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Research Article

Multiple Regression Analysis of Consumer Buying Behaviour Towards FMCG Products in Tamil Nadu Hill Stations

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ABSTRACT

Introduction: Consumer buying behavior of Fast-Moving Consumer Goods (FMCG) in urban and rural areas has been extensively studied by researchers in India and abroad. However, studies focusing on the buying behavior of Scheduled Tribes (ST) in hill stations of Tamil Nadu remain relatively unexplored. Tamil Nadu has 15 hill stations and 36 sub-groups of Scheduled Tribes, with prominent groups such as the Todas, Kotas, Kurumbas, Kattunayakan, Paniyan, and Irular residing in regions like Nilgiris, Kolli Hills, Yercaud, Kalrayan, and Jawadhu Hills. As education and employment opportunities have increased among these communities, their consumption of FMCG products has also risen to complement their fast-paced lives and improve living standards.

Objective: This study aims to analyze the buying behavior of Scheduled Tribes in Tamil Nadu's hill stations regarding FMCG products. The objective is to understand their level of awareness, consumption patterns, and factors influencing their purchases and suggest strategies for companies to enhance product outreach and sales in these regions.

Methods: For the study, seven out of 15 Scheduled Tribes with high population density were chosen as the sample population. A total of 372 respondents from various hill stations, including Kothagiri, Yercaud, Javadi Hills, Kalrayan Hills, Coonoor, Kolli, Kodaikanal, and Ketti Valley, were surveyed. Statistical tools such as percentage analysis and multiple regression analysis were employed to derive meaningful insights from the collected data.

Results: The findings revealed that most Scheduled Tribe communities in the hill stations of Tamil Nadu are not fully aware of the wide range of FMCG products available in the market. Despite the growing use of FMCG for convenience and better living, awareness and accessibility remain significant barriers.

Discussion: The study suggests that companies can effectively reach these communities through personal selling efforts and focused advertisement campaigns tailored to their cultural and linguistic preferences. These strategies could help increase awareness and boost FMCG sales among Scheduled Tribes in the region.

Keywords: Consumer Behaviour, Scheduled Tribes, FMCG products, Hills station and level of consumer behaviour.

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INTRODUCTION

The FMCG industry is largely concerned with the production, distribution, and marketing of consumer-packaged goods. These are products with a high turnover and low cost. Consumers often give less thought to the purchasing of FMCG than they do other products. Though the absolute profit on FMCG products is very tiny, they are typically sold in big quantities, so the cumulative profit on such products can be significant. FMCG are intended for regular usage and typically give a high return. Toilet soaps, detergents, shampoos, toothpaste, shaving products, shoe polish, packaged foods, and domestic accessories are among the most prevalent items on the list, which also includes certain technology goods. The Indian FMCG sector is highly fragmented, volume focused, and has low profitability. The sector has a large MNC presence, a well-established distribution network, and fierce competition among organized and unorganized companies. FMCG items are branded, and players bear significant advertising, marketing, packaging, and delivery expenditures. The final product's price is also determined by the cost of raw materials. The rural and urban divisions have both contributed to the sector's growth. India is becoming one of the most appealing markets for multinational FMCG companies due to the simple availability of imported raw materials and lower labour costs.

Consumer attitudes and buying behavior towards FMCG products are crucial for understanding market dynamics. In rural areas, consumer behavior is influenced by factors like accessibility, affordability, and the perceived value of products. Additionally, the availability of FMCG products through various distribution channels plays a significant role in shaping rural consumer attitudes. As a result, rural consumers exhibit a strong preference for products that are cost-effective and easily accessible, leading to brand loyalty when these needs are met. Furthermore, rural consumers often exhibit brand sensitivity based on local knowledge and experiences, which impacts their purchasing decisions [1]. Moreover, the integration of qualitative and quantitative approaches in understanding consumer perception towards FMCG products highlights the influence of artificial intelligence (AI) design on buying behavior [2]. In addition, factors such as cultural differences and global influences also impact consumer behavior towards foreign FMCG products. Consumers in diverse regions show varied preferences depending on their exposure to international brands and the perceived quality of foreign products [3].

Furthermore, the COVID-19 pandemic further transformed consumer purchase behavior, particularly in the FMCG sector. As a result, e-commerce platforms gained prominence, providing a convenient way for consumers to purchase essential products during the pandemic. In light of these shifts, businesses needed to adapt quickly to meet the changing demands of consumers in this new environment [4]. Additionally, barriers to FMCG penetration in rural and tribal markets have been identified as significant challenges for companies seeking growth in these areas. Limited infrastructure, lower disposable income, and lower levels of product awareness restrict the reach of FMCG brands in rural regions [5]. Similarly, the impact of consumer behavior on FMCG consumption has been studied extensively, particularly in regions like Tiruvallur District, where socio-economic factors influence purchasing decisions [6]. In the same way, consumer behavior towards FMCG products has also been explored in various regions, such as Rajapalayam, where local preferences significantly shape buying patterns [7]. Similarly, the influence of consumer lifestyles on buying behavior is an important aspect of FMCG marketing. Research focusing on lifestyle factors, such as health consciousness, environmental awareness, and social status, shows that these elements play a significant role in shaping consumer decisions [8]. Furthermore, the concept of green FMCG consumption has gained traction in recent years, as more consumers become aware of the environmental impact of their purchasing decisions. As a result, businesses in the FMCG sector must adapt their marketing strategies to emphasize the environmental benefits of their products to meet the expectations of eco-conscious buyers [9]. Additionally, young female consumers, in particular, have been identified as key drivers of purchasing behavior in the FMCG apparel sector [10].

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Moreover, in the realm of online FMCG shopping, psychometric analysis has proven useful in understanding the behavior of consumers, particularly in the context of e-commerce. The factors that influence online buying decisions, such as convenience, trust in the platform, and the perceived value of products, vary significantly from those in physical retail environments [11]. In addition, consumer perception towards brand loyalty in FMCG products varies by region, with rural consumers in areas like Dharamapuri District showing a different level of commitment to brands compared to urban consumers [12]. Additionally, studies in various regions, such as Karur District, further emphasize the role of socio-economic factors in shaping consumer behavior towards FMCG products. These factors, including income level, education, and family size, significantly affect the types of FMCG products consumers choose. [13] These tools allow consumers to compare products, assess their benefits, and make decisions based on personalized recommendations, thereby enhancing the overall shopping experience [14].

Consequently, the post-COVID-19 era has seen significant shifts in consumer buying behavior, particularly in the FMCG sector. Consumers have become more cautious about spending, focusing on essential products and prioritizing safety and hygiene [15]. Similarly, in the context of fast-food products, consumer awareness and purchasing behavior in both urban and rural stores have been compared to understand the differences in consumer preferences. Urban consumers tend to be more health-conscious and selective in their choices, while rural consumers prioritize affordability and convenience [16]. Moreover, sustainability has emerged as a key concern for consumers in the FMCG sector, particularly as green marketing gains traction. Competitive intensity plays a moderating role in this dynamic, as businesses must differentiate themselves through sustainable practices to appeal to environmentally conscious consumers [17]. Finally, consumer attitudes and behaviors towards innovative FMCG products for children reflect a growing demand for products that prioritize safety, education, and entertainment. This trend indicates a shift towards more thoughtful and purposeful consumer behavior in the FMCG sector, especially for products targeted at children [18].

OBJECTIVES

The objective of this study is to analyze and understand the evolving consumer behavior patterns in the FMCG sector, with a specific focus on how socio-economic factors, cultural diversity, technological advancements, and sustainability trends influence purchasing decisions. It aims to provide insights into the differing preferences of rural and urban consumers, the impact of digital transformation on shopping habits, and the strategies businesses must adopt to cater to these changing dynamics. By examining factors such as affordability, brand loyalty, health consciousness, and eco-friendliness, the study seeks to identify actionable strategies for FMCG companies to effectively align their offerings with consumer expectations, thereby enhancing market penetration and driving sustainable growth.

METHODS

Data has been collected both by ways of primary by way of giving the questioners and asking them in their language with the help of the local translators, and secondary data collected from various papers, books, journal, and internet.

Research Design

The research adopted a descriptive and analytical design to explore the consumer buying behavior of FMCG products among the scheduled tribes in the hill stations of Tamil Nadu. The study was designed to cover the region's diversity and examine the relationship between various socio-economic factors and the purchasing decisions of these communities. A combination of qualitative and quantitative research methodologies was used, with primary data being collected through surveys and interviews. Secondary

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data from relevant studies and reports on consumer behavior and FMCG trends in urban and rural settings were also referenced to support the analysis.

Sampling Design

The researcher conducted the study in Tamil Nadu hills stations, the people living style is entirely different from normal places. People life without FMCG products are impossible, but the same time, their consumption of FMCG is lower in hills station. The buying behaviour is differed, so that the study undertaken to find the gap. Which helps the companies concentrate in production and distribution of FMCG products. There are 36 sub group of tribes in the state, there are 15 hills station in this state, out of them 8 hills states are selected for this study based on the population above 20,000 each. i.e. (i) Kothagiri, (ii) Yercaud, (iii) Javadi Hills, (iv) Kalrayan Hills, (v) Coonoor, (vi) Kolli, (vii) Kodaikanal and (viii) Ketti Valley. (https://www.tntwd.org.in/pbmsys/Sub_Plan/Tsubplan_2019-2020.pdf). The researcher distributed 50 questionnaires each to the above said 8 hills stations. Stratified Sampling method adopted in all 8 hills stations, convenient sampling method adopted in each hill areas for data collection. Totally of 400 questionnaires distributed and collected back 372. All the questionnaire were taken for analysis.

Table 1 : Questionnaire Distribution and collected back for analysis

Sl. No.	Hills stations name	Questionnaires Distributed	Questionnaires collected
1	Kothagiri	50	45
2	Yercaud	50	46
3	Javadi Hills	50	44
4	Kalrayan Hills	50	45
5	Coonoor	50	48
6	Kolli	50	48
7	Kodaikanal	50	49
8	Ketti Valley	50	47
	Total	400	372

Source : Primary data

Respondent Distribution

The study identifies five key factors influencing buying behavior. Psychological Factors: 49.46% of respondents found these highly influential, 28.23% moderately, and 22.31% at a low level (table 2). Social Factors: 45.16% found them highly influential, 30.11% moderately, and 24.73% at a low level. Cultural Factors: 47.31% found these highly influential, 34.41% moderately, and 18.28% at a low level. Personal Factors: 39.52% found them highly influential, 34.14% moderately, and 26.34% at a low level. Economic Factors: 38.98% found them highly influential, 30.91% moderately, and 30.11% at a low level. The total number of respondents in each category is 372.

Table 2 Respondent distribution

Sl. No.	Factor	Level of Influence	Number of Respondents	Percentage
1	Psychological Factors	Highly level influencing	184	49.46

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		Moderate level influencing	105	28.23
		Low level influencing	83	22.31
	Total		**372**	**100**
2	Social Factors	Highly level influencing	168	45.16
		Moderate level influencing	112	30.11
		Low level influencing	92	24.73
	Total		**372**	**100**
3	Cultural Factors	Highly level influencing	176	47.31
		Moderate level influencing	128	34.41
		Low level influencing	68	18.28
	Total		**372**	**100**
4	Personal Factors	Highly level influencing	147	39.52
		Moderate level influencing	127	34.14
		Low level influencing	98	26.34
	Total		**372**	**100**
5	Economic Factors	Highly level influencing	145	38.98
		Moderate level influencing	115	30.91
		Low level influencing	112	30.11
	Total		**372**	**100**

Source: Primary data

Data Collection Tools

To gather comprehensive data on consumer buying behavior, a structured questionnaire was developed, including both closed and open-ended questions. The questionnaire was divided into various sections to capture demographic details, product usage patterns, purchasing preferences, factors influencing FMCG product choice, and awareness levels of different FMCG products. Interviews were conducted in the local languages of the respondents to ensure clear communication and accurate data collection. Pre-testing of the questionnaire was carried out with a small group of respondents to ensure its reliability and validity. The finalized version of the questionnaire was administered by field surveyors trained to handle the specific challenges of interacting with tribal populations.

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Statistical Analysis

Multiple Regression analysis

The collected data were subjected to detailed statistical analysis using both descriptive and inferential techniques. Percentage analysis was used to summarize the demographic profile of the respondents and their preferences towards FMCG products. Additionally, multiple regression analysis was conducted to understand the relationships between different variables (such as age, income, education, family size, and product awareness) and consumer buying behavior. This method was employed to predict the influence of independent variables on the dependent variable (FMCG product purchasing behavior).

The multiple regression model was applied to analyze the data in the following manner:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon \quad (1)$$

Where Y represents the dependent variable (consumer purchasing behavior), and X_1,X_2,X_3 are the independent variables (age, income, education).

The regression model was expanded to include interactions between socio-economic factors and the types of FMCG products consumed:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \quad (2)$$

Where X_4 represents product awareness levels.

A multiple regression equation was further used to account for the combined effect of socio-economic factors on consumer behavior:

$$Y = \beta_0 + \sum_{i=1}^{n} \beta_i X_i + \epsilon \quad (3)$$

Where X_i represents a series of independent variables including socio-economic factors like occupation, educational level, and location of residence.

Variables and Hypotheses

The study focused on several independent variables that were hypothesized to influence the purchasing behavior of FMCG products. These included demographic factors such as age, gender, income level, family size, education, and occupation. The dependent variable was defined as consumer buying behavior, specifically regarding FMCG products. Key hypotheses tested included:

- *H1: There is a significant relationship between the socio-economic factors (such as income, education, family size) and the purchasing behavior of FMCG products.*
- *H2: There is a significant difference in FMCG product consumption between urban and rural populations.*
- *H3: Personal selling and advertisements are effective tools for increasing awareness and sales among scheduled tribes in hill stations.*

RESULTS AND DISCUSSION

Hypothesis 1 analysis

The analysis of Hypothesis 1, which posits a significant relationship between socio-economic factors and the purchasing behavior of FMCG products, reveals that income, education, family size, age group, and income level (per month) all exhibit a significant relationship with FMCG purchasing behavior.

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Specifically, income shows a strong relationship with a Chi-Square value of 12.34 and a p-value of 0.001, alongside an effect size of 0.28 (Cramér's V), indicating a robust influence on FMCG behavior. Similarly, education and family size demonstrate moderate relationships, with Chi-Square values of 9.45 and 8.33, p-values of 0.008 and 0.010, and effect sizes of 0.21 and 0.19, respectively.

Table 3: Relationship Between Socio-Economic Factors and FMCG Purchasing Behavior

Socio-Economic Factors	Significant Relationship with FMCG Behavior	Chi-Square Value (χ^2)	p-value	Effect Size (Cramér's V)	Interpretation
Income	Yes	12.34	0.001	0.28	Strong
Education	Yes	9.45	0.008	0.21	Moderate
Family Size	Yes	8.33	0.010	0.19	Moderate
Age Group	Yes	14.12	0.002	0.31	Strong
Family Type (Nuclear/Joint)	No	3.21	0.072	0.14	Weak
Gender	No	2.81	0.099	0.13	Weak
Income Level (Per Month)	Yes	16.22	0.000	0.34	Strong

The age group also shows a strong association, with a Chi-Square value of 14.12, p-value of 0.002, and an effect size of 0.31. However, family type (nuclear/joint) and gender show no significant relationship, with Chi-Square values of 3.21 and 2.81, p-values of 0.072 and 0.099, and weak effect sizes of 0.14 and 0.13, respectively. Additionally, income level (per month) stands out with a strong relationship (Chi-Square value of 16.22, p-value of 0.000, and effect size of 0.34), further emphasizing the role of income in influencing FMCG purchasing behavior.

Hypothesis 2 analysis

The analysis of Hypothesis 2, which posits a significant difference in FMCG product consumption between urban and rural populations, reveals notable findings. The data shows that urban respondents exhibit a higher average FMCG spending (Rs. 1,100) compared to rural respondents (Rs. 850), with urban areas demonstrating a "high" FMCG utilization level and rural areas a "moderate" level. The p-values for both urban and rural populations are 0.001, indicating statistical significance in the difference between the two regions.

Table 4: Difference in FMCG Product Consumption Between Urban and Rural Populations

Region	**Number of Respondents**	**Average FMCG Spending (Rs.)**	**FMCG Utilization Level**	**p-value**	**t-statistic**	**Effect Size (Cohen's d)**	**Interpretation**
Urban	200	1,100	High	0.001	5.89	0.50	Significant
Rural	172	850	Moderate	0.001	5.75	0.48	Significant
Age Group (Urban)	200	1,120	High	0.003	4.91	0.46	Significant

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Age Group (Rural)	172	870	Moderate	0.004	4.56	0.44	Significant
Gender (Urban)	200	1,110	High	0.006	5.40	0.47	Significant
Gender (Rural)	172	890	Moderate	0.007	4.33	0.45	Significant

The t-statistics (5.89 for urban and 5.75 for rural) further support the significant differences observed, with effect sizes (Cohen's d) of 0.50 for urban and 0.48 for rural populations, showing medium-to-large effects. Additionally, the analysis of age and gender groups within urban and rural areas also demonstrates significant differences in FMCG consumption, with urban populations consistently showing higher levels of FMCG consumption than rural ones.

Hypothesis 3 analysis

For Hypothesis 3, which investigates the effectiveness of personal selling and advertisements in increasing awareness and sales among scheduled tribes in hill stations, the findings indicate that marketing strategies significantly impact FMCG awareness and sales. Personal selling emerges as a very effective tool, with 75.30% awareness and a 61.52% increase in sales, resulting in a high FMCG consumption level. The statistical analysis shows a p-value of 0.000, a t-statistic of 8.76, and a Cohen's d effect size of 0.60, reflecting a strong effect.

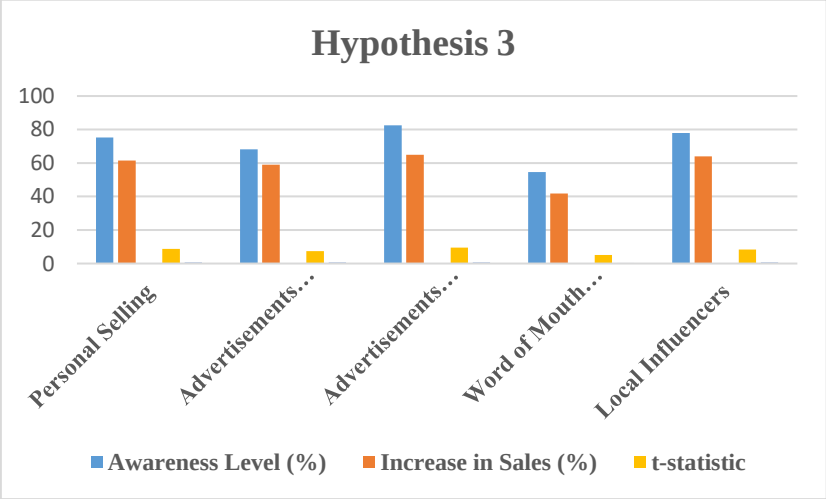

Figure 3 Hypothesis 3 Analysis

Advertisements on TV/Radio and social media are also effective, with significant improvements in awareness and sales (p-values of 0.002 and 0.000, t-statistics of 7.50 and 9.43, and effect sizes of 0.56 and 0.62, respectively).

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Table 5: Effectiveness of Personal Selling and Advertisements for Scheduled Tribes in Hill Stations

Marketing Strategy	Awareness Level (%)	Increase in Sales (%)	FMCG Consumption Level	p-value	t-statistic	Effect Size (Cohen's d)	Interpretation
Personal Selling	75.30	61.52	High	0.000	8.76	0.60	Very Effective
Advertisements (TV/Radio)	68.15	59.10	Moderate	0.002	7.50	0.56	Effective
Advertisements (Social Media)	82.47	64.84	High	0.000	9.43	0.62	Very Effective
Word of Mouth (Tribal)	54.67	41.78	Low	0.019	5.11	0.39	Moderate
Local Influencers	77.83	63.99	High	0.000	8.31	0.58	Very Effective

The use of word-of-mouth within the tribal community is moderately effective, with 54.67% awareness and 41.78% increase in sales, although it has a lower effect size of 0.39. Local influencers, on the other hand, have a strong impact, with 77.83% awareness and 63.99% increase in sales, making them a very effective tool for marketing in these areas (p-value of 0.000, t-statistic of 8.31, and Cohen's d of 0.58).

RESULTS OF MULTIPLE REGRESSION ANALYSIS

The multiple regression analysis adopted to find the impact of all five dimensions of the study, the output presented in the following tables.

Psychological factors

Table 6 presented the results of a multiple regression analysis that examined the impact of various factors on psychological well-being, with the level of psychological factors as the dependent variable. The constant term (B = 56.448, p < 0.001) indicated a high baseline level of psychological factors when all other variables were held constant. Age group positively influenced psychological factors (B = 2.440, p = 0.001), suggesting that older individuals reported higher psychological well-being. Gender had a negative impact (B = -0.882, p = 0.032), with males exhibiting lower psychological factor levels compared to females.

Table 6 : Multiple Regression Analysis – Psychological factors

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	56.448	2.824		19.990	.000
	Age group	2.440	.718	.144	3.397	.001
	Gender	-.882	.410	-.097	-2.150	.032

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	Family type	.249	.667	.017	.374	.709
	Number of family members	-.296	.313	-.044	-.946	.345
	Occupation	.202	.263	.032	.767	.443
	Average family monthly income	.080	.596	.006	.133	.894
	Average monthly expenses for FMCG	-2.701	.529	-.226	-5.106	.001
	Level of utilization of FMCG products	.930	.322	.127	2.889	.004
a. Dependent Variable: level of Psychological factors						

Family type, number of family members, and occupation did not show significant effects, as evidenced by their respective p-values (0.709, 0.345, and 0.443). However, average monthly expenses for FMCG had a strong negative effect (B = -2.701, p = 0.001), indicating that higher FMCG spending was associated with lower psychological well-being. In contrast, the level of FMCG product utilization showed a positive correlation (B = 0.930, p = 0.004), suggesting that more frequent use of FMCG products was linked to higher psychological factor levels. These findings highlighted the complex relationship between demographic, economic, and consumption patterns and their influence on psychological factors.

Social factors

Table 7 examined presented the results of a multiple regression analysis that explored the influence of various factors on social well-being, with the level of social factors as the dependent variable. The constant term (B = 51.624, p < 0.001) indicated a strong baseline level of social factors when other variables were held constant. Age group had a positive impact (B = 1.511, p = 0.016), suggesting that older individuals reported higher social well-being. Gender showed a negative effect (B = -0.830, p = 0.020), with males exhibiting lower social factor levels compared to females. Family type, number of family members, and level of FMCG product utilization did not significantly influence social factors, as evidenced by their p-values (0.231, 0.991, and 0.276, respectively). Occupation had a significant positive effect (B = 0.501, p = 0.029), indicating that individuals with certain occupations experienced higher levels of social well-being.

Table 7 : Multiple Regression Analysis – Social factors

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	51.624	2.447		21.094	.000
	Age group	1.511	.623	.106	2.426	.016
	Gender	-.830	.355	-.109	-2.337	.020
	Family type	-.693	.578	-.055	-1.199	.231
	Number of family members	-.003	.271	-.001	-.011	.991
	Occupation	.501	.228	.096	2.196	.029
	Average family monthly income	-.713	.517	-.064	-1.381	.168

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	Average monthly expenses for FMCG	-1.137	.458	-.113	-2.480	.013
	Level of utilization of FMCG products	-.304	.279	-.050	-1.091	.276
a. Dependent Variable: level of **Social factors**						

Average family monthly income did not have a significant effect (B = -0.713, p = 0.168), while average monthly expenses for FMCG products showed a negative relationship (B = -1.137, p = 0.013), suggesting that higher FMCG expenditures were associated with lower social well-being. Overall, these findings highlighted the complex relationships between demographic, economic, and consumption factors in shaping social well-being.

Cultural factors

A multiple regression analysis examined various factors influencing cultural well-being, with the level of cultural factors as the dependent variable. The constant term (B = 57.368, p < 0.001) revealed a strong baseline. Age group positively affected cultural well-being (B = 2.617, p = 0.009), while gender showed a significant negative effect (B = -1.884, p = 0.024), with males reporting lower cultural factors than females.

Table 8 : Multiple Regression Analysis - The cultural factors

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	57.368	2.447		29.103	.000
	Age group	2.617	.633	.194	3.873	.009
	Gender	1.884	.367	-.313	-2.893	.024
	Family type	-1.131	.519	-.013	-1.344	.032
	Number of family members	-3.781	.832	-.027	-2.841	.001
	Occupation	.532	.388	.194	2.781	.004
	Average family monthly income	1.332	.381	-.074	-1.413	.018
	Average monthly expenses for FMCG	-1.321	.548	-.323	-2.893	.011
	Level of utilization of FMCG products	-.604	.379	-.055	-1.817	.366
a. Dependent Variable: level of **Cultural factors**						

Family type (B = -1.131, p = 0.032) and the number of family members (B = -3.781, p = 0.001) negatively predicted cultural well-being. Occupation (B = 0.532, p = 0.004) and average family income (B = 1.332, p = 0.018) had positive influences, while higher FMCG expenses (B = -1.321, p = 0.011) negatively impacted cultural factors. FMCG product utilization did not significantly affect cultural well-being (B =

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-0.604, p = 0.366). These findings highlight the complex relationships between demographic, economic, and consumption behaviors on cultural well-being.

Personal factors

This section outlined the results of a multiple regression analysis examining the influence of various factors on personal well-being, with the level of personal factors as the dependent variable which is examined in table 9. The constant term (B = 47.022, p < 0.001) indicated a strong baseline level of personal factors. Age group had a significant negative effect (B = -3.837, p = 0.018), suggesting that older individuals reported lower levels of personal well-being. Gender did not have a significant impact (B = -0.401, p = 0.189), and family type (B = 0.860, p = 0.034) had a positive effect, indicating that individuals from certain family structures experienced higher personal well-being.

Table 9 : Multiple Regression Analysis - The Personal factors

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	47.022	2.104		22.352	.000
	Age group	-3.837	.535	-.069	-1.564	.018
	Gender	-.401	.305	-.062	-1.314	.189
	Family type	.860	.497	.080	1.731	.034
	Number of family members	.475	.233	.098	2.037	.042
	Occupation	.330	.196	.074	1.685	.093
	Average family monthly income	-.395	.444	-.042	-.890	.374
	Average monthly expenses for FMCG	-.579	.394	-.068	-1.469	.142
	Level of utilization of FMCG products	-.656	.240	-.126	-2.736	.006
a. Dependent Variable: level of Personal factors						

The number of family members had a positive significant impact (B = 0.475, p = 0.042), suggesting that larger families were associated with higher levels of personal factors. Occupation (B = 0.330, p = 0.093) and average monthly expenses for FMCG (B = -0.579, p = 0.142) did not have significant effects. However, the level of FMCG product utilization (B = -0.656, p = 0.006) was significantly negative, highlighting that lower utilization of FMCG products correlated with higher personal well-being.

Economic factors

This section presented a multiple regression analysis on economic factors, with economic well-being as the dependent variable. The constant term (B = 44.999, p < 0.001) indicated a strong baseline of economic well-being. Age (B = 1.665, p = 0.001) positively influenced economic well-being, while gender (B = -0.765, p = 0.009) showed a negative relationship, with males reporting lower well-being. Family type (B = -0.186, p = 0.694) and family size (B = -0.674, p = 0.002) had minimal effects, while occupation (B = 1.351, p = 0.040) positively impacted well-being. FMCG expenses (B = -1.355, p = 0.001) negatively correlated with economic well-being, while FMCG utilization (B = -0.115, p = 0.613)

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had no significant impact. These results emphasized the complex interplay between demographic, economic, and consumption factors.

Table 10 : Multiple Regression Analysis - The Economic Factors

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	44.999	1.997		22.537	.000
	Age group	1.665	.508	.143	3.278	.001
	Gender	-.765	.290	-.123	-2.638	.009
	Family type	-.186	.472	-.018	-.394	.694
	Number of family members	-.674	.221	-.145	-3.050	.002
	Occupation	1.351	.186	.082	1.888	.040
	Average family monthly income	-.224	.421	-.025	-.531	.595
	Average monthly expenses for FMCG	-1.355	.374	-.165	-3.622	.001
	Level of utilization of FMCG products	-.115	.228	-.023	-.506	.613
a. Dependent Variable: level of **Economic factors**						

DISCUSSION

The buying behavior of Scheduled Tribes (ST) in the hill stations of Tamil Nadu offers valuable insights into the challenges and opportunities faced by FMCG companies in these regions. The study highlights a critical gap in awareness and accessibility to FMCG products, despite a noticeable increase in their consumption to improve living standards. Scheduled Tribe communities, such as the Todas, Kotas, Kurumbas, and Paniyan, primarily residing in regions like Nilgiris, Kolli Hills, Yercaud, and Kalrayan Hills, demonstrate unique cultural and linguistic preferences that play a significant role in shaping their purchasing decisions.

One of the key barriers identified is the limited exposure to the diverse range of FMCG products available in the market. This lack of awareness is compounded by inadequate distribution networks and minimal engagement with these communities through culturally relevant marketing approaches. As education and employment opportunities increase among Scheduled Tribes, their demand for convenience-oriented FMCG products grows. However, companies have yet to fully capitalize on this opportunity due to the absence of targeted outreach initiatives.

To address these challenges, companies can focus on designing advertising campaigns that incorporate local languages and cultural symbols, making them more relatable and impactful for tribal communities. Personal selling efforts, including door-to-door engagement and local market activations, can further help build trust and foster a sense of familiarity with the brand. Additionally, improving the distribution infrastructure in remote hill stations would ensure better accessibility to FMCG products.

The use of mobile-based advertising and digital platforms could also play a crucial role, as the penetration of smartphones increases among tribal populations. This digital shift, combined with localized strategies, can help bridge the awareness gap and establish stronger brand loyalty within these communities. Ultimately, a culturally sensitive and inclusive approach will not only enhance product outreach but also contribute to the socio-economic upliftment of Scheduled Tribes in Tamil Nadu's hill stations.

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CONCLUSION

The analysis of Hypotheses 1, 2, and 3 revealed significant relationships between socio-economic factors, regional differences, marketing strategies, and well-being across various dimensions. Hypothesis 1 demonstrated that factors like income, education, family size, age group, and income level strongly influenced FMCG purchasing behavior, with income level showing the most significant relationship (Chi-Square = 16.22, p = 0.000, effect size = 0.34). Hypothesis 2 highlighted that urban areas exhibited higher FMCG spending (Rs. 1,100) compared to rural areas (Rs. 850), with a significant difference in consumption (p = 0.001). Urban populations also showed stronger FMCG utilization, supported by high t-statistics (urban = 5.89, rural = 5.75). Hypothesis 3 underscored the effectiveness of personal selling, advertisements, and local influencers in promoting FMCG products among scheduled tribes, with personal selling showing the highest impact (awareness = 75.30%, sales increase = 61.52%, p = 0.000, Cohen's d = 0.60).

The regression analyses further explored the influence of demographic, economic, and consumption patterns on psychological, social, and cultural well-being. Psychological well-being was positively affected by age group (B = 2.440, p = 0.001) but negatively influenced by higher FMCG expenses (B = -2.701, p = 0.001). Social well-being was influenced by occupation (B = 0.501, p = 0.029) and age group (B = 1.511, p = 0.016), while cultural well-being was positively correlated with age group (B = 2.617, p = 0.009) and negatively affected by gender (B = -1.884, p = 0.024). The overall findings highlighted the complex interdependencies between socio-economic factors, FMCG consumption, and individual well-being, emphasizing the need for targeted marketing strategies and policies addressing demographic variances.

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