituting 50.0% of the total, and forming the largest group in the survey. Additionally, 17 respondents have a monthly income between ₹10,001 and ₹25,000, making up 29.3% of the participants. Ten respondents earn between ₹25,001 and ₹50,000, accounting for 17.2%. Lastly, 2 respondents earn above ₹50,001, representing 3.4%, making this the smallest income group in the study.

TABLE No:6 OCCUPATION

S.no	Occupation	Frequency	Percent
1	Agriculture	4	6.9
2	Private	24	41.4
3	Government Services	4	6.9
4	Housewife	10	17.2
5	Student	16	27.6
	Total	58	100.0

The table details the occupation distribution of 58 respondents in the study. Of these, 24 respondents (41.4%) work in the private sector, making it the largest group in the sample. Students comprise 16 respondents (27.6%), showing that many are still pursuing their studies. Housewives make up 10 respondents (17.2%). Additionally, 4 respondents (6.9%) are involved in agriculture, while another 4 (6.9%) work in government services.

TABLE NO. 7 NATURE OF FAMILY

S.no	Nature of family	Frequency	Percent
1	Joint family	18	31.0
2	Nuclear Family	40	69.0
	Total	58	100.0

The table above illustrates the family types among the 58 respondents in the study. Of these, 40 respondents (69.0%) are part of nuclear families, making up the majority. Conversely, 18 respondents (31.0%) live in joint families. This suggests that most respondents are residing in nuclear family settings rather than joint ones.

TABLE NO:8

Association between the gender role of the respondents and the level of preference

Gender	Low	Moderate	High	Total	Chi- Squre value	P value	Result
Male	8 (26.7%)	12 (40%)	10 (33.3%)	30 (100%)	0.682	0.711	Accept
Female	7 (25%)	14 (50%)	7 (25%)	28 (100%)			
Total	15 (25.9%)	26 (44.8%)	17 (29.3%)	58 (100%)			

( ) Indicates Percentage

The table indicates that the relationship between respondents' gender and their preference level for the product was examined using the Chi-square test. The study included 58 participants in total. Among the male respondents, 8 (26.7%) showed a low preference, 12 (40%) a moderate preference, and 10 (33.3%) a high preference. The male group consisted of 30 individuals, accounting for 100%. For female respondents, 7 (25%) had a low preference, 14 (50%) a moderate preference, and 7 (25%) a high preference. The female group included 28 participants, also 100%. Overall, out of all 58 respondents, 15 (25.9%) demonstrated a low preference, 26 (44.8%) a moderate preference, and 17 (29.3%) a high preference.

TABLE NO:9

Association between the age role of the respondents and the level of preference

Age	Low	Moderate	High	Total	Chi- Squre value	P value	Result
18-24	6 (25%)	8 (33.3%)	10 (41.7%)	24 (100%)	15.191	0.56	Accept
25-34	4 (25%)	12 (75%)	0 (0%)	16 (100%)			
35-44	3 (30%)	4 (40%)	3 (30%)	10 (100%)			
45-54	2 (33.3%)	2 (33.3%)	2 (33.3%)	6 (100%)			
55+	0 (0%)	0 (0%)	2 (100%)	2 (100%)			
Total	15 (25.9%)	26 (44.8%)	17 (29.3%)	58 (100%)			

( ) Indicates Percentage

This table illustrates the relationship between respondents' age groups and their preference levels for the product. Among those aged 18–24 years, 6 respondents (25%) prefer the product at a low level, 8 (33.3%) at a moderate level, and 10 (41.7%) at a high level, totalling 24 respondents (100%). For ages 25- 34, 4 respondents (25%) have a low preference, 12 (75%) are moderate, and none are high, out of 16 respondents (100%). In the 35–44 age group, 3 respondents (30%) show low preference, 4 (40%) moderate, and 3 (30%) high, totalling 10 respondents (100%).Among 45–54 years, 2 respondents (33.3%) show low, 2 (33.3%) moderate, and 2 (33.3%) high preference, with 6 respondents (100%). Finally, for 55 years and above, no respondents show low or moderate preference, while 2 respondents (100%) have a high preference, totalling 2 respondents (100%).

Out of the 58 respondents, 15 (25.9%) show a low preference level, 26 (44.8%) a moderate level, and 17 (29.3%) a high level. The Chi-square value is 15.191 with a P value of 0.56, which exceeds the significance threshold of 0.05. Consequently, the null hypothesis (H_0) is accepted, suggesting no significant link between respondents' age and their preference level.

TABLE NO: 10

Association between the educational role of the respondents and the level of preference

Education	Low	Moderate	High	Total	Chi-Square value	P value	Result
HSC	4 (21.1%)	10 (52.6%)	5 (26.3%)	19 (100%)	7.006	0.320	Accept
UG	5 (23.8%)	12 (57.1%)	4 (19%)	21 (100%)			
PG	4 (28.6%)	4 (28.6%)	6 (42.9%)	14 (100%)			
OTHERS	2 (50%)	0 (0%)	2 (50%)	4 (100%)			
Total	15 (25.9%)	26 (44.8%)	17 (29.3%)	58 (100%)			

( ) Indicates Percentage

This table shows the association between respondents' educational qualifications and their level of preference for the product.

The table shows that among respondents with HSC education, 4 (21.1%) have a low preference, 10 (52.6%) have a moderate preference, and 5 (26.3%) have a high preference, totalling 19 respondents (100%). For those with Undergraduate (UG) qualification, 5 (23.8%) show a low preference, 12 (57.1%) a moderate preference, and 4 (19%) a high preference, totalling 21 respondents (100%). Among respondents with Postgraduate (PG) qualification, 4 (28.6%) have a low preference, 4 (28.6%) a moderate preference, and 6 (42.9%) a high preference, totalling 14 respondents (100%).

Among those in the other education category, 2 respondents (50%) have a low preference level, none show a moderate preference, and 2 respondents (50%) have a high preference, totalling 4 respondents (100%). Overall, out of 58 respondents, 15 (25.9%) exhibit a low preference, 26 (44.8%) a moderate preference, and 17 (29.3%) a high preference. The Chi-square value is 7.006 with a P value of 0.320, which exceeds the significance level of 0.05. Thus, the null hypothesis (H_0) is accepted, suggesting no significant link between respondents' education level and their preference level.

TABLE NO:11

Association between Marital status, role of the respondents, and the level of preference

Marital status	Low	Moderate	High	Total	Chi-square value	P value	Result
Single	8 (30.8%)	8 (30.8%)	10 (38.5%)	26 (100%)	3.863	.145	Accept
Married	7 (21.9%)	18 (56.3%)	7 (21.9%)	32 (100%)			
Total	15 (25.9%)	26 (44.8%)	17 (29.3%)	58 (100%)			

( ) Indicates Percentage

This table illustrates the relationship between respondents' marital status and their preference levels. Among single respondents, 8 (30.8%) have a low preference, 8 (30.8%) have a moderate preference, and 10 (38.5%) have a high preference, totalling 26 respondents (100%). Among married respondents, 7 (21.9%) have a low preference, 18 (56.3%) have a moderate preference, and 7 (21.9%) have a high preference, totalling 32 respondents (100%). Overall, out of 58 respondents, 15 (25.9%) show a low preference, 26 (44.8%) a moderate preference, and 17 (29.3%) a high preference. The Chi-square statistic is 3.863 with a P-value of 0.145, which exceeds the 0.05 significance level. Hence, the null hypothesis (H_0) is accepted, indicating no significant relationship between marital status and preference level.

TABLE NO:12

Association between the occupational role of the respondents and the level of preference

Occupation	Low	Moderate	High	Total	Chi- Squre value	P value	Result
Agriculture	0 (0%)	2 (50%)	2 (50%)	4 (100%)	15.067	0.58	Accept
Private	8 (33.3%)	14 (58.3%)	2 (8.3%)	24 (100%)			
Government Services	2 (50%)	2 (50%)	0 (0%)	4 (100%)			
Housewife	1 (10%)	4 (40%)	5 (50%)	10 (100%)			
Student	4 (25%)	4 (25%)	8 (50%)	16 (100%)			
Total	15 (25.9%)	26 (44.8%)	17 (29.3%)	58 (100%)			

( ) Indicates Percentage

This table illustrates the relationship between respondents' occupations and their preference levels. It shows that among those engaged in agriculture, no one has a low preference; 2 respondents (50%) have a moderate preference, and 2 (50%) have a high preference, totalling 4 respondents (100%). In the private sector, 8 respondents (33.3%) exhibit a low preference, 14 (58.3%) a moderate preference, and 2 (8.3%) a high preference, out of 24 respondents (100%). For government employees, 2 respondents (50%) have a low preference, 2 (50%) a moderate preference, with none showing a high preference, totalling 4 respondents (100%). Among housewives, 1 respondent (10%) reports low preference, 4 (40%) moderate, and 5 (50%) high, totalling 10 respondents (100%).

Among the student respondents, 4 (25%) have a low preference, 4 (25%) have a moderate preference, and 8 (50%) have a high preference, totalling 16 respondents (100%). Overall, from 58 respondents, 15 (25.9%) show low preference, 26 (44.8%) moderate, and 17 (29.3%) high. The Chi-square value is 15.067 with a P value of 0.58, which exceeds the 0.05 significance level. Thus, the null hypothesis (H_0) is accepted, indicating no significant link between respondents' occupation and their preference level.

TABLE NO: 13

Association between the nature of the family role of the respondents and the level of preference

Nature of Family	Low	Moderate	High	Total	Chi- Squre value	P value	Result
Joint Family	4 (22.2%)	6 (33.3%)	8 (44.4%)	18 (100%)	2.942	.230	Accept
Nuclear Family	11 (27.5%)	20 (50%)	9 (22.5%)	40 (100%)			
Total	15 (25.9%)	26 (44.8%)	17 (29.3%)	58 (100%)			

( ) Indicates Percentage

This table illustrates the relationship between respondents' family types and their preference levels. It shows that among those from joint families, 4 respondents (22.2%) have a low preference, 6 respondents (33.3%) have a moderate preference, and 8 respondents (44.4%) have a high preference, totalling 18 respondents (100%).

Among respondents from nuclear families, 11 (27.5%) show a low preference, 20 (50%) a moderate preference, and 9 (22.5%) a high preference, totalling 40 respondents (100%). Overall, out of 58 respondents, 15 (25.9%) have a low preference, 26 (44.8%) a moderate preference, and 17 (29.3%) a high preference. The Chi-square value is 2.942, with a P value of 0.230, which exceeds the significance level of 0.05. Thus, the null hypothesis (H_0) is accepted, suggesting no significant relationship between respondents' family type and their preference levels.

1.6 FINDINGS

1. The developed Tri rice blend noodles demonstrated good cooking quality, an acceptable texture, and a mild flavor that appeals to consumers.
2. The product offers superior nutritional value compared to traditional wheat noodles because rice-based blends can be gluten-free and easier to digest.
3. The drying process extended the shelf life and enhanced the product's convenience for storage and transport.
4. Sensory evaluation showed that the majority of panelists found the noodles acceptable in taste, color, texture, and overall quality.
5. The use of rice flour blends improved the functional properties, making the noodles suitable for people who prefer gluten-free or alternative grain products.

1.7 SUGGESTIONS

1. Further research could involve including additional nutritious ingredients like millets, pulses, or vegetable powders to enhance the nutritional profile.
2. Enhancing texture and firmness is possible by adjusting the balance between rice flour and binding agents.
3. Future research could explore adding protein, fiber, or vitamins to create a healthier product.
4. Shelf-life studies under various storage conditions can be conducted for commercial production.
5. Eye-catching packaging and branding can be created to help promote the product in the market.

1.8 CONCLUSION:

The study finds that Tri Rice Blend Noodles are a nutritious and innovative food crafted from a mix of rice types, providing superior nutritional benefits over standard noodles. They include vital nutrients like carbohydrates, protein, and minerals, and are made without frying or oil, making them a healthier choice. Survey results indicate that while awareness of healthy foods is growing, understanding of tri rice noodles and their nutritional advantages remains limited among consumers.

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