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A Study on Consumer Behaviour Towards FMCG Products

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ABSTRACT:

This study examines consumer buying behavior towards fast moving consumer goods (FMCG) using a sample of 50 questionnaire responses. The analysis focuses on demographic profile, purchase frequency, factors influencing FMCG Purchases, Purchase channels, brand loyalty, satisfaction, promotional influences, and sustainable packaging Preferences. Descriptive statistics are followed by chi-square test, one way ANOVA and multiple linear regressions. At the 5% significance level, the chi-square test did not have a statistically significant association between age group and weekly FMCG goods purchasing, ANOVA did not identify a statistically significant difference in mean satisfaction across age groups, and the regression model was not statistically significant overall. These results describe the present sample and should not be generalized to wider population without a larger and independently collected sample.

DATA ANALYSIS USING CHI-SQUARE TEST, ONE WAY ANOVA AND LINEAR REGRESSION

SAMPLE SIZE: 50 RESPONDENTS | DATA SOURCE: QUESTIONAIRE SAMPLE DATASET | SIGNIFICANCE-5%

Introduction:

Fast moving consumer goods include frequently purchased products such as groceries, toiletries, personal care items, and other daily used products. consumers make FMCG decisions under the influence of price, quality, convenience brand reputation promotions recommendations and packaging understanding these factors helps them FMCG businesses improve product positioning promotional planning and consumer experience. The present study uses questionnaire data from 50 respondents to examine selected behavioral patterns. Statistical techniques are used to determine whether observed differences and associations are statistically significant within the sample.

Objectives of the Study:

- To study the demographic profile and FMCG purchasing frequency of respondents.
- To identify the major factors influencing FMCG purchase decisions.
- To examine the relationship between age groups and weekly FMCG purchasing behavior.
- To compare average satisfaction levels across age groups.
- To examine whether brand loyalty and promotional influences help explain satisfaction with current FMCG packaging and pricing trends.
- To provide practical implications based on the sample findings.

Research Hypothesis:

Chi-Square test:

H01: Age group and weekly FMCG purchasing behavior are independent.

H11: Age group and weekly FMCG purchasing behavior are associated.

One- Way ANOVA:

H02: Mean satisfaction is equal across the four age groups used in the ANOVA.

H12: At least one age group has a different mean satisfaction level.

Linear Regression:

H02: Brand loyalty and the four promotional influences do not collectively explain satisfaction.

H13: At least one Predictor contributes to explaining satisfaction.

Research Methodology:

The Study Follows a quantitative, descriptive, and analytical design. The supplied Excel dataset Contains 50 respondent records and 14 questionnaire variables. The analysis was conducted using Excel compatible tables and Statistical Calculation. For inferential level was fixed at $\alpha = 0.05$.

For the Chi-Square test, age was grouped into four categories (18-24,25-34,35-44 and 45+ years), While purchase frequency was converted into two categories: Weekly and other. For ANOVA, the dependent variables were satisfaction with current packaging and pricing trends, Measured from 1 to 5. For regression, Satisfaction was the dependent variables; brand loyalty was coded 1-5 and promotional impact responses were coded from 0(No impact) to (High impact).

Descriptive Analysis:

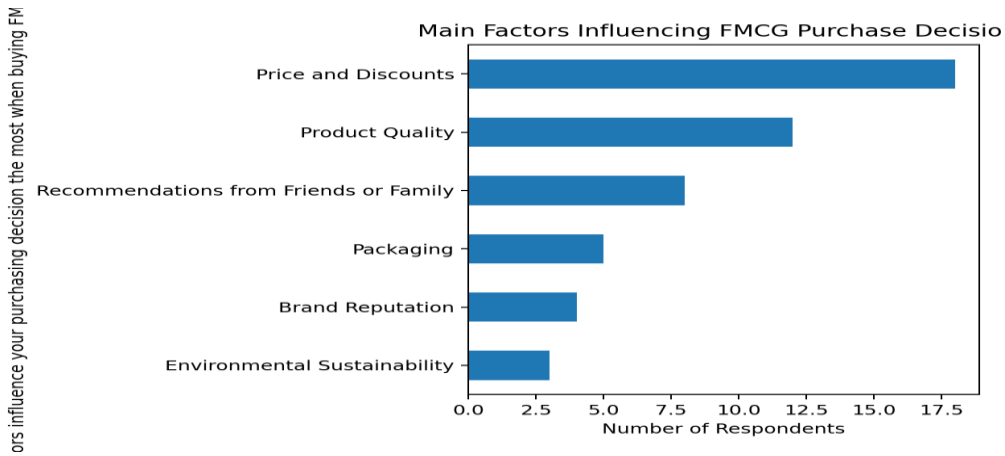
The Sample Contains 50 respondents. Weekly purchasing was the most common purchase frequency (24 respondents,48%). Price and discounts were the most frequently reported main purchase factor (18 respondents,36%), followed by product quality (12 respondents,24%). Local grocery stores and supermarket/hypermarkets were the two most common purchase locations, with 17 respondents each (34%).

Table 1: - Age group distribution

Response	Frequency	Percent
35-44 years	14	28.00
25-34 years	12	24.00
18-24 years	11	22.00
45-54 years	9	18.00
55 years and above	4	8.00

Table2. main factors influencing FMCG purchases.

Response	Frequency	Percent
Price and Discounts	18	36.00
Product Quality	12	24.00
Recommendations from Friends or Family	8	16.00
Packaging	5	10.00
Brand Reputation	4	8.00
Environmental Sustainability	3	6.00



Chi-Square Test:

A Pearson chi-square test was conducted to examine whether age group is associated with weekly FMCG purchasing. The calculated statistic was $\chi^2 = 2.557$ with 3 degrees of freedom and p=0.45. Cramer's V was 0.226. Since p>0.05, the null hypothesis is not rejected. Within this sample, there is insufficient statistical evidence of an association between age groups and whether respondents reported weekly purchasing.

Table 3. Age group × weekly purchase contingency table

Age Group (4 levels)	Other	Weekly
18-24 years	6	5
25-34 years	5	7
35-44 years	6	8
45+ years	9	4

Table 4. Chi-square results

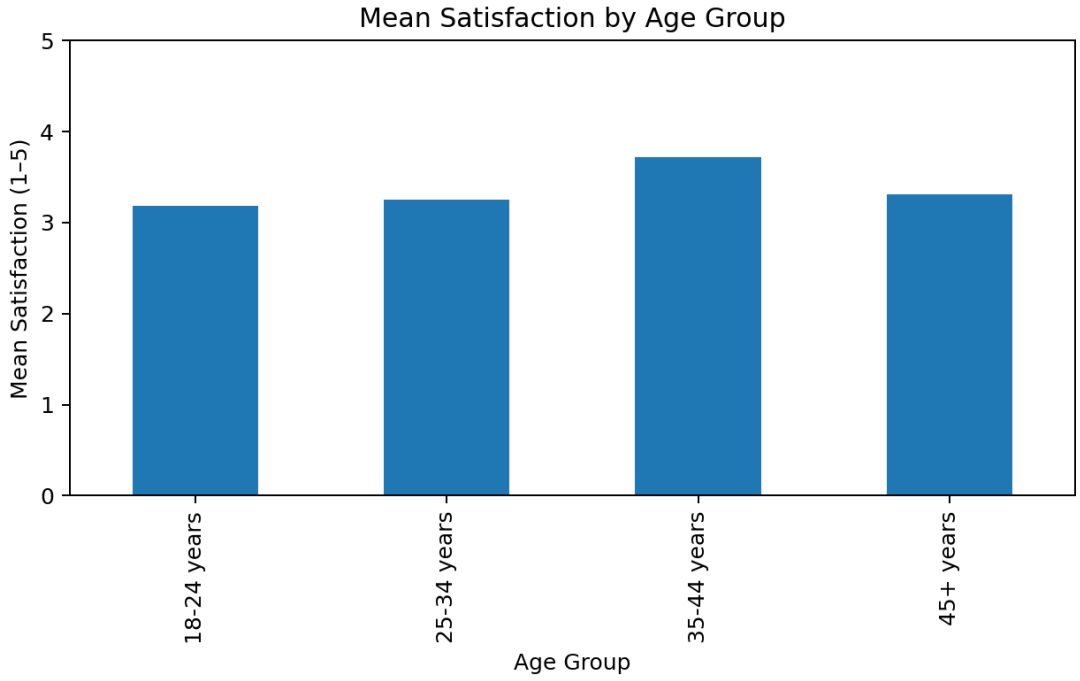
Measure	Result
Chi-square	2.557
df	3
p-value	0.465
Cramer's V	0.226
Decision	Failing to reject H0

One-way ANOVA:

A one way ANOVA compared mean satisfaction across four age groups, The group means ranged from3.18 to 3.71. The ANOVA result was F (3,46) =0.0880, p=0. 459.Because p >0.05, the null hypothesis is not rejected. The sample therefore does not provide sufficient evidence that satisfaction differs by age group.

Table 5. Satisfaction by age group

Age Group	N	Mean Satisfaction	Std. Deviation
18-24 years	11	3.182	0.751
25-34 years	12	3.250	1.138
35-44 years	14	3.714	0.825
45+ years	13	3.308	0.947

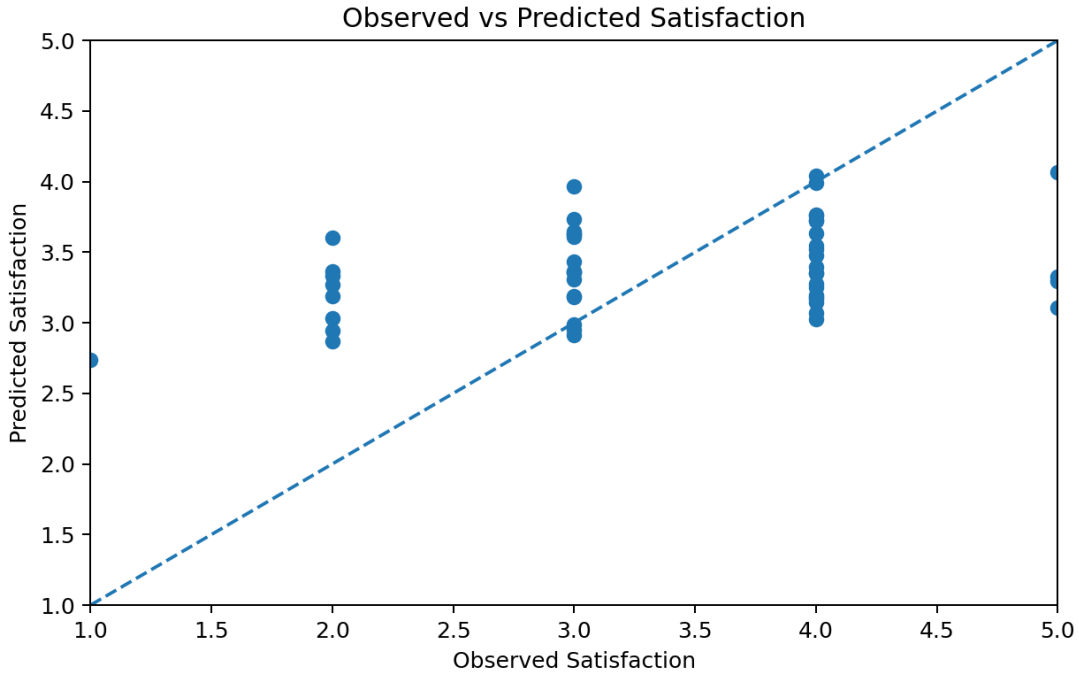


Multiple linear regression:

A multiple linear regression was estimated with satisfaction as the dependent variable and brand loyalty, free sample impact, cashback impact, celebrity endorsement impact, and social media as impact as predictors. The model produced $R^2 = 0.117$ and adjusted $R^2 = 0.017$. The overall model was not statistically significant (5,44) =1.170, p=0. 339. Thus, the regression results do not provide sufficient evidence that the selected predictors collectively explain satisfaction in this sample

Table 6. Regression Coefficients

Predictor	B	Std. Error	t	p-value
const	3.267	0.629	5.192	0.000
Brand Loyalty (1-5)	0.052	0.100	0.517	0.608
Free Samples (0-3)	-0.296	0.161	-1.835	0.073
Cashback Offers (0-3)	0.142	0.151	0.936	0.354
Celebrity Endorsements (0-3)	0.147	0.139	1.053	0.298
Social Media Ads (0-3)	0.015	0.157	0.098	0.922



Major Findings:

- The sample consists of 50 respondents with varied age groups and employment statuses.
- Weekly FMCG purchasing was the most common purchase frequency in the sample.
- Price and discounts were the most frequently selected main purchase factor.
- Local grocery stores and supermarkets were the most common purchase location.
- The Chi-Square test was not significant (χ^2=2.557, p=0.465), so age group and weekly purchasing were not statistically associated in this sample.
- The regression model was not significant (R^2=0.117, adjusted R^2=0.017, p=0.339).
- The statistical results should be interpreted as sample specific because the dataset is 50 response sample rather than a probability sample of all Indian FMCG consumers.

Managerial Implications:

- FMCG companies can continue to monitor price competitiveness and discount structures because price and discounts were the most frequently reported purchase factors.
- Retailers can maintain a balanced offline and online distribution strategy because both local stores and supermarket/hypermarkets were prominent purchase channels.
- Promotional activities should be evaluated using actual conversation and repeat purchase data rather than assuming that every promotional format improves satisfaction.
- Packaging decisions can incorporate consumers' interest in environmentally sustainable materials while also considering cost, product protection, and convenience.
- Customers Segmentation should not rely on age alone, purchase behavior may also depend on income, household size, product category, brand experience, and channel preference.

Limitations

- The analysis uses 50 questionnaire responses, so statistical power is limited.

- The dataset supplied is a sample dataset and should not be treated as a nationality representee survey.
- Several questionnaire variables are categorical or ordinal, numerical coding is used only for the stand statistical procedures.
- The regression model explains a limited share of variation in satisfaction, indicating that other variables not included in the questionnaire may be relevant.
- The findings describe association and prediction within the sample and do not establish causation.

Conclusion

The study provides a quotative overview of FMCG consumer behavior in the 50-response sample. Price and discounts emerged as the most selected purchase factor, while weekly purchasing was the dominant purchase frequency. The inferential tests did not identify statistically significant relationship between age and weekly purchasing, difference in satisfaction across age groups, or an overall significant regression model using the selected predictors. The results therefore suggest that FMCG purchases behavior and satisfaction in this sample cannot be explained buy the tested variable alone. A larger, more diverse, and probability-based sample, together with additional variables such as income, household size, product category and perceived value, could provide stronger evidence in future research.