

An Empirical Analysis of Marketing Practices and Constraints among SHGs in Thiruvallur District

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ABSTRACT

Background

Self-Help Groups (SHGs) are an important instrument for empowering women, financial inclusion, and rural economic development in India. But these SHGs can be sustained and grow by learning to market effectively and to overcome different market-related constraints.

Objectives

The objectives of this study are to empirically examine the effect of marketing practices and marketing constraints on the performance of SHGs in Thiruvallur District. The study also aims to find out the major constraints facing the SHG and to categorize the SHGs according to the marketing and performance parameters.

Methods

The methods adopted were descriptive and exploratory research with primary data collected by means of structured questionnaires, interviews, and observation in the field from 250 respondents in the SHG. To assess the relationship between marketing practices, constraints, and SHG performance, statistical tools, including descriptive statistics, Cronbach's Alpha reliability analysis, Cluster Analysis, Analysis of Variance (ANOVA), Garrett Ranking Technique, Composite Marketing Constraint Index (CMCI), and correlation analysis, were used.

Results

The study shows that branding, the quality of packaging, and the use of digital marketing have a positive effect on the performance of the SHG, while the marketing constraints have a negative impact on sales growth, profit, and market reach. Cluster analysis classified SHGs into three categories: high, moderate, and low performing groups, with the high performing SHGs showing better marketing adoption and lower CMCI scores. Garrett's ranking revealed that the three most important constraints affecting SHGs were low digital literacy, inadequate branding, and lack of market access.

Conclusion

The framework is proposed as an analytical tool that provides guidance for policy makers, SHG coordinators, and development agencies in designing successful policies for rural enterprise development and women's empowerment.

Keywords: Self-Help Groups, Marketing Practices, Marketing Constraints, Digital Marketing, Cluster Analysis, Composite Marketing Constraint Index, Thiruvallur District.

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1. Introduction

The Self-Help Groups (SHGs) have emerged as an important tool for ensuring financial inclusion, empowerment of women, and rural development in India [1]. Self-help groups make it possible for the members to save money [2], obtain micro credit facilities, and engage in business enterprises [3]. Self-help groups have progressed from being mainly credit-based organizations to engaging in the activities of manufacturing goods and providing services [4]. Nevertheless, the viability of the self-help groups in the long run will be greatly affected by how effectively they can promote their business and services [5]. Thus, marketing is very significant in the success of the SHGs.

Although SHGs have made important socio-economic contributions, they still encounter several

obstacles when it comes to selling their goods [6]. The difficulty of gaining access to bigger markets, the absence of standardized branding and packaging of goods [7], and the lack of knowledge on the proper pricing of items affects their competitive advantage [8]. In addition, poor knowledge about digital marketing and limited use of online tools prevent them from moving beyond the locality [9]. Financial and infrastructural limitations contribute to the problem as well [10].

Most of the existing studies regarding SHGs make use of basic statistics and ranking to address their marketing issues [11]. Although this technique is effective to some extent, it may fail to incorporate the complexities in the marketing processes due to constraints and performance factors [12]. Very few studies have focused on advanced techniques like cluster-based segmentation [13] and variance

analysis that help in recognizing the disparities in SHGs concerning the performance factor [14]. Apart from this, most studies focus more on traditional marketing and pay little attention to innovative dimensions like digital marketing and product differentiation [15]. This is especially true in the case of region-specific SHGs in Thiruvallur district.

In order to overcome the aforementioned shortcomings, the current study recommends the adoption of a holistic analysis model in exploring the marketing activities and constraints experienced by SHGs operating in the Thiruvallur district. In particular, the research follows the descriptive and exploratory research design, making use of primary data gathered from surveys, interviews, and observation of fieldwork. In order to conduct the research, cutting-edge statistical tools such as Cluster Analysis, Analysis of Variance (ANOVA), and Garrett Ranking Method will be applied to obtain a comprehensive view of SHG performance. In addition, a Composite Marketing Constraint Index (CMCI) and a Constraint-Performance Mapping Model will be developed to measure the degree of marketing constraints and their correlation with performance outcomes.

1.1. Research Questions

- What are the existing marketing practices adopted by Self-Help Groups (SHGs) in Thiruvallur district, and how do they influence performance?
- Are there significant differences in performance among SHGs based on their marketing practices?
- How does branding affect the performance of SHGs?
- What is the impact of packaging quality on the product acceptance and sales performance of SHGs?
- How do digital marketing adoption and marketing constraints influence the overall performance of SHGs?

1.2. Hypotheses

- ✓ **H1:** There is a significant difference in performance among SHG clusters based on marketing practices.
- ✓ **H2:** Branding has a significant positive impact on SHG performance.
- ✓ **H3:** Packaging quality significantly influences product acceptance and sales performance.
- ✓ **H4:** Adoption of digital marketing significantly improves market reach and profitability of SHGs.
- ✓ **H5:** Marketing constraints have a significant negative impact on SHG performance.

The organization of this paper is as follows: Section 2 reviews existing literature about SHG marketing practices and women's empowerment and marketing constraints. The research methodology

section explains the research design, sampling strategy, data collection process, and variables and statistical analysis techniques that are used in the study. The results analysis in Section 4 uses descriptive statistics together with reliability analysis, cluster analysis, ANOVA, Garrett ranking, CMCI analysis, correlation analysis, and hypothesis testing. The major findings of the study, together with their implications for SHG performance and marketing constraints, which were discovered in the research, are discussed in Section 5. The study ends in Section 6, which presents essential findings and practical applications along with research limitations and future study directions.

2. Literature review

The effectiveness of Self Help Groups (SHGs) in the socio-economic development and empowerment of women in rural communities has received much attention from scholars. Various researchers have pointed out their contributions to financial inclusiveness, income generation, and capacity building among women members. For example, Waigaonkar et al. [16] explored the socio-economic characteristics of SHG members in the Vidarbha region, where the major problems faced include poor market linkages, financial obstacles, and ignorance of marketing practices that impact SHG operations adversely. Likewise, Tshuma et al. [17] underscored the operational and structural challenges confronting SHGs, such as the lack of appropriate infrastructure.

The marketing techniques used by SHGs have received more attention among researchers. Dev and Saha [18] investigated the marketing techniques used by the SHGs formed by women in rural India, finding out that while conventional techniques are common in these groups, innovative techniques, such as digital marketing, are not widely employed. In addition, Ghosh [19] demonstrated that SHGs can be helpful in promoting green products in view of the important role played by marketing in fostering rural development and empowering women. Nevertheless, these investigations pay attention to exploratory findings but overlook more sophisticated tools of analysis for evaluating the combined effect of marketing factors on performance.

The significance of knowledge, literacy, and capacity building on the performance of SHGs is also well illustrated in the literature. Viswanathan et al. [20], through a field experiment, showed the positive impact of market literacy on the decision-making skills and market involvement of SHG members. In addition, Mohapatra et al. [21] and Rahman et al. [22] also noted that SHGs play an important role in empowering women by increasing their economic independence and social standing. Moreover, Tripathi et al. [23] highlighted the potential of SHGs as agents of socio-economic development in rural India.

From an economic and strategic standpoint, Verma [24] examined the marketing strategies and economic viability of SHGs in microfinance organizations and concluded that an appropriate marketing strategy is important to ensure sustainability in the long run. Narzary and Hussain [25] have also verified that SHGs contribute immensely towards socio-economic improvements; however, there are problems associated with markets and income sources.

However, despite these contributions, certain limitations within the extant literature have been identified. The literature lacks the use of descriptive/exploratory methodologies with the application of sophisticated statistical analysis methods, such as cluster analysis and variance analysis, in analyzing the performance differences among the SHGs. Furthermore, few attempts have been made to create indices for measuring marketing constraints and their effects. In addition, regional research such as the one conducted within the district of Thiruvallur is rare. The current study intends to fill this gap by employing an analytical framework that incorporates various statistical methods.

2.1. Problem Statement

SHGs are very important for empowering women, increasing financial inclusion, and fostering rural development in India [26]. In spite of the immense benefits that can be derived from SHGs, there exist many problems that they have to contend with concerning marketing and sustaining their economic activities. Factors like poor access to the market, lack of proper branding and packaging, poor digital skills, and financial constraints affect their competitiveness and prevent them from performing better [27].

The existing literature on SHGs mainly concentrates on socio-economic issues and basic marketing problems through the application of descriptive methodology without giving any comprehensive discussion on the role played by different marketing aspects in affecting their performance [28]. Besides, the available literature lacks region-specific studies that may shed some light on the unique situation in areas such as the Thiruvallur district. The problem becomes more pronounced due to the lack of performance-oriented classification of SHGs and marketing constraints assessment.

Consequently, there is a need for an empirical research study that explores the relationship between marketing activities, limitations, and performance of SHGs through rigorous analysis tools. This research study endeavors to fill these gaps in the existing literature by developing an integrated approach that not only analyzes the various marketing problems but also their implications for SHG performance as well.

2.2. Theoretical framework

The theoretical framework adopted for this research study is premised on the notion that the performance of Self-Help Groups (SHGs) is determined by both the enabling marketing practices and the constraining forces in a resource-constrained environment. Based on the Resource-Based View theory (RBV), marketing activities such as brand creation, product packaging, and the use of digital marketing techniques are considered critical capabilities that improve product differentiation, market coverage, and overall performance. Conversely, constraint theory postulates that limitations such as lack of market coverage, financial limitations, and poor digital skills have a negative impact on SHG performance. In this case, marketing practices will be considered as independent variables that positively influence performance, while marketing constraints are constraining factors. The study also adopts performance-driven segmentation using cluster analysis with ANOVA validation, and Composite Marketing Constraint Index (CMCI) measurement of constraining intensity.

2.3. Conceptual framework

Conceptual framework for this research postulates that the performance of Self Help Groups (SHGs) depends on the interplay of marketing and marketing limitations. Conceptual Framework shows the connection between independent variables (IV), mediating variables (MV), dependent variables (DV) and control variables (CV) for SHGs in Thiruvallur district.

- **Independent Variables (IV):** Marketing Practices, Branding Strategy, Packaging Quality, and Digital Marketing Adoption directly influence SHG performance and also indirectly affect it through marketing constraints.
- **Mediating Variable (MV):** Marketing Constraints (measured using CMCI) act as an intermediate factor that transmits the effect of marketing practices on performance.
- **Dependent Variable (DV):** SHG Performance is measured using indicators such as sales growth, profitability, and market reach & stability.
- **Control Variables (CV):** Demographic factors like age, education, SHG membership duration, and income are controlled to ensure unbiased results.
- **Relationships:**
 - Direct effect: IV → DV
 - Indirect (mediated) effect: IV → MV → DV
 - Control effect: CV → DV

This model supports hypothesis testing and provides a structured basis for empirical analysis. The conceptual framework flow is given in Figure 1.

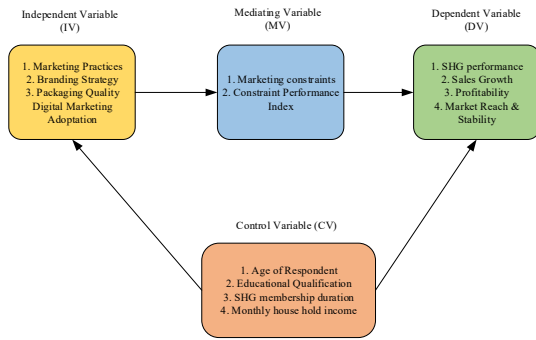


Figure 1: Conceptual Framework model

2.4. Research Hypotheses

Following the theoretical framework, the hypotheses below have been developed for examining the relationship among marketing practice, marketing constraint, and performance of the SHGs. Directions of hypotheses are presented in Table 1 below.

Table 1: Summary of Research Hypotheses

Hypothesis	Statement	Direction
H1	There is a significant difference in performance among SHG clusters based on marketing practices.	Significant
H2	Branding has a significant positive impact on SHG performance.	Positive (+)
H3	Packaging quality significantly influences product acceptance and sales performance.	Positive (+)
H4	Adoption of digital marketing significantly improves the market reach and profitability of SHGs.	Positive (+)
H5	Marketing constraints have a significant negative impact on SHG performance.	Negative (-)

Table 1 provides an overview of the research hypotheses developed to explore the association between marketing strategies, challenges, and the performance of Self-Help Groups (SHGs). Table 1 illustrates that the H1 hypothesis centers on determining the existence of performance differences among SHG clusters depending on their marketing strategies, emphasizing the significance of segmentation. H2, H3, and H4 stress the importance of the positive effects of certain marketing dimensions, namely branding, high-quality packaging, and digital marketing application, on different areas of SHG performance, such as product acceptance, marketing coverage, and profitability. On the other hand, H5 highlights the negative impacts of marketing challenges, implying that higher levels of marketing challenges affect SHG performance.

3. Proposed methodology

The study aims to understand the market orientation and market barriers affecting the performance of SHGs in Thiruvallur district. The proposed study is of a descriptive and exploratory type. The primary data is gathered from a structured questionnaire, complemented with interviews and field observations, providing quantitative and contextual information. The questionnaire has been developed based on a Likert scale to collect data on marketing practices (branding, packaging, and adoption of digital marketing), performance indicators (sales growth, profitability, and market reach), and marketing constraints (market access, financial constraints, infrastructure, and digital literacy). The collected data are analyzed descriptively to get the profile of the SHG and the distribution of important variables. Internal consistency of the constructs is tested by reliability analysis with Cronbach's Alpha.

This is followed by the use of Cluster Analysis to categorize SHGs in homogeneous groups based on several performance indicators, which results in a segregation of high, moderate, and low performance clusters. ANOVA is used to determine if there are significant differences between these clusters in terms of marketing practices. The methodology used to rank the marketing constraints is the Garrett Ranking Technique, which is used to rank their importance based on how severe the marketing constraint is as perceived by the SHG members. Furthermore, a CMCI is created, using individual constraint scores to measure the marketing constraint level perceived by each SHG. A correlation analysis is also used to analyze the relationship between marketing practices, constraints, and performance results. Finally, results are incorporated in a Constraint-Performance Mapping Framework that creates the connection between marketing problems and the performance of SHG. This all-encompassing methodology allows for a multi-faceted analysis of the SHG marketing

dynamics and provides the basis for formulating strategies based on data to enhance market access, competitiveness, and sustainability. The overall workflow, which involves data collection, data reliability testing, cluster analysis, ANOVA, Garrett ranking, CMCI modelling, and hypothesis testing, is shown in Figure 2 to evaluate the impact of marketing practices and constraints on the performance of SHG in Thiruvallur District.

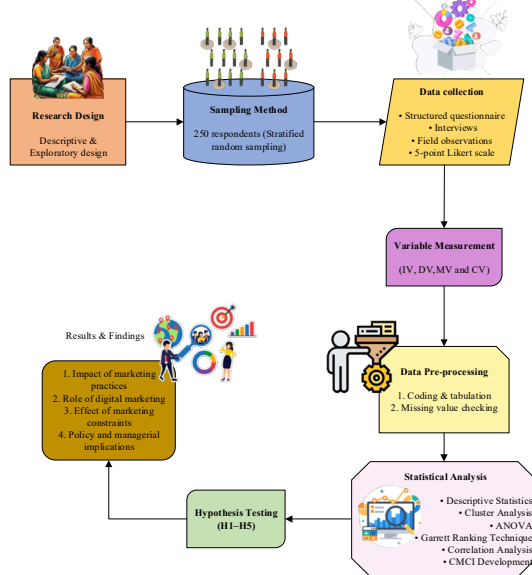


Figure 2: Overall workflow of marketing practices and marketing constraints on the performance of SHGs in Thiruvallur District

3.1 Research Design

In this study, a descriptive and exploratory research methodology is used to analyze the marketing activities and constraints affecting the performance of Self Help Groups (SHGs) in the Thiruvallur district. The description component of the methodology refers to the systematic identification and measurement of the present marketing activities, performance status, and constraints experienced by the SHGs. This allows the research to create an accurate picture of the SHGs through measurable elements such as branding, packaging, online marketing, sales growth, and profitability.

Furthermore, the exploratory method is used to discover any underlying patterns, links, and differences in SHGs that cannot be discovered using descriptive analysis alone. This technique is important in discovering groupings based on performance and the effects of different marketing variables on SHG results. Both descriptive and exploratory analyses ensure a comprehensive analysis, which involves providing summaries of existing conditions while at the same time exploring new perspectives.

In addition to this, the methodology is enhanced by the application of primary data

obtained through the structured questionnaire and interview approach and observations on the ground, which provide a means to measure variables quantitatively and understand the context surrounding them. This design will provide an excellent basis on which to deploy sophisticated statistical methods such as Cluster Analysis, ANOVA, and Garrett Ranking, hence developing a data-based model for improving SHG marketing performance.

3.2 Data Collection

The research methodology used in this study involves collecting primary data because it allows the researcher to collect firsthand and reliable data from the Self Help Groups (SHGs) in the Thiruvallur district. Primary data will be collected using a well-formulated structured questionnaire with the help of a 5-point Likert scale in order to get responses from respondents regarding their views concerning marketing, digital marketing, performance, and marketing constraints.

Besides the questionnaire, semi-structured interviews with SHG members and coordinators have been carried out to gain greater insight into practical issues, marketing experience, and operations. Also, field observation techniques will be used to comprehend contemporary issues related to the packaging, handling, and selling environment of the product.

Such an approach allows the research to achieve both quantifiable and qualitative depth in its investigation by capturing measurable and contextual data. The use of a variety of data collection tools is essential in ensuring the accuracy and reliability of the obtained information.

Table 2: Questionnaire Items by Section

Section	Focus Area	Items	Scale	Items Covered
A	Demographic Profile	8	Categorical	Age, Education, Marital Status, Occupation, Income, SHG Membership, Activity Type, Group Size
B	Marketing Practices	8	5-pt Likert	Branding, product identity, packaging, local

				promotion, exhibitions, pricing, differentiation, market expansion
C	Digital Marketing Adoption	4	5-pt Likert	Mobile promotion, online platforms, digital payments, impact on sales
D	Performance Indicators	5	5-pt Likert	Sales growth, profit improvement, customer base, market demand, and financial stability
E	Marketing Constraints	5	5-pt Likert	Market access, branding gaps, digital literacy, financial limits, transportation challenges

Note: 5-point Likert Scale — 1=Strongly Disagree to 5=Strongly Agree. Section A treated as a control variable; Sections B–E as construct variables. Total sample: N=250.

Table 2 shows the format of the questionnaire used for this research. Section A consists of demographic information and is considered a control variable. Sections B through E employ a 5-point Likert scale to quantify constructs like marketing activities, digital marketing implementation, performance indicators, and marketing restrictions. This framework guarantees a structured collection of data from all variables, with a total of 250 subjects used for the analysis. Demographic information can be seen in Table 3.

Table 3: Demographic Profile of Respondents (N=250)

Variable	Category	Frequency	Percentage (%)
Age	Below 25	30	12.0
	25–35	90	36.0
	36–45	80	32.0
	Above 45	50	20.0
Education	No Formal Education	25	10.0
	Primary	35	14.0
	Secondary	90	36.0
	Higher Secondary	50	20.0
Marital Status	Graduate	50	20.0
	Single	45	18.0
	Married	175	70.0
SHG Experience	Widowed	30	12.0
	Less than 1 year	25	10.0
	1–3 years	95	38.0
	3–5 years	80	32.0
Monthly Income	>5 years	50	20.0
	Below ₹10,000	60	24.0
	₹10,000–₹20,000	100	40.0
	₹20,001–₹30,000	65	26.0
SHG Activity Type	Above ₹30,000	25	10.0
	Manufacturing	75	30.0
	Services	55	22.0
	Agriculture-based	70	28.0

	Handicrafts	50	20.0
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Table 3 shows the demographics of the respondents (N = 250). The predominant age groups amongst SHG members belong to those aged between 25-35 years and 36-45 years, which suggests that their working participation is high. The respondents are well-educated individuals and are mostly married. In terms of SHG experience, the number of members involved is high for one to five years. Income varies mostly between ₹10,000 and ₹20,000, and SHG activities cover a range of industries such as manufacturing, agriculture, service, and handicrafts.

3.3 Sampling Design

The sampling method used in the research has been designed in a manner that would allow for the effective collection of reliable and unbiased information from the Self-Help Groups (SHGs) in the Thiruvallur district. The stratified random sampling technique has been used, whereby the population of SHGs has been classified into homogenous strata based on certain criteria such as activity undertaken by the group, geographical location, or experience in running SHGs.

Sampling from each stratum is done using the random sampling technique so that no element of subjective bias creeps into the analysis. The population under consideration includes all SHGs functioning in the district, and for the research, 250 SHGs can be taken as the appropriate sample size. The sample size is adequate to provide the desired level of statistical reliability to the research. In summary, the sampling technique used by the researchers allows for an accurate representation of the variations prevailing among SHGs regarding marketing practices and constraints, which will help carry out meaningful statistical analysis.

3.4 Variables and Measurement

In the process of identifying and categorizing the variables, they are grouped under independent, dependent, and constraint variables. Independent variables will comprise important marketing strategies such as branding, packaging, and digital marketing adoption, while the SHG performance will be the dependent variable. Moreover, marketing constraints will be viewed as influencing factors that may impede SHG performance. These variables will all be measured on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Variables and measures of variables are detailed in Table 4.

Table 4: Variable Classification Summary

Variable Type	Variable Name	Questionnaire Section	Role in Study
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Independent Variable (IV)	Marketing Practices, Branding, Packaging, Digital Marketing Adoption	Sections B & C	Direct predictor of SHG performance; tested in H2, H3, H4
Mediating Variable (MV)	Marketing Constraints (CMCI)	Section E	Transmits the negative effect of weak marketing on performance; tested in H5
Dependent Variable (DV)	SHG Performance (Sales, Profit, Market Reach, Stability)	Section D	Primary outcome variable; explained by IV and MV
Control Variable (CV)	Age, Education, Income, SHG Membership Duration	Section A	Demographic factors held constant to isolate IV and MV effects

The use of multiple indicators in each construct will help ensure that comprehensive measures have been taken and enhance the reliability of the data collected. Aggregation of data is carried out to produce composite scores, which then undergo various forms of statistical tests, including cluster analysis and ANOVA.

3.6 Data Analysis Techniques

In order to fulfill the research objectives, suitable statistical methods are applied to analyze the data systematically. First of all, descriptive statistics are utilized for describing the data and making observations regarding the important variables, such as marketing techniques, use of

digital marketing, performance, and marketing barriers. Mean and standard deviation can be calculated to determine the data distribution and central tendencies.

- a) To establish the reliability and consistency of the research measurement instrument, the Cronbach Alpha Test is conducted to validate whether the set of variables used for measuring each construct is reliable and appropriate for empirical investigation.
- b) In addition, Cluster Analysis is conducted for identifying similar groups of Self Help Groups (SHGs) in terms of their performance metrics. The result of this classification process will help in identifying differences in the level of performance among SHGs. ANOVA is used for analyzing differences in marketing techniques and other variables between different clusters.
- c) Moreover, the Garrett Ranking Technique is applied for prioritizing and ranking the marketing constraints encountered by SHGs based on respondents' views. Moreover, a Composite Marketing Constraint Index (CMCI) is developed for measuring the overall level of marketing constraints through the use of a composite index of individual marketing constraint scores.
- d) Lastly, there is a correlation analysis performed to analyze the relationship between marketing strategies, restrictions, and performance. This combination of all the above mentioned methodologies guarantees a thorough analysis of the collected data and helps to investigate both separate and joint effects of the variables under consideration.

4. Analysis of results

The result analysis was conducted to study the connections between marketing activities, digitalization, marketing restrictions, and SHG performance. The data that were gathered from 250 respondents were analyzed through systematic processing using IBM SPSS Statistics software. Numerous analytical tools were used, including descriptive statistics, reliability analysis, cluster analysis, ANOVA, correlation, and index analysis. Such an analysis will allow for the proper interpretation of the findings and the validation of the proposed hypotheses.

4.1. Descriptive Statistics of Key Variables

Descriptive statistics are employed to give a snapshot of the important features of the data, giving an insight into the variables being studied. This part contains the mean and standard deviation of the important variables based on answers provided by 250 SHG members.

Table 5: Descriptive Statistics of Key Variables (N=250)

Variable	No. of Items	Mean	Std. Deviation
Marketing Practices	8	3.72	0.68
Digital Marketing Adoption	4	3.10	0.85
SHG Performance (DV)	5	3.65	0.72
Marketing Constraints (MV)	5	4.02	0.61

As shown in Table 5, marketing practices have an average of 3.72, implying moderate to strong adoption of these practices by SHGs, compared to digital marketing adoption, which has a lower average of 3.10, implying weak adoption of digital platforms. The average value of SHG performance is 3.65, meaning that there is a moderate increase in sales and profits from their operations. Marketing constraints, on the other hand, have a much higher average of 4.02, implying that the respondents are well aware of numerous constraints faced during their activities. The generally low values of standard deviation imply a uniformity in responses.

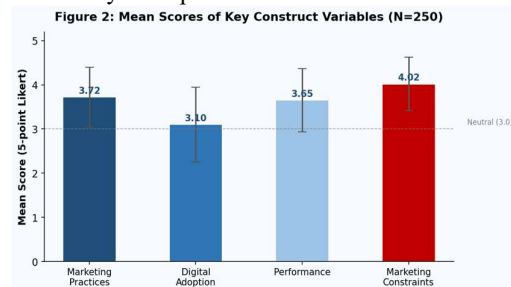


Figure 3: Mean Scores of Key Construct Variables with Std. Deviation Error Bars (N=250)

Figure 3 illustrates the mean values of the major research variables measured using a 5-point Likert scale. Marketing activities (3.72) and SHG performance (3.65) are higher than the neutral point (3.0), which indicates that there is a generally positive perception from the respondents' side regarding these two research variables. However, digitalization has relatively low mean values (3.10),

which indicates that the respondents do not use digital devices much for their business activities. Constraints in marketing are found to be the highest in terms of mean value (4.02).

4.2. Reliability Analysis

Reliability analysis is performed for the purpose of determining the internal reliability of measurement instruments utilized in the study. The Cronbach Alpha test is used to evaluate how well the questions on the survey correlate with one another.

Table 6: Reliability Analysis – Cronbach's Alpha (N=250)

Construct	No. of Items	Cronbach's Alpha	Benchmark	Interpretation
Marketing Practices (IV)	8	0.842	> 0.7	Good reliability
Digital Adoption (IV)	4	0.801	> 0.7	Good reliability
Performance (DV)	5	0.865	> 0.7	Good reliability
Constraints (MV)	5	0.879	> 0.7	Good reliability

Note: All Cronbach's Alpha values exceed 0.7, confirming acceptable internal consistency (Nunnally, 1978).

According to Table 6, all the concepts have shown excellent reliability with a Cronbach's alpha of more than the minimum level of 0.7. Concepts like marketing behaviors (0.842), level of adoption of digital technology (0.801), performance (0.865), and marketing constraints (0.879) have all proved to be reliable in this case. All this proves that the questions developed in the questionnaire are indeed reliable and can be used for further analysis.

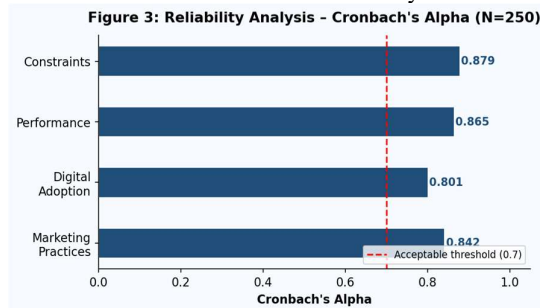


Figure 4: Cronbach's Alpha — All Constructs Exceed 0.7 Threshold (N=250)

Figure 4 shows the reliability of the variables using Cronbach's Alpha values. All constructs – marketing strategies (0.842), digital adoption

(0.801), performance (0.865), and constraints (0.879) – surpass the cut-off value of 0.7, which is depicted by the reference line. It proves that all constructs have high internal consistency. Out of the four constructs, marketing constraints exhibit the highest level of reliability, meaning there are highly consistent responses from the respondents, whereas digital adoption is also reliable but at a lower level.

4.3. Cluster Analysis of SHG Performance

Cluster analysis helps identify SHGs that can be put under similar clusters depending on how well they perform in terms of their performance indicators, which aids in gaining knowledge about marketing differences between SHG clusters.

Table 7: Cluster Analysis Results (N=250)

Cluster	Description	N	% Share	Key Characteristics
Cluster 1	High Performing	85	34.0 %	Strong branding, high digital usage, wide market reach, low CMCI
Cluster 2	Moderate Performing	100	40.0 %	Moderate marketing adoption, partial digital use, medium CMCI
Cluster 3	Low Performing	65	26.0 %	Limited market exposure, minimal digital adoption, high CMCI
Total	—	250	100 %	—

Table 7 shows that SHGs can be grouped into three main clusters: the first one includes high-performing SHGs, the second moderate-performing SHGs, and the last one consists of low-performing SHGs. High-performing SHGs make up 34% of the total sample size and are identified as SHGs that engage in good branding, have higher levels of digital marketing, have wider market coverage, and have fewer marketing constraints. Moderate-performing SHGs represent 40% of all SHGs and exhibit average marketing performance and moderate marketing constraints.

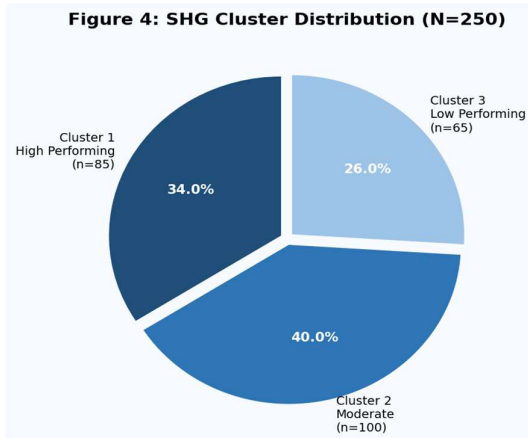


Figure 5: Distribution of SHGs Across Performance Clusters (N=250)

Figure 5 illustrates the classification of SHGs into three clusters on the basis of their performance. The medium-performing cluster accounts for the largest number of 40% (n=100), while the highly performing and poorly performing clusters account for 34% (n=85) and 26% (n=65) respectively. It can be observed that a large percentage of SHGs perform moderately well, with relatively few performing very well, while some perform poorly.

4.4. ANOVA Analysis for Cluster Differences

ANOVA analysis is used to test whether there are any significant differences among the identified SHG clusters in terms of important marketing variables.

Table 8: ANOVA Results for Performance Across Clusters (N=250)

Variable	df Between	df Within	F-value	p-value	Decision
Marketing Practices	2	247	6.85	0.002*	Reject H ₀
Digital Marketing	2	247	7.92	0.001*	Reject H ₀
Packaging Quality	2	247	5.43	0.005*	Reject H ₀

Note: * Significant at 5% level (p < 0.05). df Between = 2 (3 clusters - 1); df Within = 247 (250 - 3). All variables show significant inter-cluster differences, supporting H1.

Marketing practices, digital marketing, and packaging quality have p-values of less than 0.05 in Table 8. The F-values of marketing practices (6.85), digital marketing (7.92), and packaging quality

(5.43) prove that there are variations in marketing practices, digital marketing, and packaging quality among the SHG clusters. Consequently, all null hypotheses will be rejected for all these variables. All these results prove that H1 is correct because marketing practices significantly affect SHGs' performances.

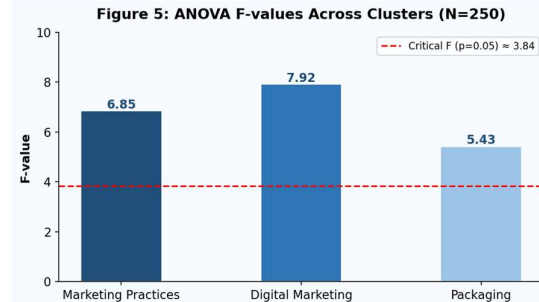


Figure 6: ANOVA F-values by Variable — All Exceed Critical Value at p=0.05 (N=250)

Figure 6 demonstrates the ANOVA F-values of three variables, namely, Marketing Practices, Digital Marketing, and Packaging, in relation to various enterprise groups. The red dotted line indicates the critical value of F at the 5% level of significance (roughly 3.84). All three computed values of F, Marketing Practices (F=6.85), Digital Marketing (F=7.92), and Packaging (F=5.43), exceed the critical value, making their differences between clusters statistically significant. The variable Digital Marketing has the highest F-value, signifying that it is the greatest differentiator among the enterprise clusters, followed by Marketing Practices and Packaging.

4.5. Analysis of Marketing Constraints (Garrett Ranking)

The Garrett Ranking Approach is employed to analyze and classify the significant marketing constraints that the SHGs experience according to the perception of the interviewees. The ranking approach enables the translation of ranks to scores, facilitating the comparison of constraint magnitude.

Table 9: Garrett Ranking of Marketing Constraints (N=250)

Rank	Constraint	Garrett Score	% Respondents	Linked to
1	Lack of Market Access	82.4	75.2%	H5
2	Poor / Inadequate Branding	78.6	70.8%	H2, H5

3	Low Digital Literacy	74.3	65.4%	H4, H5
4	Financial Constraints	70.5	61.2%	H5
5	Transportation & Logistics Issues	68.2	57.6%	H5

Note: Higher Garrett Score = more severe constraint as perceived by respondents. Garrett formula: $Percent\ Position = 100(R_{ij} - 0.5) / N_j$.

Table 9 shows that market access constraint is the most important one, having the highest Garrett value of 82.4 and occurring in 75.2% of cases. Next are brand problems (poor or insufficient branding) and lack of digital literacy (78.6 and 74.3, respectively). Financial and transportation and logistics constraints are also important marketing constraints facing SHGs (70.5 and 68.2, respectively). Clearly, several marketing constraints affect SHG marketing activities. Most constraints, including financial, market access, transportation and logistics constraints, are directly associated with H5, while brand problem and digital literacy constrain are associated with both H2 and H4.

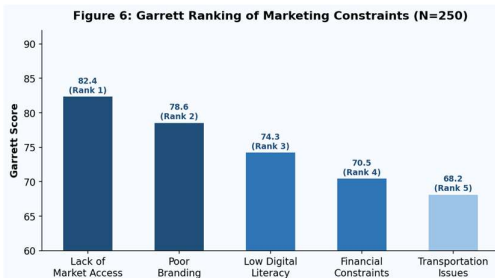


Figure 7: Garrett Ranking of Marketing Constraints by Score (N=250)

Figure 7 provides the list of major marketing constraints experienced by the respondents, ranked by the Garrett Ranking analysis. The constraint with the highest Garrett score is "Lack of Market Access," which had a Garrett score of 82.4. The second most serious marketing constraint was "Poor Branding" with a score of 78.6, implying that poor identification and promotion of the products were major issues faced. Third on the list was the constraint "Low Digital Literacy" with a score of 74.3, meaning that insufficient understanding of digital technologies hindered marketing. Fourth was "Financial Constraints" with 70.5, and fifth was "Transportation Issues" with a Garrett score of 68.2.

4.6. Composite Marketing Constraint Index (CMCI) Analysis

The Composite Marketing Constraints Index (CMCI) is employed for measuring the extent of

marketing constraints experienced by SHGs and the effects on their performance in each cluster.

Table 10: Composite Marketing Constraint Index — CMCI (N=250)

Cluster	n	CMCI Score	Constraint Level	Performance Impact
High Performing	85	2.10	Low	Minimal negative impact; strong marketing environment
Moderate Performing	100	3.45	Moderate	Partial performance reduction due to mixed constraints
Low Performing	65	4.20	High	Severe performance inhibition; marketing constraints dominant

Note: CMCI computed from Section E (5 constraint items). Lower CMCI = fewer constraints = better performance. Confirms H5.

Table 10 clearly shows differences in CMCI scores between the three clusters. Highly performing SHGs display low CMCI scores (2.10) since they experience fewer marketing constraints and thus operate in a favorable marketing environment, which has little effect on their performance. Moderately performing SHGs register moderate CMCI scores (3.45) since they experience moderate marketing constraints that partly affect their performance. Finally, poorly performing SHGs show the highest CMCI scores (4.20) since they face serious marketing constraints that seriously constrain their performance.

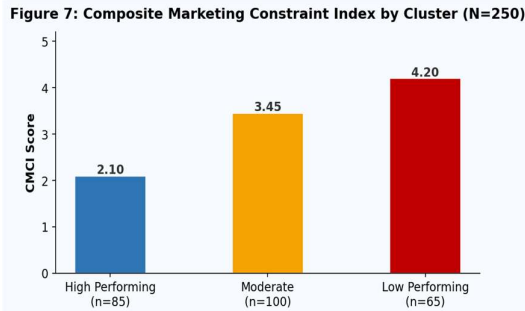


Figure 8: CMCI Score by Cluster — Inverse Relationship with SHG Performance (N=250)

Figure 8 presents the CMCI for three categories of enterprise groups, namely the High Performing group, the Moderate group, and the Low Performing group. In this regard, the Low Performing group obtains the highest CMCI score of 4.20, thus implying that enterprises under this category are confronted with the severest marketing constraints. On the other hand, the Moderate group and the High Performing group obtain the intermediate and lowest CMCI scores of 3.45 and 2.10, respectively. From these findings, it can be noted that there is an inverse relationship between enterprise performance and marketing constraints.

4.7. Correlation Analysis

Correlation analysis is conducted to examine the strength and direction of relationships between marketing practices, digital adoption, marketing constraints, and SHG performance.

Table 11: Correlation Matrix — Relationship Between Key Variables (N=250)

Variables	Mktg Practices	Digital Adoption	Constraints	Performance
Marketing Practices (IV)	1.00	—	—	—
Digital Adoption (IV)	0.62*	1.00	—	—
Constraints (MV)	-0.58*	-0.49*	1.00	—
Performance (DV)	0.71*	0.65*	-0.66*	1.00

Note: * Significant at $p < 0.05$ level. Negative values confirm the inverse relationship between marketing constraints and SHG performance (supports H5). Positive values support H2, H3, and H4.

As seen in Table 11, there is a high correlation between marketing practices and SHG

performance ($r = 0.71$) and digital marketing practices and SHG performance ($r = 0.65$). This implies that improvements in marketing practices improve SHG performance. On the other hand, marketing practices are positively correlated with digital marketing practices ($r = 0.62$). Marketing constraints are negatively correlated with marketing practices ($r = -0.58$) and digital marketing practices ($r = -0.49$). This implies that greater marketing constraints reduce the efficacy of marketing practices and digital marketing practices. Most importantly, marketing constraints are strongly negatively correlated with SHG performance ($r = -0.66$). This supports the hypothesis that increased marketing constraints hinder SHG performance.

Figure 8: Correlation Matrix Heatmap (N=250)

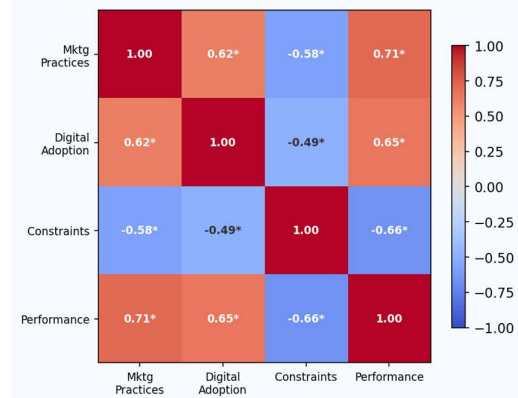


Figure 9: Correlation Matrix Heatmap — Colour Intensity Indicates Strength of Relationship (N=250)

Figure 9 shows the degree and direction of the correlation between Marketing Practices, Digital Adoption, Constraints, and Performance. Warm colors depict positive correlations, while cool colors indicate negative correlations. There is a strong positive correlation between Marketing Practices and Performance ($r = 0.71$), signifying that good marketing practices will result in good performance of enterprises. Another variable, Digital Adoption, correlates positively with Performance ($r = 0.65$) and Marketing Practices ($r = 0.62$), meaning that the use of digital technology by enterprises results in good marketing and high performance of enterprises. On the other hand, Constraints correlate negatively with Performance (-0.66), Digital Adoption (-0.49), and Marketing Practices (-0.58). This means that when constraints increase, there will be bad marketing and poor performance.

4.8. Hypothesis Testing Summary

Hypothesis testing is conducted to validate the proposed relationships between marketing practices, constraints, and SHG performance using appropriate statistical techniques.

Table 12: Hypothesis Testing Outcomes (N=250)

Hyp.	Statement	Test Used	Result	p-value	Supported?
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H 1	Significant cluster performance differences based on marketing practices	One-way ANOVA	F=6.85	0.002*	Yes ✓
H 2	Branding positively impacts SHG performance	Correlation	r=0.71*	< 0.05	Yes ✓
H 3	Packaging quality influences product acceptance and sales	ANOVA	F=5.43	0.05*	Yes ✓
H 4	Digital marketing adoption improves market reach & profitability	ANOVA/Corr.	F=7.92	0.01*	Yes ✓
H 5	Marketing constraints	CMCI/Corr.	r=-0.66*	< 0.05	Yes ✓

negatively impact SHG performance					
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Note: * $p < 0.05$. All five hypotheses are supported by statistical evidence from $N=250$ SHG respondents in Thiruvallur District.

Table 12 demonstrates the results of the hypothesis testing, revealing that all five hypotheses have been proven by the empirical research findings. The hypothesis H1 has been proved by means of ANOVA ($F = 6.85$, $p = 0.002$). Hypothesis H2 proves a high positive correlation between branding and performance ($r = 0.71$). Both hypotheses H3 and H4 are verified positively by means of significant ANOVA, thus showing that the quality of packaging and using the Internet for marketing activities have a positive influence on the performance of SHGs. Finally, H5 has been validated by means of CMCI and correlation ($r = -0.66$), thereby illustrating the negative role of marketing constraints in relation to performance.

5. Discussion

The analysis of the research findings shows that marketing activities have an important impact on the performance of SHGs. The significant correlation between branding, quality of packaging, and adoption of digital marketing with SHG performance implies that the development of appropriate marketing strategies positively affects sales and profitability. The results of the cluster analysis also support this conclusion since successful SHGs invest more resources in branding and the adoption of new technologies, while unsuccessful groups fail to do so. These findings are supported by previous research, which demonstrates the importance of market orientation and the adoption of new technologies for sustainable development.

Meanwhile, the research reveals that marketing constraints have been identified as an obstacle to SHG performance. The highly negative correlation between constraints and performance, alongside the significant CMCI values observed in poor-performing SHGs, proves that the inability to access markets, insufficient brand recognition, and inadequate digital skills prevent SHGs from performing well. The Garrett ranking test further corroborates the prevalence of these constraints among respondents. In conclusion, although there is no denying the importance of marketing, it is equally crucial to overcome these constraints. It will require capacity development and infrastructure provision efforts from policymakers and development institutions.

6. Conclusion and Future Work

The present study was an empirical analysis with the help of an integrated analytical framework on the impact of marketing practices and marketing constraints on the performance of SHGs in Thiruvallur District. The results showed that marketing variables like branding, packaging quality, and digital marketing adoption play a significant positive role in the performance of the SHG by influencing the sales growth, profitability, and market reach of the SHG. On the other hand, marketing constraints such as low levels of digital literacy, financial constraints, transportation constraints, poor branding, and lack of market access had a negative influence on SHG performance. The reliability and validity of the proposed framework were substantiated based on the statistical analysis performed using Cluster Analysis, ANOVA, Garrett Ranking Technique, CMCI analysis, and correlation analysis. The study also segmented the SHGs into high, moderate, and low performing clusters and revealed the linkage between marketing capability and performance of the SHGs.

The research is an original contribution to the existing literature because it proposes a new multidimensional empirical approach based on performance-based segmentation and marketing constraint assessment. The development of the CMCI helped to create a systematic way to measure the level of constraints faced by SHGs. The study also presents policy implications for the enhancement of the sustainability and competitiveness of SHGs by digital literacy training, branding, strengthening market linkage, and infrastructure development for policymakers, SHG coordinators, rural development agencies, and financial institutions.

The findings of this work could be extended in the future by using longitudinal data sets to explore the long-term effects of marketing interventions on SHG growth and sustainability. In addition, advanced analytical techniques like SEM, machine learning-based predictive analysis, and multi-region comparisons can be used to provide more in-depth insights into the dynamics of SHG performance. Furthermore, future research could focus on the impact of e-commerce platforms, social media marketing, and government initiatives aimed at boosting digital access and rural entrepreneurship for SHGs.

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Appendix

Questionnaire (30 Items)

Scale: 5-point Likert Scale

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

Section A: Demographic Profile (8 Items)

(Categorical / Multiple Choice)

1. Age of respondent
 - Below 25 / 25–35 / 36–45 / Above 45
2. Educational qualification
 - No formal education / Primary / Secondary / Higher Secondary / Graduate
3. Marital status
 - Single / Married / Widowed / Others
4. Occupation (Primary)
 - SHG activity / Agriculture / Labor / Small business / Others

5. Monthly household income
 - Below ₹10,000 / ₹10,000–₹20,000 / ₹20,001–₹30,000 / Above ₹30,000
6. Years of SHG membership
 - Less than 1 year / 1–3 years / 3–5 years / Above 5 years
7. Type of SHG activity
 - Manufacturing / Services / Agriculture-based / Handicrafts / Others
8. Number of members in SHG
 - Below 10 / 10–15 / 16–20 / Above 20

Section B: Marketing Practices (8 Items)

9. Our SHG uses proper branding for products
10. We have a unique product identity/logo
11. Packaging of our products is attractive and standardized
12. We regularly promote our products in local markets
13. We participate in exhibitions or fairs
14. We adopt pricing strategies based on market demand
15. Our products are differentiated from competitors
16. We explore markets beyond our local area

Section C: Digital Marketing Adoption (4 Items)

17. Our SHG uses mobile phones for business promotion
18. We are aware of online selling platforms
19. We use digital payment methods (UPI, etc.)
20. Digital tools help increase our sales

Section D: Performance Indicators (5 Items)

21. Our sales have increased over the past year
22. Our profits have improved consistently
23. We have expanded our customer base
24. Our products have a high demand in the market
25. Our SHG is financially stable

Section E: Marketing Constraints (5 Items)

26. We face difficulty in accessing larger markets
27. Lack of branding and packaging affects our sales
28. We have limited knowledge of digital marketing
29. Financial constraints limit marketing activities
30. Transportation and logistics are major challenges