

Transformative Impacts of Self-Help Groups (SHGs) on Women's Financial Inclusion and Economic Well-Being

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Abstract: This study is an attempt to assess the transformative impacts of women's participation in Self-Help Groups (SHGs) on their financial inclusion and economic well-being. Despite the extensive research on the role of SHGs in empowering women, a research gap remains regarding the specific changes brought about by SHGs. The study focuses on the before-and-after scenarios of women who joined SHGs, offering a comprehensive analysis of the alterations and enhancements observed in their lives. Drawing on primary data collected from 220 rural women members of SHGs in Madurai and Theni districts of Tamil Nadu, we employ paired samples t-tests to ascertain statistically significant differences between the "before" and "after" measurements for variables related to financial inclusion. The study reveals that women's participation in SHGs is associated with a notable decrease in income, while there are no significant correlations found for expenditure, saving, and debt. However, the test confirms substantial average differences for all four variables, signifying that joining SHGs has a statistically significant impact on income, expenditure, saving, and debt. Specifically, income and expenditure decrease after joining SHGs, while debt increases, and saving experiences a noteworthy reduction. These findings highlight the complex financial dynamics that unfold when women become part of SHGs, underscoring the need for comprehensive support mechanisms that address the economic consequences of joining SHGs. The study's findings provide valuable insights for policymakers, NGOs, and development organizations working to empower women and promote financial inclusion. It emphasizes the multifaceted changes that SHGs bring about and the importance of tailored interventions to maximize the positive impacts on women's economic well-being.

Keywords: Financial inclusion, Women empowerment, Rural transformation, Gender equality

INTRODUCTION

Self-Help Groups (SHGs) have gained recognition as powerful drivers of women's financial inclusion and economic well-being worldwide (Yunus, 2007). These groups typically comprise women with similar socio-economic backgrounds and function as platforms for collective savings, lending, and skills development (Woller et al., 1999). Researchers, policymakers, and development practitioners have directed considerable attention to the transformative effects of SHGs on the lives of women, pre- and post-membership (Nair & Pandian, 2004). This study seeks to delve into the multifaceted impacts of SHG involvement, with a specific focus on the changes experienced by women before and after joining. The global imperative for the economic and social empowerment of women is undeniable, and the role of SHGs in achieving this goal is of paramount importance (Kabeer, 2005). Women, particularly those in low-income and marginalized communities, encounter various obstacles when it comes to accessing financial resources and participating in economic activities (Deolalikar, 2005). SHGs offer an effective solution to address these challenges, providing women with opportunities to pool resources, access credit, and engage in income-generating activities (Johnson & Rogaly, 1997). Before becoming part of SHGs, women often face financial constraints, limited access to formal banking services, and a lack of financial literacy (Mayoux, 1998). These hurdles

impede their financial independence and overall well-being (Chattopadhyay & Duflo, 2004). However, research indicates that SHG participation has the potential to bring about transformative changes in women's lives in various ways (Srinivasan & Holvoet, 2015).

Foremost, SHGs empower women economically by facilitating savings, credit access, and investments in income-generating enterprises (Zeller et al., 2006). SHG members collectively contribute to savings and provide each other with loans, promoting financial self-sufficiency (Swain & Wallentin, 2009). Additionally, these groups offer financial education and literacy programs, equipping women with the knowledge and skills required to make informed financial decisions (Verma & Jain, 2009). This newfound financial independence can lead to increased household income, improved living standards, and enhanced financial resilience (Mohanty & Sahu, 2012). Furthermore, the social dimensions of SHGs are equally significant (Buvaneswari & Gopinath, 2018). SHGs create a supportive environment in which women can share experiences, exchange ideas, and build networks (Woller et al., 1999). This social capital plays a crucial role in bolstering self-confidence, decision-making abilities, and leadership skills among SHG members (Zumra & Tariq, 2019). Additionally, SHGs often serve as a platform for advocacy, allowing women to

collectively address issues such as gender discrimination, violence, and access to healthcare and education (Srinivasan & Holvoet, 2015). As we explore the transformative impacts of SHGs, it is vital to undertake a comprehensive before-and-after analysis (Buvaneswari & Gopinath, 2018). This analysis should encompass key financial variables such as income, expenditure, savings, and debt (Swain & Wallentin, 2009). By statistically comparing these variables before and after joining SHGs, we can assess the extent of change attributable to SHG participation (Chattopadhyay & Duflo, 2004). Such an analysis not only furnishes concrete evidence of the impacts but also contributes to an understanding of the financial dynamics experienced by women within these groups (Srinivasan & Holvoet, 2015).

The significance of this study lies in its potential to illuminate the transformative potential of SHGs in enhancing women's financial inclusion and economic well-being (Nair & Pandian, 2004). It enriches the existing literature by delivering a comprehensive evaluation of the multifaceted effects of SHG participation, grounded in empirical evidence (Kabeer, 2005). In the subsequent sections, we will delve into the methodology and analysis necessary to address the research question and objectives. Through an examination of the nuanced financial and social changes experienced by women before and after joining SHGs, we aspire to contribute to a deeper understanding of the role of these groups in promoting women's empowerment and financial inclusion.

Relevant Literary Reviews

Shetty and Hans (2019) conducted a study on financial inclusion and the empowerment of women through Self-Help Groups (SHGs). They analyzed the role of SHGs in empowering women and the constraints or obstacles to women's empowerment. This study was based on secondary data. The researchers found that microfinance has enhanced women's ability to save and access loans, promoting entrepreneurial skills and creating awareness about Microfinance Institution (MFI) procedures and banking transactions. It has also provided extensive opportunities for economic activities and increased mobility. SHGs have been found to cultivate healthy saving habits and banking awareness among their members. The study concluded that SHGs play a positive and constructive role in rural development by enabling women to contribute to the socio-economic progress of the nation.

Shetty (2016) conducted an investigation on the role of SHGs in the financial inclusion of excluded sections of society, with a specific focus on Udupi District. This study examined the role of SHGs in financial inclusion, the importance of financial inclusion in the Indian financial system, and the achievements of SHG microfinance in including excluded sections of society. The research was based on primary data with 200

sample respondents from Udupi District, Karnataka. The researcher found that the economic, social, and personal activities of Self-Help Group members improved after joining these groups. The study concluded that SHGs played a crucial role in the financial inclusion of the rural population and in including sections of society that were previously excluded.

Dar (2017) conducted research on the role of Self-Help Groups (SHGs) in financial inclusion in Anantnag District, Jammu and Kashmir. This study analyzed the socio-economic conditions of women SHG members, the impact of microfinance on alleviating rural poverty, and the performance of SHGs in providing microfinance services. The research used primary data, with a total sample size of 227 respondents. The study found that people joined SHGs to fulfill their financial requirements because accessing loans from banks was challenging due to stringent rules and time-consuming processes, whereas loans were more easily obtained within the group. The researcher concluded that joining SHGs led to social and economic empowerment for women.

Uma and Rupa (2013) conducted a study on the role of SHGs in financial inclusion, focusing on Hunsur taluk in Mysore district, Karnataka. The study examined the impact of SHGs on financial inclusion, with primary data collected from 300 respondents using random sampling. The research found that the annual repayment of SHG members increased after the intervention of SHGs. It also observed active participation by NGOs and bankers in SHG activities, which encouraged SHG members to engage in income-generating activities. The study concluded that SHGs positively impact financial inclusion, as evidenced by the increase in the number of bank accounts, credit availability, and credit repayment among SHG members.

Research Gap

In the context of financial inclusion and women's empowerment, extensive research has been conducted on Self-Help Groups (SHGs), yet a significant research gap persists concerning the unique challenges and hurdles faced by both SHGs and their members. While existing literature has predominantly emphasized the positive influence of SHGs on financial inclusion and women's empowerment, it has not thoroughly explored the comprehensive transformations brought about by SHGs. This study is designed to fill this gap by delving into the profound changes experienced by individuals before and after their involvement in Self-Help Groups (SHGs), with a specific emphasis on their circumstances prior to joining and the subsequent positive developments.

The central question guiding this study is: 'What are the transformative impacts of Self-Help Groups (SHGs) on the economic and social empowerment of women, with

a specific focus on the changes observed in their lives before and after joining these groups? In light of this research question, the study aims to assess and understand the transformative impacts brought about by women's participation in Self-Help Groups and to conduct a thorough before-and-after analysis to determine statistically significant differences in key financial variables: income, expenditure, saving, and debt, both before and after joining SHGs. Moreover, the study intends to evaluate the impact of SHG participation on women's financial inclusion, with a focus on the changes in financial variables to provide insights into the role of SHGs in enhancing women's financial inclusion, and to gain a deeper understanding of the complex financial dynamics that women experience when they become part of SHGs.

MATERIAL AND METHODS

The study exclusively relies on primary data as its source, with information regarding the Self-Help Groups (SHGs) obtained from the Commissionerate of Town Panchayats, Government of Tamil Nadu. Out of a total of 1,589 SHGs, this study concentrates on the 101 SHGs with 458 members in Madurai and Theni districts. These districts in southern Tamil Nadu were purposefully chosen to assess the empowerment and specific transformations experienced by women before and after joining SHGs. These districts were purposefully chosen because they are representative of the region's socio-economic conditions, demographics, and cultural factors. By focusing on these districts, the study can capture insights that are more applicable to the specific context of southern Tamil Nadu. Additionally, collecting primary data from a large number of SHGs and members could be resource-intensive and time-consuming. Given the limitations in resources, it's practical to select a specific number of SHGs and members for an in-depth study. Henceforth, this approach ensures a manageable sample size while still providing valuable insights. From the total members and groups in these districts, a random sample

of 220 rural members was selected. The research employed a paired samples t-test to identify statistically significant differences between the "before" and "after" measurements for the selected variables associated with financial inclusion and economic well-being within Self-Help Groups (SHGs). This approach enhances the reliability and robustness of the study's findings. Moreover, to determine whether there were substantial discrepancies in these financial aspects before and after women's participation in Self-Help Groups (SHGs) the study used Wilcoxon Signed Ranks Test, Z-score, and the results of the McNemar's Test, focusing on four key financial variables for analytical purposes.

The given tests can be mathematically expressed as follows,

Wilcoxon Signed Ranks Test:

$$W = \sum_{i=1}^{Nr} [\text{sgn}(x_{2,i} - x_{1,i}) \cdot R_i]$$

W = test statistic,

Nr = sample size, excluding pairs where $x_1 = x_2$,

sgn = sign function

$x_{1,i}, x_{2,i}$ = corresponding ranked pairs from two distributions and

R_i = rank i

Z – Score:

$$Z = \frac{x - \mu}{\sigma}$$

Z = standard score

x = observed value

μ = mean of the sample

σ = standard deviation of the sample

McNemar's Test: (this test uses the chi-square distribution)

The test is commonly referred to as the McNemar chi-square test, or simply the McNemar test. It is utilized to determine whether there is a statistically significant alteration in proportions related to a binary characteristic within the same population when observed at two distinct time points.

	-	+	
-	A	B	A + B
+	C	D	C + D
	A + C	B + D	

$$\chi^2 = \frac{(B - C)^2}{B + C}$$

RESULTS AND DISCUSSION

In this section the socioeconomic status of the SHG members have been presented along with the transformation with special reference to educational and health has also been depicted. The health and education transformation attained by the women after joining the SHGs have been exemplified as a comparative approach (before and after).

Household Roster of Women in Self-Help Groups

Table 1 shows the diverse household roster of women actively participating in Self-Help Groups (SHGs), encompassing a wide range of age groups, educational backgrounds, social categories, marital statuses, and family structures. In terms of age distribution within SHGs, the highest percentage of members falls within the 30 to 40 age group, indicating that women in their prime working years actively

participate in SHGs. This suggests that women in this age range often seek avenues to improve their socio-economic status, and they bring energy and enthusiasm to group activities. Furthermore, 25.9 percent of respondents were in the 40 to 50 age group, while 25.0 percent were below 30 years old, and 11.8 percent were above 50 years old. Regarding education, 9.1 percent of the sample women are illiterate. Notably, 72.3 percent of women have received schooling up to the school level, 8.6 percent have completed undergraduate studies, 3.2 percent have finished postgraduate degrees, and 6.8 percent have completed other studies in the study area.

The diverse representation of social categories within SHGs showcases their role in bridging social gaps. Scheduled Caste (SC) women are prominently represented at 52.3 percent, indicating that SHGs provide a platform for marginalized communities to enhance their socio-economic status. Additionally, 10.5 percent of participants are from Scheduled Tribes (ST), 19.5 percent belong to the Backward Class (BC), and 17.7 percent belong to the Most Backward Class (MBC). This further demonstrates the inclusive and empowering nature of SHGs, as they offer opportunities for women from different backgrounds to come

together for collective development. The high representation of married women at 79.1 percent suggests that SHGs serve as platforms where married women seek support for their families and economic activities. Meanwhile, 7.7 percent of women are unmarried, 6.8 percent are widowed, and 6.4 percent are separated or detached. This highlights the role of SHGs in providing a safety net and support system for women facing challenging life circumstances, including those who have lost their spouses or faced separation.

The prevalence of nuclear families at 70.9 percent within SHGs indicates that these groups cater to women from diverse family backgrounds, while 29.1 percent of women belong to joint families. Both women from joint and nuclear families find SHGs beneficial, underscoring their adaptability in accommodating different family structures. The socio-economic profile of women in Self-Help Groups indicates that these groups play a pivotal role in empowering women from various age groups, educational backgrounds, social categories, marital statuses, and family types. The flexibility and inclusivity of SHGs make them effective platforms for women's social and economic development, fostering unity and collective growth.

Table 1: Household Roster of the Self Help Groups Women

Indicators	Cluster/grouping	Frequency	% distribution
Age	Below 30	55	25.0
	30 to 40	82	37.3
	40 to 50	57	25.9
	50 and above	26	11.8
Education level	Illiterate	20	9.1
	School level	159	72.3
	Under Graduate	19	8.6
	Post Graduate	7	3.2
	Others	15	6.8
Social Category	SC	115	52.3
	ST	23	10.5
	BC	43	19.5
	MBC	39	17.7
Marital Status	Unmarried	17	7.7
	Married	174	79.1
	Widower	15	6.8
	Separated/ Detached	14	6.4
Types of family	Joint	64	29.1
	Nuclear	156	70.9

Source: Estimated from field survey data

Economic Status of Women in Self Help Groups

In terms of the monthly family income of women who are part of Self-Help Groups (SHGs), significant changes were observed (Table 2) before and after joining these groups. Before joining SHGs, 27.7 percent of respondents had a monthly family income below Rs. 10,000, but after joining, this decreased to 10.5 percent. A similar pattern was observed for those with monthly incomes between Rs. 10,001 to Rs. 20,000, which decreased from 24.5 percent to 14.5 percent. Notably, before joining SHGs, 16.8 percent had monthly family incomes between Rs. 20,001 to Rs. 30,000, which significantly increased to 31.4 percent after joining. Furthermore, 30.9 percent of respondents had monthly family

incomes above Rs. 30,000 before joining SHGs, which increased to 43.6 percent after joining. SHGs had a positive impact on high-income families as well, indicating that they contribute to income diversification and financial stability.

Concerning the monthly expenditure of women in SHGs, a shift was observed. Before joining, 21.8 percent of respondents had monthly expenditures below Rs. 5,000, which decreased to 5.5 percent after joining. This reduction could be attributed to the financial support, knowledge, and guidance provided by SHGs, enabling members to manage their finances more effectively. Moreover, those with monthly expenditures between Rs. 5,001 to Rs. 10,000 decreased from 36.4 percent to 25.0 percent after joining. Meanwhile, those with monthly expenditures between Rs. 10,001 to Rs. 15,000 increased from 19.1 percent to 30.0 percent, indicating that SHG participation provided opportunities for higher incomes, enabling them to afford increased expenses. Similarly, those with monthly expenditures between Rs. 15,001 to Rs. 20,000 increased from 22.7 percent to 39.5 percent after joining SHGs, signifying the positive impact of SHGs on members' financial capacity.

When it comes to the savings habits of women in SHGs, there were noteworthy changes. Before joining, 25.0 percent had savings below Rs. 500, which decreased to 4.5 percent after joining. For those with savings between Rs. 501 to Rs. 1000, the percentage decreased from 37.3 percent to 18.2 percent, suggesting that some members moved to higher savings categories, indicating an enhancement in their savings habits. Furthermore, those with savings between Rs. 1001 to Rs. 1500 decreased from 26.4 percent to 16.4 percent after joining SHGs. Before joining, 7.3 percent had savings between Rs. 1501 to Rs. 2000, but after joining, it increased to 28.6 percent. Similarly, those with savings above Rs. 2001 increased from 4.1 percent to 32.3 percent after joining SHGs. This highlights the pivotal role of SHGs in promoting savings and financial security among women, possibly through group savings initiatives, financial education, and access to resources supporting savings and investments.

In terms of debt levels among women in SHGs, both before and after joining, significant changes were observed. Those with debt levels between Rs. 2000 to Rs. 10,000 increased from 14.5 percent to 33.2 percent after joining. For those with debt levels between Rs. 10,001 to Rs. 18,000, it increased from 18.2 percent to 50.0 percent. Conversely, those with debt levels between Rs. 18,001 to Rs. 26,000 decreased from 25.5 percent to 11.4 percent after joining SHGs, suggesting successful debt management with SHG support. Moreover, those with debt levels above Rs. 26,001 decreased from 41.8 percent to 5.5 percent after joining, indicating that SHGs may have helped members reduce their existing high levels of debt and avoid accumulating further debt.

Table 2: Economic Profile of the Self Help Groups Women (in %)

Indicators	Cluster/grouping	Before joining SHGs	After joining SHGs
Monthly Family Income	Below Rs. 10,000	27.7	10.5
	Rs. 10,001 to Rs.20,000	24.5	14.5
	Rs. 20,001 to Rs. 30,000	16.8	31.4
	Above Rs. 30,001	30.9	43.6
Expenditure	Below Rs. 5,000	21.8	5.5
	Rs. 5,001 to Rs.10,000	36.4	25.0
	Rs.10,001 to Rs.15,000	19.1	30.0
	Rs.15,001 to Rs.20,000	22.7	39.5
Saving	Below Rs. 500	25.0	4.5
	Rs. 501 to Rs. 1000	37.3	18.2
	Rs. 1001 to Rs. 1500	26.4	16.4
	Rs. 1501 to Rs. 2000	7.3	28.6
	Above 2001	4.1	32.3
Debt	Rs. 2000 to Rs. 10,000	14.5	33.2
	Rs. 10,001 to Rs. 18,000	18.2	50.0
	Rs.18,001 to Rs. 26,000	25.5	11.4
	Above Rs. 26,001	41.8	5.5

Source: Estimated from field survey data

SHGs in Rural Transformation: Fostering Health and Educational Advancements

Within the realm of rural transformation, Self-Help Groups (SHGs) play a pivotal role in not only enhancing economic progress but also driving positive changes in health and education. This section delves into the transformative

impact of SHGs, shedding light on their contributions to the well-being and knowledge empowerment of rural communities.

Health transformation

Table 3 provides a detailed analysis of the health transformations observed among women before and after their participation in Self-Help Groups (SHGs). These transformations encompass a range of vital health aspects, shedding light on the positive changes experienced by SHG members. Before joining SHGs, 74.1 percent of members were already aware of family planning while it significantly increased to 100 percent after their SHG participation. This reflects the success of SHGs in enhancing family planning awareness. Moreover, SHG membership led to improvements in sanitation practices, with the percentage of members using toilets or latrines increasing from 49.1 percent to 95 percent. The shift towards better sanitation is a promising development for community health. Another notable change is the increase in the percentage of members visiting Primary Health Centers (PHCs) after joining SHGs, reaching 100 percent. This indicates improved access to healthcare facilities, which is crucial for overall well-being. The table also shows that more members started drinking boiled water after SHG participation, highlighting their adoption of safer water consumption practices.

Financial stability and access to healthcare appear to have improved, with the percentage of members incurring medical expenses per head decreasing from 94.5 percent to 70.9 percent. Additionally, the practice of cleaning nails saw an increase from 67.3 percent to 81.8 percent among SHG members, contributing to better personal hygiene. Certain health aspects remained consistent both before and after SHG membership. All members used home remedies and were aware of AIDS. However, there was a significant positive shift in menstrual hygiene, with the use of sanitary napkins increasing from 79.1 percent to 94.1 percent. Furthermore, the percentage of members consuming nutritional food rose from 83.2 percent to 96.8 percent after joining SHGs. Finally, the data indicates an increase in the percentage of members engaging in periodical health check-ups, rising from 56.8 percent to 77.7 percent. This suggests a greater focus on preventive healthcare measures within the SHG community. Remarkably, 100 percent of respondents gained awareness of COVID-19 after joining SHGs, underscoring the role of SHGs in disseminating critical health information.

Table 3: Health Transformation Before and After Joining SHGs

Description of Health Aspects	Health transformation of SHG members			
	Before joining SHG		After joining SHG	
	Yes	No	Yes	No
Awareness on family planning	163 (74.1)	57 (25.9)	220 (100)	0 (0.0)
Using Toilet/Latrine	108 (49.1)	112 (50.9)	209 (95.0)	11 (5.0)
Visiting PHC	220 (100)	0 (0.0)	220 (100)	0 (0.0)
Drinking boiled water	26 (11.8)	194 (88.2)	63 (28.6)	157 (71.4)
Medical expenses per head	12 (5.5)	208 (94.5)	64 (29.1)	156 (70.9)
Cleaning nails	148 (67.3)	72 (32.7)	180 (81.8)	40 (18.2)
Using of home remedies	220 (100)	0 (0.0)	220 (100)	0 (0.0)
Using of Sanitary napkins	174 (79.1)	46 (20.9)	207 (94.1)	13 (5.9)
AIDS Awareness	190 (86.4)	30 (13.6)	220 (100)	0 (0.0)
Taking nutritional food	183 (83.2)	37 (16.8)	213 (96.8)	7 (3.2)
Periodical Health Check up	95 (43.2)	125 (56.8)	171 (77.7)	49 (22.3)
Awareness on COVID-19	0 (0.0)	220 (100)	220 (100)	0 (0.0)

Source: Estimated from field survey data

Note: Awareness on COVID-19 includes sources, consequences, treatments, vaccination, using mask, and social distancing.

Figure in the parathesis represents percentage of the respective numbers.

Educational transformation

Table 4 offers an insightful overview of the educational transformations experienced by women before and after their involvement in Self-Help Groups (SHGs). These transformations encompass various aspects of education and underscore the positive changes observed among SHG members. Prior to joining SHGs, 75.5 percent of members reported not reading newspapers, while 24.5 percent did. After joining SHGs, this dynamic changed significantly, with 59.5 percent of members reading newspapers, indicating improved access to information and an increased interest in current affairs. A noteworthy shift occurred in the ability to sign one's name, with 75.9 percent of members possessing this skill before joining SHGs. However, this percentage increased to 100 percent after SHG participation, reflecting substantial progress in basic literacy.

The capacity to check ration cards, a crucial aspect of accessing government benefits, saw improvement among SHG members. While 65.5 percent of members had this ability before SHG participation, this increased to 83.6 percent afterward, facilitating better access to essential resources. Another promising transformation is evident in the percentage of members who can admit their children to school. Prior to joining SHGs, 61.4 percent of members reported this ability, which grew to 87.3 percent after SHG involvement, indicating an enhanced commitment to education and child development. Moreover, members' capacity to check their children's progress in school showed significant growth. Before joining SHGs, 60.5 percent possessed this capability, while after joining, 83.6 percent reported being able to do so, highlighting a more active involvement in their children's education. Health education also experienced a positive shift, with 62.3 percent of members reporting awareness before SHG participation and this increasing to 67.3 percent afterward. This reflects a collective effort to improve health literacy and make informed decisions regarding well-being.

Table 4: Educational transformation before and after joining SHGs

Description of education related variables	Educational Transformation of SHG Members			
	Before joining SHG		After joining SHG	
	Yes	No	Yes	No
Reading News Papers	54 (24.5)	166 (75.5)	89 (40.5)	131 (59.5)
Signature	167 (75.9)	53 (24.1)	220 (100)	0 (0.0)
Ration card checking	144 (65.5)	76 (34.5)	184 (83.6)	36 (16.4)
Admitting children at school	135 (61.4)	85 (38.6)	192 (87.3)	28 (12.7)
Capacity to check their Progress	133 (60.5)	87 (39.5)	184 (83.6)	36 (16.4)
Health Education	137 (62.3)	83 (37.7)	148 (67.3)	72 (32.7)

Source: Estimated from field survey data

Economic Transformation of SHGs Women

The paired samples test results in Table 5 indicate that there are statistically significant differences between the "before" and "after" measurements for the selected variables related to financial inclusion and economic well-being in Self-Help Groups (SHGs).

The nexus between income, expenditure, saving, and debt before and after joining SHGs were revealed in Table 5. Notably, there is a statistically significant negative correlation ($r = -0.127$) between income before and after joining SHGs. This suggests that, on average, joining SHGs is associated with a decrease in income. The correlation coefficients for expenditure, saving, and debt do not show statistically significant correlations. The test confirms significant average differences for all four variables, implying that joining SHGs has a statistically significant impact on income, expenditure, saving, and debt. Specifically, there is a reduction in income and expenditure after joining SHGs and an increase in debt. The impact on savings is also notable, with a significant reduction.

The paired t-test indicates a significant average difference between income before and after joining SHG ($t_{(219)} = -5.142$, $p < 0.001$). On average, income after joining SHG is 0.573 units lower than before. Also, the outcome of the test shows a significant average difference between expenditure before and after joining SHG ($t_{(219)} = -6.715$, $p < 0.001$). On average, expenditure after joining SHG is 0.609 units lower than before. With respect to savings, the t-test reveals a significant average difference between saving before and after joining SHG ($t_{(219)} = -14.256$, $p < 0.001$). On average, saving after joining SHG is 1.377 units lower than before. Conversely, the test demonstrates a significant average difference between debt before and after joining SHG ($t_{(219)} = 11.250$, $p < 0.001$). On average, debt after joining SHG is 1.055 units higher than before.

Table 5: A Paired Sample Analysis of Financial Transformation in SHGs

Description of paired variables	<u>Paired Differences</u>			
	Correlation	Mean	Std. Error	t
Income before joining SHG – Income after joining SHG	-0.127*	-0.573	0.111	-5.142***
Expenditure before joining SHG – Expenditure after joining SHG	0.099	-0.609	0.091	-6.715***
Saving before joining SHG – Saving after joining SHG	0.217***	-1.377	0.097	-14.256***
Debt before joining SHG – Debt after joining SHG	-0.053	1.055	0.094	11.250***

Source : Authors estimation. (N = 220, df = 219)

Note : * represents 10 % and *** indicates 1 % statistical significance

Financial Changes of Women – Before and After SHG Participation

The presented data signifies the outcomes of a rigorous Wilcoxon Signed Ranks Test, Z-score, and the results of the Marginal Homogeneity Test, focusing on four key financial variables: income, savings, expenditure and debt – before and after joining SHGs. These analyses were conducted to determine whether there were substantial discrepancies in these financial aspects before and after women's participation in Self-Help Groups (SHGs).

In terms of income, it is evident that SHG participation has led to a substantial and statistically significant decrease in income, a trend reinforced by both the Z-score of -4.807 and the Marginal Homogeneity Test Z-score of -4.868. The same holds true for expenditure, where Z-scores of -5.784 and -6.129 from both analyses indicate a significant reduction in spending post-SHG participation. Savings, too, experienced a considerable drop after joining SHGs, with Z-scores of -9.737 and -10.29 emphasizing the significance of this decline. However, when it comes to debt, the results are more nuanced. While the Z-score of -9.016 indicates an overall decrease in debt levels post-SHG participation, the Marginal Homogeneity Test Z-score of 8.976 suggests that debt changes were not uniform. Some participants managed to reduce their debt, but others may have increased their debt, leading to mixed outcomes in this regard.

The data consistently illustrates that SHG participation has a profound impact on income, expenditure, and savings, resulting in significant reductions in these financial aspects. However, the influence on debt is multifaceted, with participants experiencing varying changes. The results from the Wilcoxon Signed Ranks Test, Z-score and the Marginal Homogeneity Test depicts a consistent trend in the financial transformations of women who embraced membership in Self-Help Groups (SHGs). They appear to have made strategic choices that involve sacrificing some of their income and savings while simultaneously trimming their expenditures and debt. These findings emphasize the profound impact of SHGs on the financial dynamics of the women involved.

The observed changes in savings, expenditure, and income suggest that SHGs may be empowering women to make more informed and strategic financial decisions. The findings from the analysis reveal a significant trend among women who have joined Self-Help Groups (SHGs). These women have, on average, chosen to reduce their savings and curtail their expenditures in favour of directing more of their financial resources towards their business ventures. As a consequence, their income has either remained relatively stable or, in some cases, decreased compared to their pre-SHG participation levels. This strategic reallocation of resources reflects a conscious decision by these women to prioritize their entrepreneurial pursuits and invest in their businesses, a common practice in entrepreneurship for fostering growth. These results suggest that SHGs are not only providing a platform for women to make financial decisions but are also empowering them to make well-informed and forward-thinking choices.

Table 6: Assessment of Financial Changes of SHGs Women

Financial variables	Wilcoxon Signed Ranks Test	Z-Score	Marginal Homogeneity Test
Income before and after joining SHG	82.41*** (0.001)	-4.807*** (0.001)	-4.868*** (0.001)
Expenditure before and after joining SHG	76.47*** (0.001)	-5.784*** (0.001)	-6.129*** (0.001)
Savings before and after joining SHG	35.4*** (0.001)	-9.737*** (0.001)	-10.29*** (0.001)
Debt before and after joining SHG	100.19*** (0.001)	-9.016*** (0.001)	8.976*** (0.001)

Source : Authors estimation. (N = 220, df = 219), *** represents 1 % statistical significance & Figures in the parenthesis signifies *p* - values

A Theory of SHG-Driven Financial Transformation

To offer a more comprehensive perspective on the financial changes linked to Self-Help Group (SHG) participation, we have integrated income, along with debt, savings, and expenses, into the theoretical model. This endeavor draws significant inspiration from Rostow's stages of growth model, and accordingly, we have adjusted the variables.

Assumptions

This work is founded on several fundamental assumptions, which are elaborated as follows:

- It is assumed that individuals become part of Self-Help Groups (SHGs) with the primary goal of enhancing their economic status.
- Participants receive guidance and education on various financial aspects, aiding them in managing and growing their financial resources effectively.
- It is expected that SHG members are actively involved in income-generating activities, which can encompass various endeavors, such as small businesses, farming, or other livelihood opportunities.
- The financial variables, including income, debt, savings, and expenses, are dynamic and subject to change.

Definition

Self-Help Group (SHG): According to this principle, as participants' financial status advances through three progressive stages—'Balance,' 'Optimization,' and 'Prosperity'—their financial resources experience incremental growth. As income increases, debt reduction, and expense control improve, they collectively pave the way toward elevated economic well-being, indicative of financial prosperity and empowerment.

Theoretical Explanation

The figure (Fig.1) illustrates the theoretical concept of stage-wise financial changes among participants in Self-Help Groups (SHGs), considering income, debt, savings, and expenses.

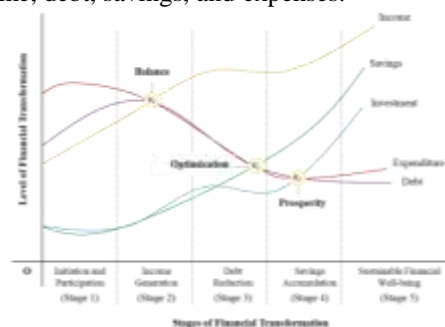


Fig 1. Stages of Financial Changes through SHG Participation

RESEARCH ARTICLE

DISCUSSION

Stage 1: Initiation and Participation

In this initial stage, participants join SHGs with the primary goal of enhancing their financial prospects. SHGs play a pivotal role by providing essential financial training and support, equipping members with the knowledge and skills needed to navigate the complex financial landscape. At this point, the financial scenario is characterized by low income, reflecting the initial state of participants' economic conditions. Debt levels are relatively stable, and savings are at a modest level. Expenses are moderate, marking the start of the financial transformation journey.

Stage 2: Income Generation

As participants move into the second stage, they become actively engaged in income-generating activities. This stage witnesses a gradual increase in income as a direct result of their efforts. SHG members start to effectively manage their expenses, ensuring that a significant portion of their income remains in their hands. While income levels are now at a moderate range, debt and savings maintain their stable status. At this point, the participants are on the path to optimizing their financial resources.

Stage 3: Debt Reduction

Progressing further, participants enter the third stage, where debt reduction becomes a prominent focus. SHG members receive valuable support for managing and decreasing their debts. As income continues to grow, participants allocate resources to advance the process of debt reduction. This stage is marked by rising income, a decreasing debt burden, and a moderate level of savings, highlighting the successful financial strategy of managing both income and debts efficiently. Expenses remain at a moderate level as well, ensuring a balanced approach.

Stage 4: Savings Accumulation

In the fourth stage, participants experience a substantial shift towards accumulating savings. The combined effect of increased income and effectively managed expenses contributes to the growth of savings. Participants are actively building financial resilience as savings begin to play a more significant role in their financial well-being. Income stabilizes at this point, allowing individuals to maintain consistent revenue. Debt levels are low, and savings are steadily growing, reinforcing financial security.

Stage 5: Sustainable Financial Well-being

The final stage represents the peak of the financial transformation journey. Participants achieve sustainable income and financial well-being. At this point, their income reaches a high level, demonstrating the culmination of their economic empowerment. Debt has been significantly reduced, and savings have reached a

substantial level, providing a strong financial foundation. Expenses are manageable and low, allowing participants to enjoy the full benefits of their financial stability and security. This stage signifies that the participants have achieved a state of sustainable economic well-being and prosperity.

Besides, in between the stages of financial transformation, three breaking points have been noted and termed as the balanced state, point of optimization and financial prosperity.

Equilibrium 1 – The Balanced State

In this initial stage, individuals experience a balance in their financial situation. Increasing income, declining debt, and reducing expenses converge at a specific point, leading to a state of equilibrium. This point indicates that the participants are learning to manage their financial resources effectively.

Equilibrium 2 – Point of Optimization

As participants progress, they actively engage in income-generating activities, gradually increasing their income. They also receive support to manage and reduce their debts. Simultaneously, participants become efficient at controlling their expenses. These factors meet at a particular point, resulting in the optimization of their financial resources. A balance between income, debt reduction, and managed expenses sets the stage for accumulating savings and building financial resilience.

Equilibrium 3 – Financial Prosperity

In the final stage, participants have achieved sustainable income and financial well-being. Their income is stable and may continue to rise. Debt is minimal, and they have successfully accumulated savings. Additionally, they manage their expenses effectively. At this point, the reduction in debt and expenses meets at a specific juncture where there is an increase in investment. Participants have reached a state of prosperity where they have the financial means to invest in income-generating activities, contributing to economic empowerment for both individuals and the community. In this integrated explanation, each stage is described along with its corresponding definition. These stages represent the journey of SHG participants as they progress from financial balance to optimization and ultimately reach a state of financial prosperity, signifying their successful transformation through the support of Self-Help Groups.

These detailed descriptions of each stage illustrate the gradual process of financial transformation through SHG participation, reflecting the changing dynamics of income, debt, savings, and expenses as participants progress towards economic empowerment and security. In this expanded model, the focus is on the interplay of income, debt, savings, and expenses as participants progress through stages of financial changes due to SHG participation. Each variable undergoes a transformation as participants gain financial literacy, manage their debt, save, and control their expenses. The ultimate goal is sustainable financial well-being,

marked by high income, low debt, ample savings, and manageable expenses, contributing to economic empowerment for both individuals and the community.

CONCLUSION

This paper has shed light on the remarkable transformations brought about by Self-Help Groups (SHGs) in the lives of women, with a particular focus on their economic, health, and educational well-being. The findings of this study underscore the pivotal role that SHGs play in empowering women and driving rural transformation. Economically, SHG membership has had a profound impact on the financial profiles of women. The data revealed a significant increase in monthly family income and a decrease in the proportion of families earning less than Rs. 10,000 per month. This indicates that SHGs are effective in improving the economic status of their members, providing them with the means to access credit, save, and enhance their financial stability. Notably, SHGs have not only positively influenced low-income families but have also contributed to the economic empowerment of higher-income groups, emphasizing the inclusivity and reach of SHGs. Moreover, the study illuminated the substantial changes in monthly expenditures, demonstrating that SHG members were able to manage their finances more effectively, leading to an improved quality of life. This newfound financial stability allowed members to afford higher expenses, which positively impacted their well-being.

Furthermore, the paper unveiled the transformation in the savings habits of women due to SHG participation. A higher percentage of members moved to higher savings categories, reflecting the success of SHGs in encouraging savings and financial security among women. With regard to debt levels, it was evident that SHGs have helped members reduce their existing high levels of debts and avoid accumulating further debt. This is a significant achievement, as it signifies the role of SHGs in promoting responsible financial practices. In the realm of health, the study presented compelling evidence of the positive changes experienced by SHG members. Awareness of family planning, improved sanitation practices, increased use of boiled water, and a decrease in medical expenses per head all point to enhanced health literacy and well-being among SHG members. The educational transformations observed among SHG members are equally striking. Improved reading habits, literacy skills, and the ability to access and engage with various aspects of education underline the educational empowerment facilitated by SHGs. This includes a more active role in children's education, which is pivotal in breaking the cycle of illiteracy and fostering holistic development. In conclusion, this paper underscores the pivotal role of SHGs in fostering economic, health, and educational transformations among women. It highlights the broader impact of SHGs on families and communities, ultimately contributing to rural development and empowerment. These findings underscore the importance of continued

support for SHGs and the need for policies that encourage and expand the reach of such transformative groups. The narratives of transformation within SHGs are stories of empowerment, breaking barriers, and shaping a brighter future for women and their communities.

Based on the findings and analysis of this study, several recommendations can be made to further promote the role of Self-Help Groups (SHGs) in rural transformation and women's empowerment:

- To reach more women in rural areas and extend the benefits of financial inclusion, it is crucial to expand the outreach of SHGs. Government and non-governmental organizations should continue to support the formation of SHGs in underrepresented regions.
- Initiatives aimed at enhancing the financial literacy of SHG members should be prioritized. These programs can empower women with the knowledge and skills necessary to make informed financial decisions, manage their savings, and access credit.
- SHGs should incorporate health and hygiene awareness programs into their activities. These programs can further improve the health and well-being of women and their families, reducing healthcare expenses and absenteeism.
- SHGs should continue to focus on education and skill development among their members. This can contribute to the economic transformation of women and their families by enhancing their employability and income-generating capabilities.
- Ensuring easy access to credit is essential for SHG members. Microfinance institutions, banks, and government agencies should simplify the lending process and provide loans at reasonable interest rates, promoting entrepreneurship and economic growth.
- Regular monitoring and evaluation of SHGs' activities and their impact on members' lives should be conducted. This will help identify areas for improvement and ensure that the intended transformations are being realized.
- Building a strong support network within the community is vital. Encouraging women to join SHGs, offering mentorship, and creating a conducive environment for SHG activities can facilitate their growth and success.

These recommendations, when implemented, can help maximize the contributions of Self-Help Groups to rural transformation, economic empowerment, health, and education, ultimately leading to a more inclusive and prosperous society.

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