Unpacking the power of Self-Help Groups: How microcredit, training, and organisation drive women's social empowerment

check for updates

Noufal Alrefaei[1]
Ali Saleh Alshebami[2+]
Paul Aquinas[3]
Elham Alzain[4]

[1]Social Work Department (Community Development), Mangalore University, Mangalore, India.
[1]Email: nalinox@gmail.com
[2,4]Applied College, King Faisal University, Al-Ahsa 31982, Saudi Arabia.
[2]Email: aalshebami@kfu.edu.sa
[4]Email: ealzain@kfu.edu.sa
[3]Social Work Department, Mangalore University, India.
[3]Email: pauleeda@hotmail.com

(+ Corresponding author)

ABSTRACT

This research examines the relatively underexplored role of Self-Help Groups (SHGs) in promoting women's social empowerment (SE) in rural India, focusing on three key aspects: microcredit (MC), training (TR), and organizational structure (OR). The study assesses SHGs' contributions to women's agency, social networks, and civic participation, alongside their recognized economic impact. Using empowerment and social capital theories, Partial Least Squares Structural Equation Modelling (PLS-SEM) was utilized to analyze survey data from 398 SHG members in the Dakshina Kannada and Udupi districts. The findings highlight that organizational resilience built on participatory governance and mutual trust is crucial for promoting social equity. While microcredit greatly enhances autonomy and inclusion, the impact of training remains limited, likely owing to resource shortages, bureaucratic obstacles, unsuitable content, or socio-cultural differences. The study emphasizes the combined importance of OR and financial structures while criticizing the limited social focus of TR initiatives. It enriches the empowerment discourse by empirically illustrating SHGs as mechanisms for strengthening bonding and bridging social capital. Furthermore, it advocates for reforms in TR and participatory governance within SHGs, as well as aligning policies with public services. These insights highlight that SHGs serve not only as financial instruments but also as catalysts for grassroots social development.

Contribution/ Originality: This study offers novel insights by empirically analyzing how microcredit, training, and the organizational framework within self-help groups (SHGs) specifically influence women's social empowerment. It uniquely combines empowerment and social capital theories using Partial Least Squares Structural Equation Modeling (PLS-SEM), illustrating the crucial role of organizational dynamics and highlighting significant gaps in current training strategies aimed at driving transformative change.

1. INTRODUCTION

In the peaceful rural areas of India, a subtle revolution is taking place driven not by slogans or protests but by women's collectives that are pooling resources, exchanging ideas, and changing the trajectory of their lives. In India, women play a crucial role in the national economy, with over 70% involved in agriculture; however, they own only 13.96% of landholdings, highlighting stark gender disparities in access to productive resources (FAO, 2022; Government of India, 2021). Despite these challenges, women make up more than 60% of participants in rural development programmes such as Self-Help Groups (SHGs), which are vital for fostering financial inclusion and

community engagement (NABARD, 2022). However, the female labour force participation rate in India remains among the lowest worldwide, dropping to 23.3% in 2021–22, underscoring the ongoing socio-cultural and structural barriers to women's economic and social advancement (ILO, 2022).

Self-Help Groups (SHGs) have become an essential grassroots tool for women's development and financial inclusion in rural India, supported by initiatives such as the National Rural Livelihood Mission (NRLM) (World Bank, 2012), which has brought over 80 million women into SHGs across the country (NABARD, 2022). Rooted in the principles of collective action and mutual support, SHGs not only improve women's access to microcredit but also empower their involvement in income-generating activities and decision-making processes. As a result, this strengthens economic resilience and social agency (Swain & Wallentin, 2009). Beyond financial gains, these groups promote solidarity, boost social capital, and, importantly, challenge traditional gender norms, leading to significant empowerment outcomes in marginalized communities (Mayoux, 2001; Sanyal, 2009).

Studies consistently demonstrate that involvement in SHGs leads to improved empowerment outcomes for women in India compared to non-participants. Members of SHGs achieve higher ratings on women's empowerment metrics (Kumar & Kumar, 2021) and show enhanced economic, social, and political empowerment (Nayak & Panigrahi, 2020). Financially, women in SHGs allocate their loans to business ventures (Deininger & Liu, 2013). On a social level, empowered women from SHGs gain a voice, confidence, and agency (Sanyal, 2009). Notably, participation in SHGs stimulates political engagement, mobilization, and community change (Baden, 2013). The link between SHG participation and empowerment outcomes is influenced by socioeconomic conditions and geographic factors (Nayak & Panigrahi, 2020; Pandhare, Bellampalli, & Yadava, 2024). SHGs promote women's empowerment through microcredit, skill development, and organisational support. Together, these services significantly contribute to improving economic and social welfare (Sanyal, 2009; Swain & Wallentin, 2009). Access to microfinance enhances women's autonomy and their influence within households (Banerjee, Duflo, Glennerster, & Kinnan, 2015; Mayoux, 2001). Simultaneously, training fosters greater empowerment by increasing social and legal awareness (Mayoux, 2001; Swain & Wallentin, 2012). Moreover, democratic SHG structures strengthen social capital and effectiveness (Chen, Sebstad, & O'Connell, 1999; Krishna, 2007). The interconnectedness of these factors adds complexity and depth to the research. Despite this, there remains a scarcity of empirical studies examining their collective impact on women's social empowerment, underscoring the importance of this study's comprehensive approach.

Considering the extensive review of SHGs, the primary focus has been on their economic implications, often overlooking the essential non-financial aspects of empowerment, which include social elements (Kabeer, 2005; Mayoux, 2001). While the availability of microcredit and the principle of financial inclusion are well documented, a significant gap remains in understanding how training and organizational dynamics within SHGs contribute to broader social empowerment outcomes (Aruna & Jyothirmayi, 2011; Cornwall & Edwards, 2010). There is limited empirical research on how SHG components influence women's agency and community participation, particularly in areas with high female literacy and active SHG engagement (Ghosh, Chakravarti, & Mansi, 2015; Nahar, Khan, Khan, Chakravorty, & Sultana, 2020). This gap hampers the development of comprehensive empowerment frameworks that could better inform policy strategies aimed at fostering gender equity and social change.

This study aims to answer the question: How do microcredit (MC), training (TR), and organisational structure (OR) within SHGs influence women's social empowerment (SE) in rural India? It does so by analysing the effects of these factors, with a particular focus on agency, social participation, and civic engagement. The research identifies a gap by emphasising the broader social aspects of empowerment in SHGs, which have primarily been studied for their economic outcomes. It highlights the lack of empirical research on how the structural and relational elements of SHGs interact to promote social change, especially in Dakshina Kannada and Udupi, Karnataka, where women face persistent socio-cultural and resource-related challenges (Deshpande, 2011). By addressing this gap, the study provides original and valuable insights into the empowerment discourse, offering a more comprehensive understanding of SHGs as vehicles for both economic inclusion and social transformation.

The following sections of this article are organized as follows. Section 1 introduces the study dimensions, constructs, and originality. Section 2 examines the theoretical foundations and current literature on SHGs and women's social empowerment, leading to the formulation of hypotheses. Section 3 details the research methodology, including the sampling approach, measurement tools, and analytical techniques. Sections 4 and 5 present the empirical analysis and results, followed by a discussion in Section 6 and practical implications in Section 7. Section 8 concludes the study with limitations, potential directions for future research, and a summary of policy recommendations.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Theoretical Background

This analysis applies empowerment theory and social capital theory to examine how SHGS transform women's lived experiences by increasing agency, improving access to resources, and fostering social change (Coleman, 1988; Kabeer, 1999; Putnam, 2000). SHGs develop bonding capital through mutual trust and support among members, as well as bridging capital via external networks and civic engagement, thereby boosting women's influence in both private and public spheres (Jakimow & Kilby, 2006; Swain & Wallentin, 2009). The convergence of various theoretical perspectives is used to analyze the functional roles of the three key components of SHGs MC, TR, and OR as tools of empowerment Kabeer's (1999) model shows that MC improves women's socioeconomic status through economic independence and better decision-making skills, while Hashemi, Schuler, and Riley (1996) offer empirical evidence of its contribution to social mobility. Meanwhile, social capital theory demonstrates how MC promotes bonding through faith-based reciprocity and bridging via network expansion (Coleman, 1988; Sanyal, 2009), empowering both individuals and groups. Empowerment theory argues that TR to SHGs facilitates SE through increased knowledge, self-efficacy, and awareness among women (Kabeer, 1999). Social capital theory further shows that TR enhances bonding through education and learning, and strengthens bridging through inter-group cooperation, thereby increasing civic participation (Herbel & Ourabah Haddad, 2012; Putnam, 2000; Sanyal, 2009). Moreover, empirical data indicate that the empowerment potential of TR is significantly amplified when complemented by effective institutional mechanisms (Kumar, Raghunathan, Arrieta, Jilani, & Pandey, 2021). OR is essential for SE development within SHGS. Empowerment theory posits that participatory processes foster women's self-determination through inclusive decision-making and leadership (Devi & Narasalah, 2017; Kabeer, 1999). Social capital theory illustrates how SHGs cultivate an environment of trust and reciprocity, generating bonding capital through solidarity and bridging capital through collective action (Knowles & Luke, 2018; Krishna, 2007; Putnam, 2000). These democratic structures not only promote individual empowerment but also enhance collective mobilization and civic participation (Pandey, 2014; Swain & Wallentin, 2009).

2.2. MC and SE

The role of MC facilitated by SHGs has become a vital driver for SE among women, especially in rural India. Access to financial services is not just about money; it is about empowerment. It boosts women's capacity for self-sufficiency, multidimensional independence, and psychological strength, along with a confident presence in social and civic spheres (Pandey, 2014; Swain & Wallentin, 2009). SHGs extend beyond financial activities, fostering group cohesion, solidarity, and leadership key aspects of collective identity that motivate women's resistance to traditional gender roles and encourage progressive social change (Ghosh et al., 2015; Sanyal, 2009). These strong social bonds give women essential skills, peer support, and chances for civic participation (Kumar et al., 2021; Mayoux, 2001). Additionally, involvement in SHGs is linked to better communication skills, increased participation in community initiatives, and an enhanced ability to claim rights and access vital services (Kumar et al., 2021; Mayoux, 2001). MC enables women to invest in critical areas such as education for their families, health, and nutrition, which improves their status within the family and fosters lasting social change (Banerjee et al., 2015). The inclusion of TR and fiscal literacy programmes within the SHG model supports asset creation and improves decision-making, thereby

strengthening economic security and SE (Alok, Monika, Neha, & Pankaj, 2025; Ghosh et al., 2015). Marginalised groups such as Dalits and tribal women often encounter barriers to accessing SHG benefits (Deininger & Liu, 2009; Sanyal, 2009). Financial hardship, exclusion, and elite control are some issues that highlight the need for inclusive, multi-dimensional development policies (Alok et al., 2025; Badejo, Majekodunmi, Kingsley, Smith, & Welburn, 2017). Thus, while SHG-based MC holds great potential for transformation, its success in achieving inclusive SE depends on creating appropriate institutional conditions and, crucially, on gender-sensitive practices that recognize and address the specific challenges faced by women in microfinance, along with ongoing assessment of its benefits and internal limitations.

2.3. TR and SE

The TR role is crucial in SHGs as it facilitates SE by empowering women with essential knowledge, skills, and awareness needed for their active participation in society. TR interventions in SHGs typically include vocational TR, financial education, health awareness, legal rights education, and entrepreneurial development. These efforts not only enhance women's economic prospects but also support their psychological and social well-being by increasing self-efficacy, confidence, and decision-making abilities (Brody et al., 2015; Sanyal, 2009). SHGs empower women by transferring information, which raises awareness and helps them challenge discriminatory practices, thus integrating them into society (Mukherjee, 2016). A considerable body of literature shows that TR provided through SHGs has facilitated greater participation in public affairs, improved social mobility, and increased access to basic services such as healthcare and education (Deininger & Liu, 2013; Swain & Wallentin, 2009).

Additionally, the TR scheme and SHG programmes have significantly contributed to fostering a culture of collective learning, solidarity, and mutual aid among women, which are essential elements of the SE model. The Indian Kudumbashree programme and the Self-Employed Women's Association (SEWA) exemplify how systematic use of TR via SHGs enables women to assert their rights, participate in civic life, and engage in community decision-making (Dwarakanath & Sandhya, 2018). The transformative potential is maximized when TR is linked to SHGs' efforts to challenge inequalities based on caste and class divisions empowering women according to their caste status to attain parity with other societal groups (Getaneh, Nigus, & Tadesse, 2020). Empirical evidence suggests that the success of TR in SHGs in achieving SE relies on effectively managing various factors, including the quality of TR, local social norms, and access issues (Kabeer, 2001).

2.4. OR and SE

A growing body of speculative literature emphasizes the crucial role of internal OR in shaping SE performance within SHGs. Specifically, relationships based on OR, such as various leadership styles, communication strategies, participatory governance arrangements, and orientation plans, have been shown to effectively promote group cohesion, trust, and collective efficacy (Sanyal, 2009). Literature from India, Ethiopia, and other regions links financial status, participation in assistance programs, and mindset to effective group performance (Brody et al., 2015; Garai & Maiti, 2020; Wassie & Abebe, 2024). An organized SHG with participatory decision-making not only enhances individual agency but also fosters shared identity and mutual support, thereby empowering women to increase their community participation, assertiveness, and social capital (Brody et al., 2015; Swain & Wallentin, 2009). Empirical evidence from Bharatpur, Nakuru, and similar locations demonstrates that these dynamics contribute towards an integrated model of SE by boosting women's self-confidence, mobility, and engagement in collective activities (Bhuwania, Mukherji, & Swaminathan, 2024; Lunayach & Khichar, 2024; Mugailwa, Wanyoike, & Odhiambo, 2022). Furthermore, cross-cultural studies support the positive correlation between the quality of OR in SHGs and SE outcomes. Women involved in effective SHGs display improved communication skills, greater awareness of their rights, and increased participation in local institutions compared to non-member peers (Deininger & Liu, 2013). Social networks facilitate these outcomes, with trust cultivated through ongoing group interactions and shared

responsibilities. However, many studies advise caution in assuming inherent organizational benefits; contextual challenges such as poor leadership, insufficient trust and resources, and entrenched gender norms can hinder success (Goetz & Gupta, 1996; Kabeer, 2001).

Despite these challenges, evidence consistently shows that SHGs with strong internal structures characterised by clear leadership, capacity-building initiatives, and collaborative governance tend to produce more substantial SE outcomes. The interplay among SHG components MC, TR, and OR can generate a synergistic effect whereby participatory governance enhances the effectiveness of financial and capacity-building efforts (Mayoux, 2001; Swain & Wallentin, 2009). Organisational solidarity and trust foster better engagement and utilisation of TR and financial services, strengthening women's ability to transform resources into empowerment outcomes (Kabeer, 1999; Sanyal, 2009). Conversely, when OR is absent, the effects of TR or OR alone may be insufficient to overcome deep-seated social barriers (Goetz & Gupta, 1996; Kabeer, 2005).

2.5. Hypotheses Development

In light of the prior discourse, we propose the subsequent hypotheses:

H_1: MC has a significant and positive effect on SE.

H_2: TR has a significant and positive effect on SE.

H_3: OR has a significant and positive effect on SE.

3. METHODOLOGY

The research investigated the socio-economic conditions of women living in Dakshina Kannada and Udupi, focusing on their participation in SHGs under NRLM. It found that 68,418 women are currently involved in SHG programmes. Despite playing significant roles in agriculture, women in India face considerable disadvantages related to wealth, land ownership, and access to productive resources. The methodology employed disproportionate stratified random sampling to identify 398 active SHG members, with 199 from each district, ensuring equitable representation despite population differences.

Four taluks were purposively selected in each district to reflect both geographic and demographic diversity: Beltangadi, Puttur, Kadaba, and Mangalore from Dakshina Kannada, and Bainduru, Kaapu, Brahmavara, and Udupi from Udupi district. All respondents were active SHG members at the time of data collection, resulting in a 100% participation rate.

3.1. Respondents' Profile

The questionnaire was personally administered to 398 participants, who were provided with comprehensive information regarding the survey and its questions; all 398 forms were collected. Table 1 offers key insights into the socio-demographic profile of SHG women in the region. A significant proportion of participants belong to the 36–45 and 46–55-year age groups, highlighting the involvement of older women in SHG. The level of education shows that the largest group (41.5%) had education up to the ninth standard, indicating moderate educational attainment. The majority (90.8%) of participants are married, and 46.3% reported having two children, reflecting common family structures in this population.

Remarkably, 63.7% indicated that all their children are currently enrolled in school, demonstrating a high level of educational participation and intergenerational hope among SHG families. Concerning SHG participation, a substantial 73.3% of respondents have been part of SHGs for more than four years. This extended commitment and integration within the group emphasize the effectiveness and lasting impact of these collectives.

Table 1. Respondents' profile.

Category	Subcategory	Percentage (%)
Age	15 – 25	6.3%
	26 – 35	10.8%
	36 – 45	33.3%
	46 – 55	33%
	56 – 60	7.2%
	60 and above	9.5%
Education	Illiterate	15.3%
	Literate	16.3%
	Up to 9th standard	41.5%
	High school	8.3%
	Under graduation	68%
	Others	1.5%
Marital status	Single	2%
	Married	90.8%
	Divorced	3%
	Widow	4.3%
Tenure of membership in SHG	1-2 years	21%
	3-4 years	5.8%
	Above 4 years	73.3%

3.2. Common Method Bias and Non-Response Bias

3.2.1. Common Method Bias

Common method bias poses challenges in cross-sectional, self-reported research (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Harman's single-factor test showed that the largest unrotated factor was 44.22%, below the 50% threshold, indicating minimal bias (Podsakoff et al., 2003).

Additionally, collinearity diagnostics were conducted to assess the potential impact of common method bias (Kock & Lynn, 2012). The calculated VIF values for MC (2.277), TR (2.335), and OR (1.958) remain below the 3.3 threshold, suggesting minimal common method bias and maintaining model integrity (Kock & Lynn, 2012).

3.2.2. Non-Response Bias

Non-response bias poses a significant issue with self-reported questionnaires (Ramke, Palagyi, Kuper, & Gilbert, 2018) and was evaluated using the independent-samples t-test (Armstrong & Overton, 1977). This statistical test was used to assess whether response patterns varied between early and late respondents in the current study's survey (Lindner, Murphy, & Briers, 2001). The results showed no significant differences between the upper and lower groups for TR (p = 0.115), OR (p = 0.174), or SE (p = 0.162). A trend was observed for MC (p = 0.09), although with a small effect size (d = 0.24). These findings suggest that strong non-response bias is unlikely, supporting the reliability of self-reported questionnaires.

3.3. Measurement Instrument

A comprehensive review of existing literature was conducted to identify and utilize validated measurement items developed in previous studies. The constructs of MC, TR, OR, and SE were assessed using a five-point Likert scale, where "strongly disagree" was scored as one and "strongly agree" as five. The measurement employed specific items from scholarly works by Aladejebi (2019), Geoffrey and Emenike (2018), Atiase (2018), Jayalakshmi (2014), Saha (2016), Singh (2017), and Kanagaraj (2021).

The MC scale includes six indicators: loan size, the application process for MC, the sufficiency of the loan for business needs, the duration of loan processing, approval, and disbursement, the simplicity of repayment terms, and how promptly the loan becomes accessible. The TR scale comprises seven indicators, each evaluating a different aspect of the TR experience: TR provided by SHGs significantly enhances management skills vital for effective

business operations. The importance of the TR schedule has been thoroughly tested. The potential benefits of knowledge gained from TR are critically examined.

The effectiveness of TR in supporting beneficiaries with their business challenges is assessed. Additionally, the influence of TR on acquiring financial, technical, and marketing skills is also evaluated. The OR scale includes seven indicators emphasising group dynamics, such as the frequency of meetings and noting any absence of members during these gatherings. The consistency of minute-taking is assessed, alongside the implementation of strategies to manage defaulting members.

The evaluation also considers the consistency of account management. Income and expenditure calculations are clear and straightforward. The objectives of SHGs and the procedures for loan applications and repayments are comprehensively addressed. The SE assessment was conducted using a five-item scale based on studies by Nagaraji (2020) and Gupta (2020).

This SE scale explores various aspects of joining an SHG via family and social bonds, including group affiliation, independence in self-expression, gaining respect, participation in family responsibilities, financial decision-making capacity, and increased involvement in collective decision-making.

3.4. Conceptual Model

Figure 1 shows a visual representation of the study framework. As depicted, all MC, TR, and OR are regarded as independent variables, while SE functions as the dependent variable. After a thorough review of relevant literature and applicable theories, these components have been integrated into the model.
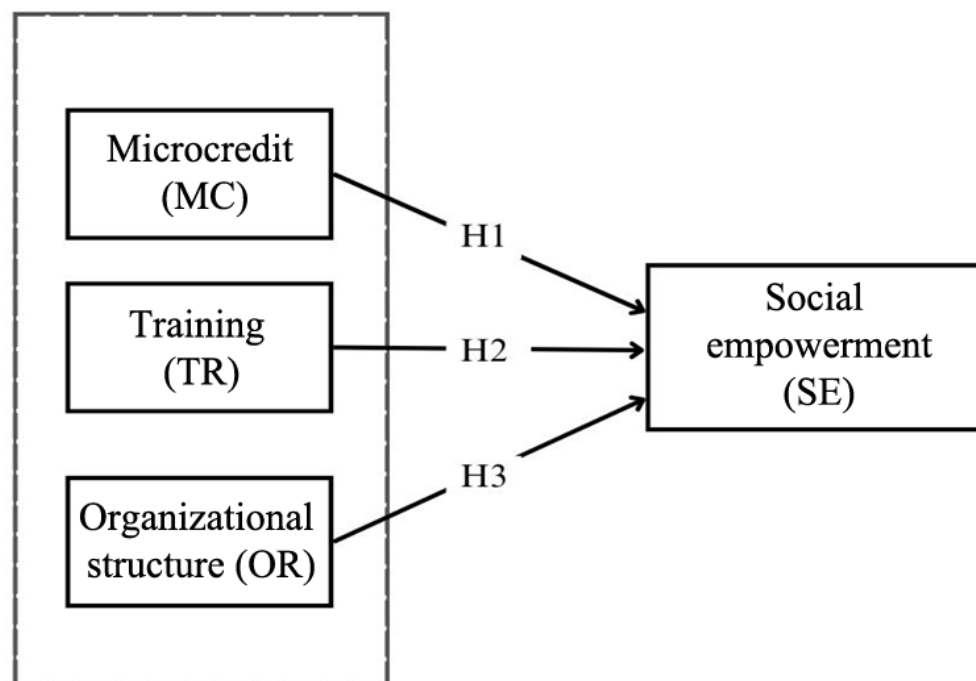

Figure 1. The conceptual model.

4. DATA ANALYSIS

This study explores the influence of SHG factors on women's SE using PLS-SEM, emphasizing predictive validity and theoretical relevance. It accommodates medium-sized samples and non-normal data, unlike CB-SEM's requirements for larger, normally distributed datasets (Hair, Risher, Sarstedt, & Ringle, 2019; Sarstedt, Ringle, Smith,

Reams, & Hair, 2014). Maximising the variance explained (R^2) while measuring the predictive relevance (Q^2) of endogenous variables aligns with understanding how SHGs impact empowerment outcomes. PLS-SEM offers the flexibility and precision necessary to investigate SHG-based SE in India. The analysis consists of two stages: firstly, evaluating measurement validity and reliability; secondly, testing hypotheses through structural model analysis (Sarstedt, Ringle, & Hair, 2021).

Bootstrapping is utilized in the second stage to assess path coefficients, t-values, and the significance of relationships. Examining R^2 and Q^2 provides insights into the model's explanatory and predictive power. Overall, this approach guarantees that both the measurement and structural components of the model are statistically robust and conceptually sound.

5. RESULTS

5.1. Assessment of the Measurement Model

In determining the reliability and validity of the construct under study in this research, a systematic evaluation process was employed. Estimation of convergent reliability and discriminant validity was conducted using standardized measurement procedures (Sarstedt et al., 2021). Composite reliability (CR), average variance extracted (AVE), and the Fornell-Larcker criterion demonstrated that the constructs effectively measured their respective indicators and were statistically distinguishable from one another.

5.1.1. Assessment of Convergent Reliability

The convergent reliability test, operating α, ω, rho_a, CR, and AVE indices (Table 2), indicated low factor loadings (0.546, 0.261), leading to the removal of MC1 and OR8 (Hair et al., 2019). Removing specific items significantly improved both construct and model validity. After deletion, all remaining items exhibited factor loadings above 0.60, demonstrating strong representation of their respective constructs (Hair et al., 2019). Furthermore, the indices of α, CR, and rho extsubscript{a} for all constructs surpassed the minimum threshold of 0.70 (Henseler, Ringle, & Sarstedt, 2015).

All ω values for the constructs exceeded 0.60, ensuring robust internal consistency reliability, especially for exploratory research (Dunn, Baguley, & Brunsden, 2014; Hayes & Coutts, 2020). Ultimately, all four constructs presented AVE values above 0.50, confirming their validity and reliability (Hair et al., 2019).

Table 2. The convergent validity of the model's constructs.

Construct	Cronbach's (α)	McDonald's omega (ω)	Dijkstra and Hensler's (rho_A)	Composite reliability (CR)	Average variance extracted (AVE)
MC	0.968	0.967	0.968	0.975	0.887
TR	0.941	0.939	0.949	0.952	0.742
OR	0.907	0.891	0.915	0.926	0.643
SE	0.954	0.954	0.955	0.963	0.786

Table 3 presents the cross-loading validation, ensuring that the majority of items load more heavily on their targeted constructs compared to others, indicating discriminant validity. MC (MC2–MC6), TR (TR2–TR6), and SE (SE1–SE7) have high factor loadings, and OR also has relatively satisfactory results. Poorer measures (MC1, OR2, OR4) and one invalid indicator (OR8) indicate areas for improvement. Generally, the measurement model shows satisfactory validity, and minor adjustments improve reliability.

Table 3. Cross loading.

No.	Construct	Items	1	2	3	4
1	Microcredit (MC)	MC1*	0.546	0.258	0.219	0.141
		MC2	**0.962**	0.666	0.609	0.533
		MC3	**0.927**	0.735	0.637	0.551
		MC4	**0.971**	0.668	0.598	0.535
		MC5	**0.945**	0.667	0.598	0.529
		MC6	**0.903**	0.642	0.606	0.558
2	Training (TR)	TR1	0.620	**0.840**	0.545	0.462
		TR2	0.726	**0.868**	0.629	0.525
		TR3	0.684	**0.926**	0.560	0.495
		TR4	0.658	**0.920**	0.578	0.502
		TR5	0.617	**0.885**	0.574	0.463
		TR6	0.552	**0.862**	0.578	0.446
		TR7	0.415	**0.711**	0.455	0.335
3	Organizational structure (OR)	OR1	0.777	0.667	**0.817**	0.628
		OR2	0.615	0.577	**0.701**	0.475
		OR3	0.501	0.482	**0.822**	0.607
		OR4	0.393	0.367	**0.742**	0.513
		OR5	0.445	0.496	**0.819**	0.633
		OR6	0.470	0.544	**0.869**	0.699
		OR7	0.465	0.532	**0.831**	0.655
		OR8*	0.000	0.109	0.261	0.163
4	Social empowerment (SE)	SE1	0.462	0.446	0.674	0.922
		SE2	0.474	0.516	0.665	0.907
		SE3	0.475	0.454	0.665	0.878
		SE4	0.513	0.409	0.667	0.852
		SE5	0.537	0.501	0.691	0.926
		SE6	0.475	0.453	0.647	0.889
		SE7	0.624	0.568	0.680	0.830

Note: * deleted item.

5.1.2. Assessment of Discriminant Validity

The discriminant validity of the measurement model was further tested using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio of correlations. Based on Fornell and Larcker (1981), the square root of the AVE of each construct is greater than its correlations with other constructs (see Table 4), thus establishing adequate discriminant validity. The HTMT values of all pairs of constructs were below the conservative cutoff of 0.85 (Henseler et al., 2015), with the maximum being 0.806 between OR and SE (as seen in Table 5), the results indicate that the latent constructs in this study are empirically distinct, providing a solid foundation for structural model analysis (Sarstedt et al., 2021).

Table 4. Fornell-Larcker.

No.	Construct	1	2	3	4
1	MC	**0.942**			
2	OR	0.648	**0.802**		
3	SE	0.575	0.757	**0.887**	
4	TR	0.718	0.653	0.541	**0.862**

Table 5. HTMT Ratio.

No.	Construct	1	2	3	4
1	MC				
2	OR	0.697			
3	SE	0.597	0.806		
4	TR	0.744	0.705	0.565	

5.2. Assessment of the Structural Model

Following the determination of convergent reliability and discriminant validity, the structural model was subsequently analyzed, as shown in Figure 2, to determine the significance and interpretation of the path coefficients (hypothesis testing), R^2, Q^2, and out-of-sample model performance predictiveness of the model under study in this research (Hair et al., 2019; Shmueli, Ray, Estrada, & Chatla, 2016). The analyses provide thorough information on the extent to which the exogenous constructs predict the endogenous construct variance and the predictive capability of the model at future time points.

Table 6. Correlation test.

No.	Construct	1	2	3	4
1	MC	1.000	0.648	0.575	0.718
2	OR	0.648	1.000	0.757	0.653
3	SE	0.575	0.757	1.000	0.541
4	TR	0.718	0.653	0.541	1.000

5.2.1. Correlation Test

The correlation matrix, as shown in Table 6, illustrates beneficial relationships among the four variables: MC, OR, SE, and TR. OR and SE present the most substantial correlation (r = 0.757), suggesting a significant link between OR and empowerment outcomes. MC has a considerable association with TR (r = 0.718), indicating that MC initiatives may achieve greater efficacy when paired with TR therapies. All coefficients display moderate strength, signifying a stable connection among financial, structural, and developmental variables. These results emphasize the need to incorporate OR and TR aspects into MC activities to foster comprehensive empowerment.
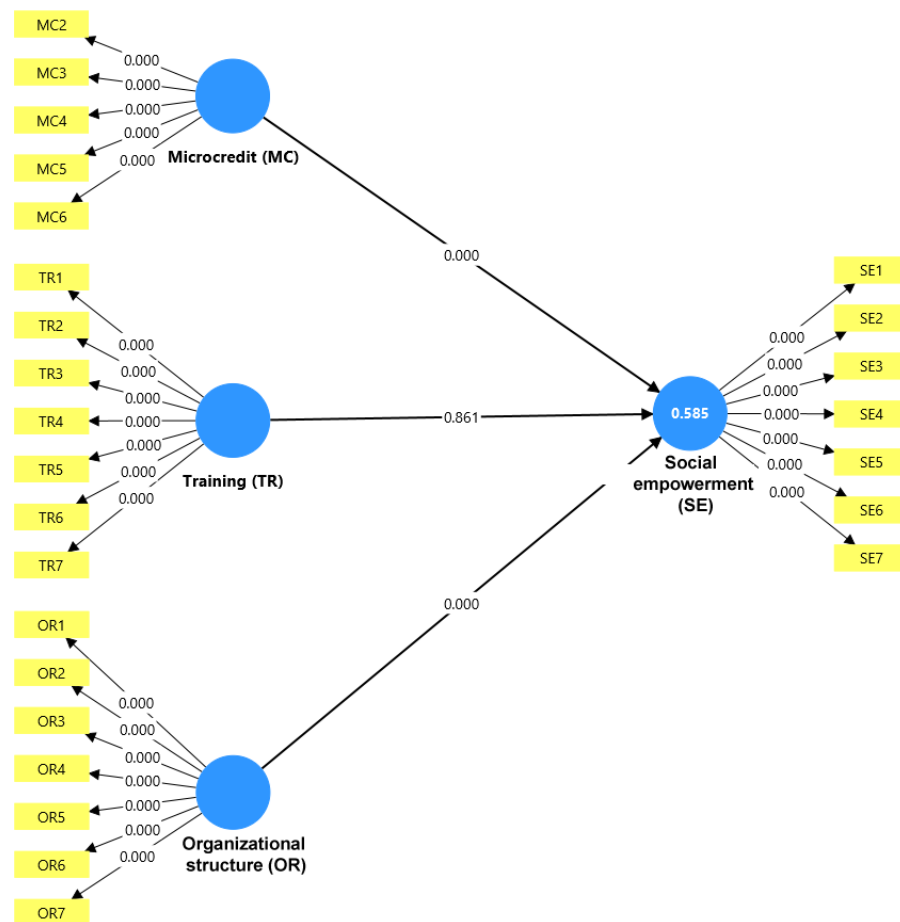

Figure 2. PLS-SEM Model.

Table 7. The structural model's results.

Hypo	Path	β	SD	T-value	P-value	CL		Decision
						2.5%	97.5%	
H1	MC -> SE	0.143	0.037	3.829	0.000	0.075	0.221	Supported
H2	TR -> SE	0.015	0.048	0.175	0.861	–0.085	0.111	Unsupported
H3	OR -> SE	0.663	0.078	8.481	0.000	0.496	0.800	Supported

5.2.2. Hypothesis Testing

The bootstrapping technique, involving 5,000 subsamples, was used to test the study's hypotheses. As shown in Table 7, MC has a positive and significant effect on SE, a crucial finding that supports H1 (β = 0.143, t = 3.829, p < 0.000, CI [0.075–0.221]). Similarly, OR demonstrated a positive and statistically significant influence on SE, a key result (β = 0.663, t = 8.481, p < 0.001, CI [0.496–0.800]). Therefore, H2 is supported. Conversely, the findings suggest that TR did not have a statistically significant impact on SE (β = 0.015, t = 0.175, p = 0.861, CI [–0.085, 0.111]), indicating that H3 is not supported.

Table 8. The explanatory power of the study's model.

Construct	R²	R² adjusted	Q² predict
SE	0.585	0.582	0.579

5.2.3. The Assessment of the Model's Explanatory Power

According to Hair et al. (2019), the in-sample explanatory power of the model in this study was evaluated using well-known metrics such as R^2 and the cross-validated redundancy measure (Q^2) for the endogenous construct (SE). Henseler et al. (2015) indicate that R^2 values of 0.25, 0.50, and 0.75 are considered weak, moderate, and substantial, respectively. Table 8 shows that the dependent construct (SE) explained 0.585 of the variance in the model used in this investigation. As per the guidelines (Henseler, Ringle, & Sinkovics, 2009), a Q^2 score above 0.50 signifies strong predictive relevance, while a value above 0.25 indicates medium relevance, and a value below 0.0 suggests no predictive significance. Table 7 demonstrates that SE has a Q^2 of 0.579, implying good predictive relevance for this study's model.

6. DISCUSSION

The current research, grounded in social capital and empowerment theories, examines the transformative influence of MC, TR, and OR on SE, as illustrated in Figure 1. The results demonstrate a notable positive effect of MC on SE, aligning with previous studies that regard MC as a vital tool for enhancing women's social status (Bandara, 2024; Falcomer & Lanzavecchia, 2024). Multiple investigations confirm that as women acquire control over economic assets, they become more assertive, mobile, and actively involved in social and household spheres, leading to better SE results (Banerjee et al., 2015; Swain & Wallentin, 2009). Furthermore, the findings corroborate a positive influence of OR on SE, supporting existing research by Kumar et al. (2021) and Samishetti and Rao (2018), which highlights the significance of mutual support, democratic leadership, and participatory management in developing women's leadership abilities, decision-making capacity, and independence. Additionally, studies suggest that effective organization of SHGs serves as a demographic catalyst for advancing social entrepreneurship through building trust, mutual support, and collective decision-making, thereby strengthening bonding capital among women (Leonardi, Nanetti, & Putnam, 2001; Nayak, 2015). Such solidarity and a sense of belonging are fundamental elements of SHGs. Moreover, organized group practices provide women with access to external networks and resources, creating bridging capital that enhances their social influence and outcomes (Deininger & Liu, 2009).

Convincing evidence demonstrates that women's participation in SHGs significantly enhances their SE through better skills, self-efficacy, and awareness (Gupta & Saranya, 2025; Rajput & Maheshwari, 2025). Paradoxically, in the

context of this study, TR shows no meaningful effect on SE. The TR programme's emphasis on financial outcomes overlooks crucial social factors, which restrict its overall effectiveness, especially where gender norms and biases remain strong (Alok et al., 2025; Badejo et al., 2017). The absence of impact may stem from several reasons; Nayak, Panigrahi, and Swain (2020) indicate that Odisha SHGs face limited TR resources, brief sessions, poor facilities, inadequate skills, low motivation, and insufficient supervision. Samama (2025) observed that SHG members lack adequate support, with a shortage of technical resources, minimal equipment, and bureaucratic barriers, highlighting the need to reform TR programmes with broader, transformative socioeconomic content. This research contributes to the literature on empowerment and social capital by examining how specific aspects of SHGs MC, TR, and OR affect women's SE. It reveals that empowerment is a complex process involving resource access, developing agency, and achieving transformative outcomes. The study underscores the importance of re-evaluating and redefining TR as a transformative element within empowerment frameworks.

7. PRACTICAL IMPLICATIONS

The outcomes of this study underscore several practical implications for enhancing the effectiveness of SHGs in advancing women's SE. The significant influence of OR suggests that development practitioners and policymakers should prioritize the improvement of SHG governance through regular meetings, inclusive decision-making, and transparent operations to promote collective agency and trust. Furthermore, TR initiatives should adopt a more holistic structure, integrating courses on gender equality, legal rights, health, and leadership rather than exclusively focusing on economic benefits. Policies should prioritize customized, needs-based SHG TR that extends beyond short-term sessions, incorporating a phased approach and ongoing mentoring to enhance skill applicability, boost confidence, and foster sustainable empowerment for women. To improve TR effectiveness, policies should address infrastructure gaps, simplify bureaucratic procedures, and enhance coordination. Investing in infrastructure and strong monitoring systems will ensure efficient implementation and long-term impact of SHG initiatives. Adjusting SHG operations to conform to local cultural contexts and ensuring equitable access to TR and leadership opportunities, particularly for marginalized women, is crucial in mitigating social disparities and promoting social justice. Additionally, linking SHGs with public services, such as education, healthcare, and legal aid, can enhance their ability to drive broader SE. Finally, implementing comprehensive monitoring frameworks that assess SE indicators will enable stakeholders to better evaluate the multifaceted impact of SHGs beyond financial outcomes.

8. CONCLUSION

This study contributes to the women's empowerment literature by examining the non-financial dimensions of SHGs in rural India, focusing on two districts in the coastal areas of Karnataka. Beyond traditional financial performance assessments, it explores the differing impacts of MC, TR, and OR on women's SE through an extensive PLS-SEM framework. The findings confirm that well-managed and organized SHGs can be effective channels for women's agency, participation, and civic engagement. Results indicate that MC and OR significantly boost SE by increasing autonomy, fostering solidarity, and supporting collective decision-making. The relatively weaker performance of TR contradicts conventional wisdom, revealing serious flaws in material relevance and implementation quality. This highlights the urgent need to shift away from a skills-based TR model often overly focused on livelihood activities to a transformational, context-sensitive education model that bridges sociocultural divides and ingrained gender norms. Such a system should emphasize self-esteem, leadership, and awareness of rights and responsibilities. Theoretically, this research contributes to the empowerment and social capital literature by portraying empowerment as a fluid, relational, and contextually dependent process. Tangible resources alone cannot be effective without organizational and relational frameworks that foster trust, inclusiveness, and leadership among women. SHGs possess significant untapped potential to catalyze SE; however, unlocking this potential requires deliberate structural and pedagogical reforms. This study stresses the importance of women's perspectives and

experiences, advocating for substantial reforms of SHG frameworks shifting from mere financial tools to powerful agents of socio-political change. Evaluating SHGs and SE in India presents numerous challenges, including limitations related to cross-sectional methodologies, geographical scope, and biases inherent in self-reported data. These issues underline the urgent need for more robust assessment tools capable of effectively capturing the context-specific factors associated with SE. Future research should explore tailored, need-based TR models, long-term mentoring impacts, and regional comparisons to identify scalable, effective capacity-building strategies and institutional support mechanisms for SHGs. Additionally, emphasis should be given to comparative analyses across states or nations, utilization of mixed-method approaches, and inclusion of mediating variables such as family dynamics and caste to facilitate a comprehensive understanding of SHGs and SE. It is recommended that efforts be made to enhance SHG governance via OR, reconceptualizing TR initiatives for transformative empowerment; further, there is a need to strengthen institutional support, overcome obstacles, contextualize SHG operations for inclusion and equity, develop strategic links with public institutions, and establish comprehensive monitoring and evaluation frameworks.

REFERENCES

Aladejebi, O. (2019). The impact of microfinance banks on the growth of small and medium enterprises in Lagos Metropolis. *European Journal of Sustainable Development, 8*(3), 261-261. https://doi.org/10.14207/ejsd.2019.v8n3p261

Alok, D., Monika, W., Neha, P., & Pankaj, O. (2025). Navigating the watershed: Challenges and opportunities for women's empowerment in rural development. *Journal of Experimental Agriculture International, 47*(1), 429-450.

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research, 14*(3), 396-402. https://doi.org/10.1177/002224377701400320

Aruna, M., & Jyothirmayi, M. R. (2011). The role of microfinance in women empowerment: A study on the SHG bank linkage program in Hyderabad (Andhra Pradesh). *Indian Journal of Commerce and Management Studies, 2*(4), 78-95.

Atiase, V. (2018). The impact of FNGO services on the performance of micro and small enterprises: Empirical evidence from the Volta Region, Ghana. A PhD Thesis Submitted to the University of Wolverhampton.

Badejo, A. F., Majekodunmi, A. O., Kingsley, P., Smith, J., & Welburn, S. C. (2017). The impact of self-help groups on pastoral women's empowerment and agency: A study in Nigeria. *Pastoralism, 7*(1), 28. https://doi.org/10.1186/s13570-017-0101-5

Baden, S. (2013). *Women's collective action: Unlocking the potential of agricultural markets.* Oxford, UK: Oxfam.

Bandara, H. S. (2024). Unveiling the prospects, impacts, and constraints of women's microfinancing initiatives in South Asia: A systematic review. *Social Sciences, 13*(8), 428. https://doi.org/10.3390/socsci13080428

Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C. (2015). The miracle of microfinance? Evidence from a randomized evaluation. *American Economic Journal: Applied Economics, 7*(1), 22-53. https://doi.org/10.1257/app.20130533

Bhuwania, P., Mukherji, A., & Swaminathan, H. (2024). Women's education through empowerment: Evidence from a community-based program. *World Development Perspectives, 33*, 100568. https://doi.org/10.1016/j.wdp.2024.100568

Brody, C., De Hoop, T., Vojtkova, M., Warnock, R., Dunbar, M., Murthy, P., & Dworkin, S. L. (2015). Economic self-help group programs for improving women's empowerment: A systematic review. *Campbell Systematic Reviews, 11*(1), 1-45. https://doi.org/10.4073/csr.2015.19

Chen, M., Sebstad, J., & O'connell, L. (1999). Counting the invisible workforce: The case of homebased workers. . *World Development, 27*(3), 603-610. https://doi.org/10.1016/S0305-750X(98)00154-5

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95-S120. https://doi.org/10.1086/228943

Cornwall, A., & Edwards, J. (2010). Introduction: Negotiating empowerment. *IDS Bulletin, 41*(2), 1-9. https://doi.org/10.1111/j.1759-5436.2010.00117.x

Deininger, K., & Liu, Y. (2009). *Economic and social impacts of self-help groups in India*. World Bank Policy Research Working Paper, No. (4884).

Deininger, K., & Liu, Y. (2013). Economic and social impacts of an innovative self-help group model in India. *World Development, 43*, 149-163. https://doi.org/10.1016/j.worlddev.2012.09.019

Deshpande, R. S. (2011). *Empowerment through self-help groups: Social dimensions and challenges in India*. New Delhi, India: Sage Publications.

Devi, K. U., & Narasalah, L. (2017). Women empowerment through self help group: An empirical study in Kurnool district of Andhra Pradesh. *International Journal of Applied Research, 3*(1), 101-105.

Dunn, T. J., Baguley, T., & Brunsden, V. (2014). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *The British Journal of Psychology, 105*(3), 399-412. https://doi.org/10.1111/bjop.12046

Dwarakanath, R., & Sandhya, P. (2018). *Self-employed women's association (SEWA) and women's empowerment through SHGs in India*. New Delhi, India: Concept Publishing Company.

Falcomer, P., & Lanzavecchia, A. (2024). Microfinance for women's empowerment: Evidence from Apeiron's project Equal Steps. *Peace Human Rights Governance, 7*(2), 231-259. https://doi.org/10.14658/PUPJ-PHRG-2024-aof-3

FAO. (2022). *Gender and land rights database (GLRD). Food and agriculture organization of the United Nations. Report.* Retrieved from https://www.fao.org/land-water/land/land-governance/land-resources-planning-toolbox/category/details/fr/c/1047633/?utm_source=chatgpt.com

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50. https://doi.org/10.1177/002224378101800104

Garai, S., & Maiti, S. (2020). Empowerment of women through self-help groups (SHGs): A case study of Cooch Behar district, West Bengal. *International Journal of Advanced Science and Technology, 29*(5), 12828–12836.

Geoffrey, A. M., & Emenike, K. O. (2018). Microfinance institutions and growth of small and medium enterprises. *Kinerja, 22*(1), 29-64. https://doi.org/10.24002/kinerja.v22i1.1568

Getaneh, F., Nigus, S., & Tadesse, A. (2020). *Women's empowerment, caste, and class: Linking technical resources with self-help groups*. New Delhi, India: Concept Publishing Company.

Ghosh, R., Chakravarti, P., & Mansi, K. (2015). Women's empowerment and education: Panchayats and women's Self-help groups in India. *Policy Futures in Education, 13*(3), 294-314. https://doi.org/10.1177/1478210315571214

Goetz, A. M., & Gupta, R. S. (1996). Who takes the credit? Gender, power, and control over loan use in rural credit programs in Bangladesh. *World Development, 24*(1), 45-63. https://doi.org/10.1016/0305-750X(95)00124-U

Government of India. (2021). *Agricultural census 2015–16. Ministry of Agriculture & Farmers Welfare. Official Report.* Retrieved from https://www.fao.org/fileadmin/templates/ess/ess_test_folder/World_Census_Agriculture/WCA_2020/WCA_2020_new_doc/IND_REP_ENG_2015_2016.pdf

Gupta, S. (2020). Women's empowerment through self-help groups in Bilaspur District, Chhattisgarh. Doctoral Dissertation, Banasthali Vidyapith. Shodhganga.

Gupta, S. K., & Saranya, T. S. (2025). A systematic review on the effect of empowerment among women of marginalized sections through SHGs. *Multidisciplinary Reviews, 7*(1), 1–25.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hashemi, S. M., Schuler, S. R., & Riley, A. P. (1996). Rural credit programs and women's empowerment in Bangladesh. *World Development, 24*(4), 635-653. https://doi.org/10.1016/0305-750X(95)00159-A

Hayes, A. F., & Coutts, J. J. (2020). Use omega rather than Cronbach's alpha for estimating reliability. But…. *Communication Methods and Measures, 14*(1), 1-24. https://doi.org/10.1080/19312458.2020.1718629

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115-135. https://doi.org/10.1007/s11747-014-0403-8

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In R. R. Sinkovics & P. N. Ghauri (Eds.), New challenges to international marketing. In New Challenges to International Marketing (Vol. 20, pp. 277–319). Bingley, UK: Emerald Group Publishing Limited. https://doi.org/10.1108/S1474-7979(2009)0000020014

Herbel, D., & Ourabah Haddad, N. (2012). Successful farmer collective action to integrate food production into value chains. *Food Chain, 2*(2), 164-182. https://doi.org/10.3362/2046-1887.2012.015

ILO. (2022). *World employment and social outlook: Trends 2022. Report Publication.* Retrieved from https://www.ilo.org/publications/flagship-reports/world-employment-and-social-outlook-trends-2022

Jakimow, T., & Kilby, P. (2006). Empowering women: A critique of the blueprint for self-help groups in India. *Indian Journal of Gender Studies, 13*(3), 375-400. https://doi.org/10.1177/097152150601300303

Jayalakshmi, J. (2014). Impact of micro finance on empowerment of women in Virudhunagar District in Tamil Nadu. Doctoral Dissertation. Shodhganga.

Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change, 30*(3), 435-464. https://doi.org/10.1111/1467-7660.00125

Kabeer, N. (2001). Conflicts over credit: Re-evaluating the empowerment potential of loans to women in rural Bangladesh. *World Development, 29*(1), 63-84. https://doi.org/10.1016/S0305-750X(00)00081-4

Kabeer, N. (2005). Is microfinance a'magic bullet'for women's empowerment? Analysis of findings from South Asia. *Economic and Political Weekly, 40*(44/45), 4709-4718.

Kanagaraj, S. (2021). Social mobilization and women empowerment: Urban SHGs in Coimbatore City, Tamil Nadu, India. Doctoral Dissertation. Amrita Vishwa Vidyapeetham, Coimbatore, India.

Knowles, G., & Luke, B. (2018). Creating conflict or harmony?: The impact of microfinance programs and self-help groups on social order in poor communities. *Third Sector Review, 24*(2), 35–56.

Kock, N., & Lynn, G. S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for information Systems, 13*(7), 136.

Krishna, A. (2007). How does social capital grow? A seven-year study of villages in India. *The Journal of Politics, 69*(4), 941-956. https://doi.org/10.1111/j.1468-2508.2007.00600.x

Kumar, N., & Kumar, A. (2021). Comparative study of effects of self help groups on women empowerment-A case study of JEEViKA. *Jindal Journal of Public Policy, 6*(1), 1-26. https://doi.org/10.2139/ssrn.3797014

Kumar, N., Raghunathan, K., Arrieta, A., Jilani, A., & Pandey, S. (2021). The power of the collective empowers women: Evidence from self-help groups in India. *World Development, 146*, 105579. https://doi.org/10.1016/j.worlddev.2021.105579

Leonardi, R., Nanetti, R. Y., & Putnam, R. D. (2001). Making democracy work: Civic traditions in modern Italy. In (pp. 89). Princeton, NJ, USA: Princeton University Press

Lindner, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling nonresponse in social research. *Journal of Agricultural Education, 42*(2), 43–53. https://doi.org/10.5032/jae.2001.04043

Lunayach, A., & Khichar, V. (2024). Empowering women through self-help groups: A pragmatic analysis of women in Bharatpur. *International Journal of Education, Modern Management, Applied Science & Social Science, 06*(3i), 147–162. https://doi.org/10.62823/ijemmasss/6.3(i).6845

Mayoux, L. (2001). Tackling the downside: Social capital, women's empowerment and micro-finance in Cameroon. *Development and Change*, *32*(3), 435–464. https://doi.org/10.1111/1467-7660.00212

Mugailwa, M. S., Wanyoike, D. M., & Odhiambo, C. (2022). Social empowerment on sustainability of women self-help groups projects in Nakuru West Sub-County, Kenya. *The International Journal of Humanities & Social Studies*, *10*(10), 85–99. https://doi.org/10.24940/theijhss/2022/v10/i10/HS2210-027

Mukherjee, A. (2016). *Women's empowerment through self-help groups: A study in India.* New Delhi, India: Concept Publishing Company.

NABARD. (2022). *Status of microfinance in India (2021–22), Annual Report.* Mumbai, India: NABARD.

Nagaraji, B. (2020). An investigation on the role of self help groups in women empowerment with reference to Vellore District of Tamilnadu. A PhD Thesis, Shodhganga Repository.

Nahar, K., Khan, A., Khan, S. I., Chakravorty, A., & Sultana, A. (2020). Assessment of women's empowerment in the Hindu Religion: A case study of rural Bangladesh. *European Journal of Social Impact and Circular Economy*, *1*(1b), 66–73. https://doi.org/10.13135/2704-9906/4293

Nayak, A. K. (2015). Developing social capital through self-help groups. *Indore Management Journal*, *7*(1), 18–24.

Nayak, A. K., & Panigrahi, P. K. (2020). Participation in self-help groups and empowerment of women: A structural model analysis. *The Journal of Developing Areas*, *54*(1), 19–37. https://doi.org/10.1353/jda.2020.0001

Nayak, A. K., Panigrahi, P. K., & Swain, B. (2020). Self-help groups in India: Challenges and a roadmap for sustainability. *Social Responsibility Journal*, *16*(7), 1013–1033. https://doi.org/10.1108/SRJ-02-2019-0054

Pandey, J. K. (2014). Women empowerment through self-help group: A theoretical perspective. *Journal of Culture, Society and Development*, *4*, 91–94.

Pandhare, A., Bellampalli, P. N., & Yadava, N. (2024). Transforming rural women's lives in India: The impact of microfinance and entrepreneurship on empowerment in self-help groups. *Journal of Innovation and Entrepreneurship*, *13*(1), 62. https://doi.org/10.1186/s13731-024-00419-y

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies *Journal of Applied Psychology*, *88*(5), 879-903.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community.* USA: Simon Schuster.

Rajput, S., & Maheshwari, N. (2025). Pathways to growth: Assessing SHG contributions to skill development and business outcomes in women-led ventures in tribal areas. *South India Journal of Social Sciences*, *23*(2), 65–70. https://doi.org/10.62656/SIJSS.v23i2.1841

Ramke, J., Palagyi, A., Kuper, H., & Gilbert, C. E. (2018). Assessment of response bias is neglected in cross-sectional blindness prevalence surveys: A review of recent surveys in low- and middle-income countries. *Ophthalmic Epidemiology*, *25*(5-6), 379–385. https://doi.org/10.1080/09286586.2018.1500613

Saha, S. (2016). Role of self-help group in the economic empowerment of women: An empirical study concerning Durg district. Doctoral Dissertation. Pt. Ravishankar Shukla University.

Samama, N. C. (2025). Enablers and barriers to women's empowerment through self-help groups. *Aotearoa New Zealand Social Work*, *37*(2), 108-120. https://doi.org/10.11157/anzswj-vol37iss2id1204

Samishetti, B., & Rao, T. U. M. (2018). *The role of self-help groups (SHGs) in empowering women in India.* Paper presented at the 1st International Conference on Recent Trends in Engineering, Materials, Management and Sciences (ICRTEMMS-2018).

Sanyal, P. (2009). From credit to collective action: The role of microfinance in promoting women's social capital and normative influence. *American Sociological Review*, *74*(4), 529–550. https://doi.org/10.1177/000312240907400402

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In Handbook of market research. In (pp. 587–632). Cham, Switzerland: Springer Nature.

Sarstedt, M., Ringle, C. M., Smith, D., Reams, R., & Hair, J. F. (2014). Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. *Journal of Family Business Strategy*, *8*(2), 105–115.

Shmueli, G., Ray, S., Estrada, J. M. V., & Chatla, S. B. (2016). The elephant in the room: Predictive performance of PLS models. *Journal of Business Research*, *69*(10), 4552–4564. https://doi.org/10.1016/j.jbusres.2016.03.049

Singh, M. S. (2017). An evaluative study of self-help groups in the tribal sub-plan region of Rajasthan. Doctoral Dissertation, Rajasthan, India.

Swain, B. R., & Wallentin, F. Y. (2012). Factors empowering women in Indian self-help group programs. *International Review of Applied Economics*, 26(4), 425-444. https://doi.org/10.1080/02692171.2011.595398

Swain, R. B., & Wallentin, F. Y. (2009). Does microfinance empower women? Evidence from self-help groups in India. *International Review of Applied Economics*, 23(5), 541-556. https://doi.org/10.1080/02692170903007540

Wassie, S. B., & Abebe, T. (2024). Self-help groups and women's empowerment in Ethiopia: Evidence from rural communities. *Journal of International Development*, 36(2), 201–220.

World Bank. (2012). *India – national rural livelihood project*. Washington, DC: World Bank Group.

APPENDIX A

The Appendix A includes the data collection questionnaire for issues in this study.

Table A1. Questionnaire.

Concept of Study	Questions
Microcredit	The application process is easy to understand and follow.
	The loan I received from SHG is reasonable to run my business.
	The duration of processing, approval, and receiving the loans from the SHG is reasonable.
	SHG gives me the required loans needed with a convenient repayment period.
	SHG makes loans available on time for members
Training	The training provided by SHG enhanced my management skills to run my business effectively.
	The training time was suitable.
	Using the learned knowledge after training was possible
	The training was effective in fixing my business problems.
	The training has enhanced my financial and accounting skills.
	The training has enhanced my technical ability.
	The training has enhanced my marketing skills.
Organizational structure	Meetings are conducted regularly
	No Absenteeism in attending meetings
	Minutes are recorded regularly
	Actions are taken against default members
	Accounts maintained regularly
	Calculations of income and expenditure are clear and understandable
	Aware of the purpose of SHGs, the procedure for loan and repayment is well-understood
Social empowerment	After joining SHG, I have had a better relationship with family and friends,
	After joining SHG, I'm not feeling alone; I feel like a part of a group
	I can freely speak in SHG meetings
	Being an earning member, I am much more respected in the family and community
	I participate in the responsibility of my family
	After joining SHG, I have the ability to make decisions regarding the utilization of money.
	Increased participation in group decision-making

Table A1 lists the indicators used to assess the dimensions of Microcredit (MC), Training (TR), Organizational Structure, and Social Empowerment (SE).