Leader or Non-leader Member in Female SHGs: Who is more empowered? -Evidence from South 24 Parganas District of West Bengal, India

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Abstract
For over the last two and half decades Self-help groups (SHGs) have emerged as an efficient mechanism for delivering microfinance to the poor in India. Even though there exists a vast literature regarding the various aspects of women SHGs and its impact on women empowerment, comparison of the degree of empowerment level between the leaders and the non-leaders has not been rigorously studied. The purpose of this paper is to compare the empowerment levels of leader and non-leader members in female SHGs and advocating strategies that are more effective to strengthen the empowerment of all members within the group. We developed a suitable index to evaluate and compare empowerment levels of the leader and non- leader members of female SHGs by using Principal Component Analysis (PCA). Further, multiple linear regression is carried out in order to find out the impact of different factors like age, education, income, religion, caste, designation in the group etc. on women empowerment. The study indicates that leader members are more empowered than non-leader members do and designations play an important role in empowering women.
Keywords: *Self-help Groups, Microfinance, Women Empowerment*

I.   INTRODUCTION

Most often, women, especially the rural women, in India are forced to confine in the household due to rigidity in the social norms. This restriction among women not only hinders their involvement in any income generating activities and market transactions, but also limits their economic freedom and choice. As a result, they are trapped in a social or family structure, where the power of their voice remains heavily limited, alongside having a significantly less command in decision making both in the household and in societal activities, which ultimately make them less empowered. In this backdrop, policy of providing women with microfinance through the Self-help Groups was introduced extensively during the ninth five year plan (1997-2002) with a view to empower women by increasing their economic roles in eradicating poverty. Access to credit and regular saving make women confident to establish new start-ups or expand the existing production lines to get higher income. Self-help Groups are small, informal associations of 10-20 economically homogeneous members which are designed to generate benefit through mutual support, solidarity, and joint responsibility (Hussain et al. 2012). The principle of joint liability integrated in the Self-help Group model helps the members to overcome the problem of collateral security, thus enabling the group members to get micro-credit easily. Again, peer monitoring in group activity improves the loan recovery rate (Stiglitz, 1993) and Self-help groups characteristics such as small number of members and homogeneity of composition lead to effective participation of the members in group functioning (Fernandez, 1994).

By mobilizing poor especially women, into the Self-help group programme, policy makers and non-government organisations hope that it will act as an instrument of empowerment of group members in social, political and economic dimension; previous empirical studies however show mixed results. The Self-help group members elect three office-bearers (president, secretary and treasurer) from the group to enable the group function properly. It is said that there is a close relation between leadership and empowerment. In this paper, we want to focus on the level of empowerment of the group members who have ever acted as leader and the ordinary members of the group who never acted as leaders.

The scheme of the paper is structured in the following manner. In section II, we briefly discuss the theoretical framework of SHG and women empowerment, Section III exhibits the review of literature and

objectives of the study. Section IV discusses the data and methodology. Section V presents sample, findings of our study are discussed in section VI. Finally, section VII presents the conclusions and policy prescriptions.

II. SELF-HELP GROUP AND WOMEN EMPOWERMENT:

The idea of 'empowerment' is not very old and even two centuries ago, it was not recognized (Bhadra, 2001). Paulo Freire (1996) in his book titled "pedagogy of the oppressed", first tried to discuss empowerment in a broader way. Since then different opinions were added in the concept of empowerment. Many development agencies and organizations (Swiss Agency for Development and Cooperation, Department for International Development, Oxfam etc.) labelled empowerment both as a process and an outcome. The World Bank (2012) defines empowerment as – "the process of increasing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes." So, empowerment is a multidimensional process through which individual get access to control their own lives. Women, all over the world, particularly in developing countries, are adversely affected by poverty and inequality. In 1985, the concept of women empowerment was first introduced at the international women's conference at Nairobi. Women empowerment is a process that provides women a route to comprehend their full potential, greater access to resources and freedom of decision making both within and outside the family (The National Policy for Women, 2016). Microfinance through self-help groups is taken as an effective tool of economic, social, and political empowerment of its members, particularly women. This programme has facilitated self-employment by providing small loans to the unreached poor women.

III. SURVEY OF LITERATURE AND RESEARCH OBJECTIVES:

Literature review:

The study of the micro-finance programme regarding women empowerment is very crucial to any research on women empowerment. Several studies have been carried out to focus on the effectiveness of these programmes on women empowerment across the world. In this section, we have reviewed some of the important studies related to our topic.

Microfinance through Self-help Group has become a very important strategy in the last three decades in achieving financial inclusion and empowerment of the marginalized rural women in India (NABARD Report 2023-24). Even though non-government organizations, researchers and policy makers consider SHGs as strong instruments of increasing women's socio-economic empowerment, empirical evidences show a mixed result regarding the success of SHGs. Some of the studies show that microfinance enhances socio-economic status of women (Hashemi, et al. 1996; Nayak and Panigrahi 2020; Pandhare et al. 2020), where as some have focused on its multifaceted impact on some other dimensions of women's lives (Chand 2025). Regarding the political impact of microfinance some studies show that participation in SHGs leads to higher political participation of women (Goldman and Little 2015; Nayak and Panigrahi 2020; Kumar et al. 2019; Datta 2015). Apart from that, microfinance has far-reaching impact in reducing domestic violence (Husain et al. 2012; Nithyanandhan and Mansor 2015; Hee Jin Kim et al. 2019; Mathur and Agarwal 2017) and increasing women's decision making power in major aspects in the household (Dutta et al. 2017; Nithyanandhan and Mansor 2015; Hee Jin Kim et al. 2018; Nayak and Panigrahi 2020; Geetha and Babu 2016). Besides, group members also enjoy wider social network and mobility (Nayak and Panigrahi 2020; Kumar et al. 2019). Again microfinance also generates employment opportunities (Mamun et al. 2014; Nayak and Panigrahi 2020) which in turn can build self-confidence and self-esteem (Nayak and Panigrahi 2020; Nithyanandhan and Mansor 2015; Finnis 2017). However, there are some studies also that opine that the level of empowerment through microfinance is exaggerated in many instances (Garikipati 2008; Balasubramanian 2013; Basumatary et al. 2022). From the literature, we see that majority of research papers based on women empowerment through Self-help Groups (SHGs) showed that SHGs immensely help in empowering women. However, there exist a few studies that show that this empowerment is limited to economic condition of the women. There exist a close relation between leadership and empowerment. Singh (2014) focused on the leadership in women SHG and particularly on factors contributing to the emergence of leaders. Again Luthans (1992) mainly concerned with the style of leadership and determinants of group participation.

Literature exhibits that the comparison of the level empowerment of leader and non-leader members has been neglected in previous literature, despite being one of the most important aspects within the SHGs framework. Here we attempt to examine whether there exists any difference between leader and non-leader members of women SHGs in level of empowerment.

Objective of the Study:
• To generate and compare the empowerment scores of all members belonging to leader and non-leader category of different SHGs in South 24 Parganas district;
   • To determine the factors influencing the empowerment score of such members in the said district.

IV. DATA & METHODOLOGY:

The present study tries to compare the empowerment levels of leader and non-leader members of SHGs under NRLM scheme in South 24 Parganas district of West Bengal. According to The Ministry of Panchayati Raj (2006) South 24 Parganas district is the country's one of the 250 most backward districts. It is the largest district of West Bengal by area and second largest in terms of population. The combination of urban, semi-urban, and extremely remote rural areas extended from the metropolitan area of Kolkata to the far away riverine villages of Sundarban and the coastal villages. Therefore, there are ample opportunities of the SHG programme to enhance the all-round development of women.

For the study surveys were conducted by considering only those SHGs, which had been functioning for at least three years and were also active during the survey period (2022-2023). The primary data had been collected from four different randomly selected blocks (Bhangar II, Bishnupur II, Mathurapur I, and Gosaba) of South 24 Parganas by considering the geographical diversity and disparity in the socio-demographic profile of women. The study was undertaken in 12-gram panchayats of the above-mentioned blocks. A random sample of 135 SHGs were chosen and from each SHG two to three members were selected randomly for interview. A total of 229 samples were collected of which 94 were leader members and 135 were non-leader members of SHGs from the selected blocks. A descriptive chart of the sample design is given in chart I.
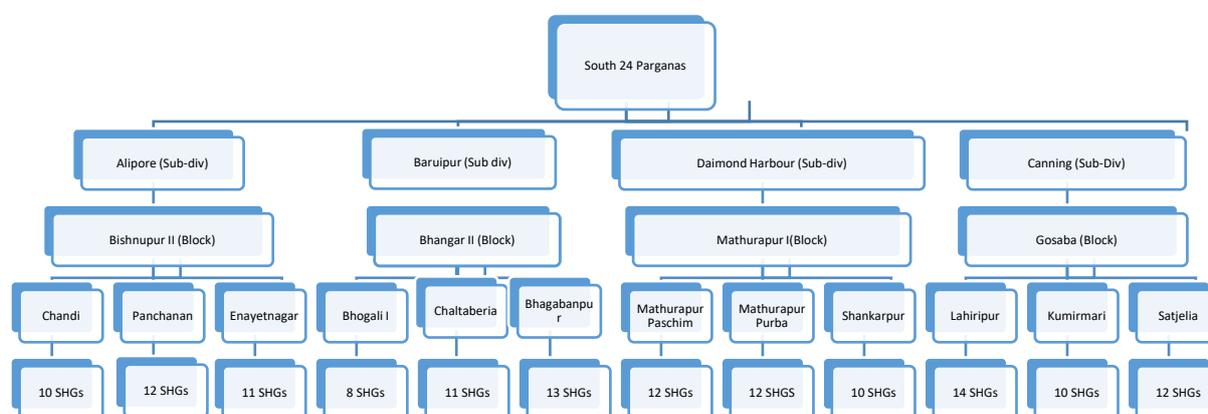

Chart 1: Descriptive chart of the study

In order to measure the degree of empowerment of leader and non-leader member of SHGs we had selected a wide range of indicators on the basis of existing literature and field survey experience. The selected domains and indicators have been shown in Table I.

Table I: Domains and Indicators of the Study

Domain	Indicators
Knowledge Domain	Financial literacy (**K_FINL**)
	Knowledge about reservation and public services (**K_RPS**)
Financial Domain	Autonomy in purchase and sales (**FI_APS**)
	Independent savings (**FI_IS**)
	Control over use of income (**FI_CUI**)
	Access to and decisions about credit (**FI_ADC**)
	Ownership of asset (**FI_OW**)
Family Domain	Household autonomy (**FA_HOAU**)
	Protest against domestic violence (**FA_PDV**)
	Freedom regarding mobility (**FA_FRM**)

Work Domain	Type of work (W_TYWO)
Time Domain	Leisure (T_LEIS)
Mobility Domain	Ability to move independently (M_AMI)
Social Domain	Voice against social issues (S_VASI)
Political Domain	Political awareness (P_POAW)
	Membership in local political parties (P_MLPP)
Legal Domain	Legal awareness (L_LEAW)

We had conducted independent sample t-test against each of selected indicators and also on the basis of age, year of education, family income per month, personal income per year, and personal savings per year. It was used to determine whether there exists any statistically significant difference between the means of the above mentioned variables and indicators of leaders and non-leader members.

We used Principal Component Analysis (PCA) after testing the validity by using Bartlett's test and Kaiser-Meyer-Olkin (KMO) measure to reduce the large number of indicators, which might be inter-related to lesser number of the most suitable factors that were being computed by the indicators. Each of the principal components was a linear combination of all the indicators studied. The variation of the first component was maximum; the variation of the second component was second largest and so on. We calculated the component scores for each of the individuals by using the standardized value (with mean 0 and variance 1) of the indicators. Finally, to compute the value of the composite index of women empowerment of each SHG member (Leaders and Non-Leaders) principal component scores and percentage of variance were used. For this, we took weighted sum of principal component scores where the percentage of variance corresponding to the respective principal component was taken as weight. If we denote the principal component scores of ith women with respect to j^{th} principal component as s_{ij} and the percentage of variance explained by the jth principal component as v_j, the composite index of empowerment of ith women ($CWEI_i$) following Antony et al. 2007 can be written as $CWEI_i = \sum v_j s_{ij}$

Finally, we had developed a multiple linear regression model to identify the major determinants of women empowerment in the districts of South 24 Parganas. The dependent variable of the regression model is women empowerment score and the explanatory variables are Age (AGE), Year of education (YOE), Family income per month (FIPM), Personal income of the respondent per year (PIPY), Duration of membership (DUR), Religion dummy (RLGN: Hinduism-1), Social Category dummy (SOCA: Reserve category-1), Type of family dummy (TOF: Nuclear-1) and Designation dummy (DRSHG: Leader-1).

The model can be represented as follows: $CWEI_i = \beta_0 + \beta_1 AGE_i + \beta_2 YOE_i + \beta_3 FIPM_i + \beta_4 PIPY_i + \beta_5 DUR_i + \beta_6 RLGN_i + \beta_7 SOCA_i + \beta_8 TOF_i + \beta_9 DRSHG_i + \varepsilon_i$
Where ε_i is error term and 'i' stands for individual.

V. DESCRIPTIVE STATISTICS:
In this section, we basically focus on the age, religion, caste, education, financial literacy, mobility, training, income, and savings of leader and non-leader members of female SHGs.

Table II: Descriptive Statistics: Education Level wise

	DRSHG	N	Mean	SD	Median	Minimum	Maximum
Age	*Member*	135	40.52	10.1	39	21	60
	Leader	94	39.86	9.96	38	25	67
Year of Education	*Member*	135	6.19	3.82	6	0	15
	Leader	94	6.59	3.34	8	0	17

Source: Calculated from Field survey Data by using jamovi.

From Table II we see that average age of the leader and non-leader members are 39.9 years and 40.5 years respectively. Again, we see that average year of education (YOE) of leader member and non-leader member are 6.59 and 6.19 respectively.

Table III: Descriptive Statistics: Religion and Social Category wise

	Frequency		Percentage	
	Leader	Member	Leader	Member
Religion				
Hinduism	68	99	72.34	73.33
Islam	26	36	27.66	26.67
Social Category				
GEN	40	86	42.55	63.70
RC	54	49	57.45	36.30

Source: Calculated from Field survey Data by using jamovi.

As reported in Table III out of 94 surveyed SHG leader members 72.34% are Hindus and rest are Muslims. On the contrary, out of 135-surveyed SHG, non-leader members 73.33% are Hindus and 26.67% are Muslims. Among 94 leader members, 42.55 % belongs to general caste and 57.45% belong to the reserve category. Among non-leader members, 63.70% belong to general and 36.30 % belong to reserve category.

Table IV: Descriptive Statistics: Benefit wise

	Frequency		Percentage	
	Leader	Member	Leader	Member
Learn banking activities	63	37	67.02	27.40
Get training	57	47	60.63	34.81
Income increases after getting training	15	13	15.96	9.63

Source: Calculated from Field survey Data by using jamovi.

From Table IV we see that 67.02 % of leaders and 27.40 % non-leader members learn banking activities after joining SHGs. Number of leader and non-leader members' percentage who get training after joining SHGs are 60.63 % and 34.81% respectively. Again, after getting training 15.96% leader members and 9.63% non-leader members are reported that their level of income increases.

Table V: Descriptive Statistics regarding Family Income, Personal Income, Personal Savings: Before Joining SHG

	DRSHG	N	Mean	Median	SD	Minimum	Maximum
FIPM_B	Member	135	7164	6000	3608	2500	20000
	Leader	94	7327	6000	3994	1500	25000
PIPY_B	Member	135	9025	4000	12548	0	72000
	Leader	94	6814	4000	8368	0	40000
PSPY_B	Member	135	605	0	2945	0	30000
	Leader	94	528	0	1660	0	10000

Source: Calculated from Field survey Data by using jamovi.

Tables V shows that the average monthly family income (FIPM), annual personal income (PIPY) and saving (PSPY) of leader members are Rs.7327, Rs.6814 and Rs.528 respectively while it is Rs.7164, Rs.9025 and Rs.605 for non-leader members before joining the group.

Table VI: Descriptive Statistics regarding Family Income, Personal Income, Personal Savings: After Joining SHG

	DRSHG	N	Mean	Median	SD	Minimum	Maximum
FIPM_A	Member	135	10237	9000	5199	0	30000
	Leader	94	11000	10000	5596	3000	40000
PIPY_A	Member	135	17866	12000	19463	0	100000
	Leader	94	17698	12000	20634	0	144000
PSPY_A	Member	135	1733	0	5739	0	60000
	Leader	94	2383	1200	4645	0	36000

Source: Calculated from Field survey Data by using jamovi.

Table VI represents that the average monthly family income, annual personal income and saving of leader members are Rs.11000, Rs.17698 and Rs.2383 respectively while it is Rs.10237, Rs.17866 and Rs.1733 respectively for non-leader members after joining the group.

Table VII: Descriptive Statistics regarding Loan taken: After Joining SHG

	Mean		SD		Maximum		Minimum	
	Leader	*Member*	*Leader*	*Member*	*Leader*	*Member*	*Leader*	*Member*
Total number of loan taken	4.83	3.90	4.42	3.44	22	21	0	0
Loan amount taken last time (Rs.)	30372.34	22555.73	25528.81	22031.23	120000	100000	0	0

Source: Calculated from Field survey Data by using jamovi.

In case of loan taking the leader and non-leader members have taken loan from the group on an average 4.83 and 3.90 times respectively after joining the group during the time of survey. Again, the average amount of last loan is Rs.30372.34 for leader and for non-leader it is Rs.22555.73. These are shown in Table VII.

Table VIII: Descriptive Statistics regarding Loan use: After Joining SHG

	Frequency		Percentage	
Purpose of loan used	*Leader*	*Member*	*Leader*	*Member*
Own income generating activities	15	9	15.96	6.67
Family's income generating activities	50	56	53.19	41.48
Others	24	59	25.53	43.70
NA	5	11	5.32	8.15

Source: Calculated from Field survey Data by using jamovi.

Table VIII provides descriptive statistics of loan uses. Leader members mostly take loans for income generating activities of their families (53.19%). On the contrary, non-leader members of SHGs mostly take loans for regular consumption, daughter's marriage, children's education and health and assets build up for their families (43.70%). Another important aspect for leader members of loan use is own income generating activities (15.96%) and for non-leader members it is 6.67%. From the table it is also seen that 5.32% leader and 8.15% of member are not taking loan till now.

Table IX: Descriptive Statistics regarding Type of Work: After joining SHG

Type of work	*DRSHG*	*Counts*	*% of Total*
Abstain from any income related activities	*Member*	10	7.4%
	Leader	4	4.3%
Continuing the previous income related activity	*Member*	67	49.6%
	Leader	44	46.8%
Continuing the previous income related activity, Involved in other income related activity	*Member*	14	10.4%
	Leader	11	11.7%
Involved in other income related activity	*Member*	10	7.4%
	Leader	8	8.5%
Newly involved in some income related activity	*Member*	34	25.2%
	Leader	27	28.7%

Source: Calculated from Field survey Data by using jamovi.

Table IX provides descriptive statistics regarding the leader members and non-leader members' engagement in any income related activity after joining the group. From the table we see that most of the leaders (46.8%) and non-leaders members (49.6%) are continuing their previous income related activity. Again, 28.7% leader members and 25.2% non-leader members start some income related activity after joining SHGs.

VI. RESULT AND DISCUSSION:

The objective of this paper is to compare degree of empowerment of leader members and non-leader members in women SHGs in South 24 Parganas district in West Bengal, India. In order to do this we first try to comprehend if there had been any statistically significant difference or not in family income per month (FIPM), personal income per year (PIPY), personal savings per year (PSPY) and indicators which are mentioned in Table I between leader and non-leader members before joining SHGs. For this purpose, we have conducted independent samples t-test. Again, independent samples t-test is also done on the basis of age (AGE) and year of education (YOE) of the respondents. The hypothesis we test can be represented as follows:

Null Hypothesis (H_0): There is no significant difference between leader and non-leader members in average of the above-mentioned indicators before joining SHG.

Alternative Hypothesis (H_a): There is significant difference between leader and non-leader members in average of the above-mentioned indicators before joining SHG.

Table X: Independent Samples t-test about Age and Year of education

	Statistic	df	p	Mean difference	SE difference
AGE	0.489	202	0.626	0.657	1.344
YOE	-0.840	216	0.402	-0.400	0.476

Source: Calculated from Field survey Data by using jamovi.

Table XI: Independent Samples t-test about Family Income, Personal Income, and Personal Savings: Before Joining SHG

	Statistic	df	p	Mean difference	SE difference
FIPM B	-0.316	187	0.753	-162.9	516
PIPY B	1.600	227	0.111	2211.4	1382
PSPY B	0.253	219	0.800	77.5	306

Source: Calculated from Field survey Data by using jamovi.

Table XII: Independent Samples t-test: Indicator wise (Before Joining SHG)

	Statistic	df	p
K_FIN_B	0.7813	221	0.435
K_RPS_B	0.2542	199	0.800
FI_APS_B	-0.6131	203	0.540
FI_IS_B	-0.4225	190	0.673
FI_CUI_B	-0.8695	198	0.386
FI_ADC_B	-0.4390	197	0.661
FI_OW_B	0.8211	225	0.412
FA_HOAU_B	-1.5036	197	0.134
FA_PDV_B	-1.4877	205	0.138
FA_FRM_B	-0.0320	206	0.975
W_TYWO_B	-0.0515	206	0.959
T_LEIS_B	-2.9367	196	0.004
M_AMI_B	0.0624	199	0.950
S_VASI_B	-1.9261	209	0.055
P_POAW_B	-0.2547	209	0.799
P_MLPP_B	-0.4267	226	0.670
L_LEAW_B	0.2201	207	0.826

Source: Calculated from Field survey Data by using jamovi.

From the Tables X, XI and XII, we see that there is no statistically significant difference between leader and non-leader, members before joining SHG except in leisure and voice against social issue, which are significant in 1% and 10% level respectively. Therefore, broadly we can say that both leaders and members were in same situation before joining group.

 We also explore the condition of leader and non-leader members of women SHGs based on previously mentioned indicators after joining by using independent samples t test.

Table XIII: Independent Samples t-test about Family Income, Personal Income, and Personal Savings: After Joining SHG

	Statistic	df	p	Mean difference	SE difference
FIPM A	-1.0447	191	0.297	-763	730
PIPY A	0.0622	193	0.950	168	2708
PSPY A	-0.9441	222	0.346	-650	688

Source: Calculated from Field survey Data by using jamovi.

Table XIV: Independent Samples t-test: Indicator wise (After Joining SHG)

	Statistic	df	p
K_FIN_A	-4.99	195	<.001
K_RPS_A	-2.71	181	0.007
FI_APS_A	-2.80	205	0.006
FI_IS_A	-4.03	189	<.001
FI_CUI_A	-4.45	196	<.001
FI_ADC_A	-3.70	193	<.001
FA_HOAU_A	-3.15	199	0.002
FA_PDV_A	-2.38	181	0.018
FA_FRM_A	-2.52	184	0.013
W_TYWO_A	-1.17	215	0.242
M_AMI_A	-1.84	210	0.067
S_VASI_A	-3.20	192	0.002
P_POAW_A	-4.32	187	<.001
L_LEAW_A	-3.44	181	<.001
P_MLPP_A	-3.06	182	0.003
T_LEIS_A	-3.88	204	<.001
FI_OW_A	-3.91	202	<.001

Source: Calculated from Field survey Data by using jamovi

From the Table XIII and XIV we see that statistically significant difference exists between leader and non-leader members in most of the indicators.

Now in order to measure and compare the empowerment level for leader and non-leader members of women SHGs in the district of South 24 Parganas, we have constructed the individual women's empowerment composite index by Principal Component Analysis (PCA). Before applying PCA, we have checked whether the PCA is applicable or not in our study sample. For this we have uses Kiser-Meyer-Olkin (KMO) measure of sample adequacy and Bartlett's test of sphericity. The results of the test are shown in the Table XV.

Table XV: KMO and Bartlett's test

1.	Cronbach's Alpha (number of items = 17)		0.935
2.	Kiser-Meyer-Olkin measure of sample adequacy		0.936
3.	Bartlett's test of OF sphericity	Approximate chi-square	2619
		df	136
		sig	0.000

Source: Calculated from Field survey Data by using jamovi.

The value of KMO measure of sample adequacy in the table is 0.936 which is greater than 0.6. This shows that the sample size is adequate. Again, from the table we see that chi-square statistic in Bartlett's Test of Sphericity is highly significant. It indicates the inter-correlation of the indicators.

Here to analyse the significance of the chosen indicators in measuring women empowerment, PCA can be a suitable methodology.

Table XVI: Percentage of Total Variance Explained by the Components for Initial Eigen values
Extraction Method: Principal Component Analysis
Rotation Method: Varimax

Component	Eigen value	% of Variance	Cumulative %
1	8.821	51.890	51.9
2	1.613	9.488	61.4
3	1.078	6.340	67.7

Component	Eigen value	% of Variance	Cumulative %
4	0.787	4.630	72.3
5	0.696	4.091	76.4
6	0.522	3.073	79.5
7	0.509	2.993	82.5
8	0.467	2.748	85.3
9	0.418	2.457	87.7
10	0.375	2.203	89.9
11	0.324	1.909	91.8
12	0.312	1.833	93.7
13	0.251	1.478	95.1
14	0.243	1.431	96.6
15	0.212	1.246	97.8
16	0.204	1.201	99.0
17	0.168	0.988	100.0

Source: Calculated from Field survey Data by using jamovi.

Table XVI presents the results of the PCA. Applying Kaiser Criteria and varimax rotation method, we have extracted the components. In this study, there are three principal components with Eigen values greater than one.

Table XVII: Percentage of Total Variance Explained by the Components after Rotation

Component	SS Loadings	% of Variance	Cumulative %
1	5.45	32.0	32.0
2	4.09	24.1	56.1
3	1.97	11.6	67.7

Source: Calculated from Field survey Data by using jamovi.

From the Table XVII we see that first rotated principal component explains 32.0% of total variation. Again, 24.1% and 11.6% of total variation are explaining by second and third principal component respectively. Therefore, the three components collectively explain 67.7% of total variation.

Table XVIII: Varimax Rotated Component Matrix
Extraction method: Principal Component Analysis
Rotation method: Varimax with Kaiser Normalization

DOMAIN	INDICATORS	C1	C2	C3
Knowledge domain	Financial literacy (K_FINL)	**0.787**		
	Knowledge about reservation and public services (K_RPS)	**0.831**		
Financial domain	Autonomy in purchase and sales (FI_APS)		**0.758**	
	Independent savings (FI_IS)			**0.727**
	Control over use of income (FI_CUI)		**0.596**	
	Access to and decisions about credit (FI_ADC)		**0.641**	
	Ownership of asset (FI_OW)	**0.617**		
Family Domain	Household autonomy (FA_HOAU)	**0.565**		
	Protest against domestic violence (FA_PDV)	**0.631**		
	Freedom regarding mobility (FA_FRM)		**0.668**	
Work Domain	Type of work (W_TYWO)			**0.894**
Time Domain	Leisure (T_LEIS)	**0.575**		
Mobility Domain	Ability to move independently (M_AMI)		**0.786**	

DOMAIN	INDICATORS	C1	C2	C3
Social Domain	*Voice against social issues (S_VASI)*	**0.632**		
Political Domain	*Political awareness (P_POAW)*	**0.810**		
	Membership in local political parties (P_MLPP)	**0.649**		
Legal domain	*Legal awareness (L_LEAW)*	**0.799**		

Source: Calculated from Field survey Data by using jamovi.

Table XVIII shows varimax rotated component matrix of women empowerment representing factor loadings. From the table, we see that the indicators having high loading in first component are financial literacy and knowledge about reservation and public services from knowledge domain; ownership of asset from financial domain; household autonomy and protest against domestic violence from family domain; leisure from time domain; voice against social issues from social domain; political awareness and membership in local political parties from political domain; legal awareness from legal domain. Therefore these indicators are the most important factors in women's empowerment. The indicators, which have high loading on component II, are autonomy in purchase and sales, control over use of income and access to and decision about credit from financial domain; freedom regarding mobility from family domain and ability to move independently from mobility domain. And the indicators namely independent savings from financial domain and type of work from work domain have high loading on component III. Therefore, the three components covering the entire domain are not inter-correlated. Finally, composite index of women empowerment is constructed by taking weighted sum of the component score for each individual, where weight being the percentage of variance explained by the particular component. To compare the level of empowerment between leader and non-leader members of SHGs we consider standardized value of this composite index. This is reported in the Frequency (Percentage) Distribution Table XIX.
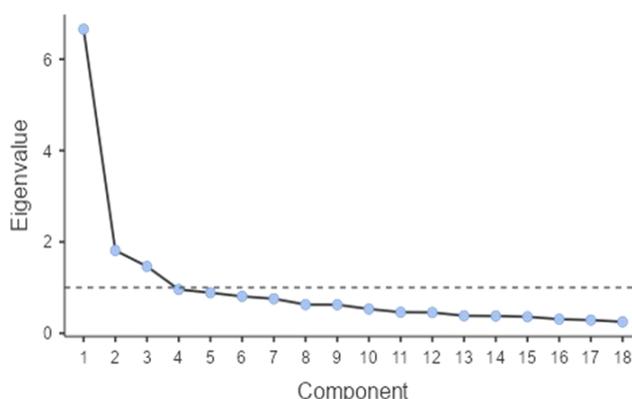

Figure 1: Scree Plot showing contributions of components with respect to Eigen Value

The scree plot curve shown in Figure 1 depicts that the curve begin to flatten after 3rd component and initial eigen values become less than one. Hence the first three components are significant.
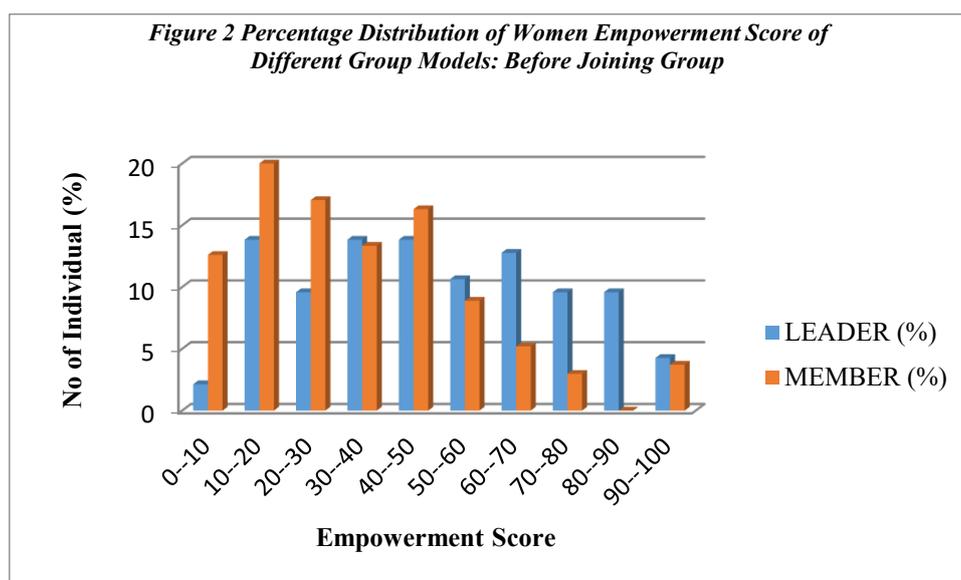
Table XIX: Frequency (Percentage) Distribution of Individual Women Empowerment Score

INDIVIDUAL SCORE	LEADER (%)	MEMBER (%)
0--10	2.13	12.6
10--20	13.83	20
20--30	9.58	17.04
30--40	13.83	13.34
40--50	13.83	16.3
50--60	10.64	8.89
60--70	12.77	5.19
70--80	9.58	2.97

INDIVIDUAL SCORE	LEADER (%)	MEMBER (%)
80--90	9.58	0
90--100	4.26	3.71

Source: Calculated from Field survey Data by using jamovi.

The result reported in Table XIX shows that 53.2% of leaders have individual empowerment score below 50 relative to 79.3% of non-leader members. Again, 46.8% of leader having score above 50 compared to 20.7% of non-leaders. This study suggests that leader members are relatively more empowered than the non-leader members are. These results are shown diagrammatically in Figure 2.

Figure 2 Percentage Distribution of Women Empowerment Score of Different Group Models: Before Joining Group

We also see that in Table XX average women empowerment score of leader-members is significantly higher compared to non-leader members. This indicates that group leaders are empowered in true sense rather than non-leader members.

Table XX: Average Empowerment Score of Leader and Non-leader members

Average women empowerment score of leader	Average women empowerment score of member	Mean difference	% increase	T-value	P-value
48.79	33.91	14.88	43.88	-4.69	<.001

Source: Calculated from Field survey Data by using jamovi.

Now we discuss about the factors affecting women empowerment by using a multiple linear regression model. In order to do this we need to test multicollinearity, normality, autocorrelation etc. The VIF values ranges from 1.08 to 1.62 (see Table IA in appendix) show that there is no multicollinearity problem. From Shapiro-Wiki test of normality (see Table IIA in Appendix) reveals that normality assumption is maintained. In table IIIA in the appendix, we discuss about the explanatory variables and their expected relationship with the dependent variable. The results are presented in table XXI. The results exhibits that the model is a good fit and significant with a significant F value.

Table XXI: Model Coefficients – Empowerment Score

Model Coefficients – Empowerment Score		
Predictor	Coefficient	Standard Error
Intercept[a]	-87.568***	12.639
Age	0.180	0.241
Year of education	4.330***	0.629
Duration of membership	0.870*	0.491
Family income per month	3.31e-4	3.99e-4
Personal income per year	9.30e-4***	1.06e-4
Religion dummy (Ref: Islam)	23.701***	5.704
Type of family dummy (Ref: Joint)	-2.233	4.491
Social category dummy (Ref: General))	-4.038	5.193

Model Coefficients – Empowerment Score		
Predictor	Coefficient	Standard Error
Leadership dummy (Ref: Member)	23.603***	4.400
Overall Model Fitness		
R square	0.478	
F statistics	22.3	
p value	<0.001	
ª Represents reference level		
Notes: ***,** and * indicate 1%, 5% and 10% significance level, respectively		

Source: Calculated from Field survey Data by using jamovi.

From Table XXI we see that all the coefficients except TOF have their expected sign. However, it is not statistically significant. The coefficient of the year of education, personal income per year, religion dummy, designation dummy are positive and significant at 1% level. This means that chances of women empowerment is high in case of higher number of years of education, higher personal income, members being Hindu and the leader of the SHGs.

VII.   CONCLUSIONS AND POLICY PRESCRIPTIONS:

In this study, our primary objective was to find out the empowerment levels of leader and non-leader members of SHGs under NRLM scheme in South 24 Parganas districts of West Bengal, India. The study shows that percentage of leader-member having high score is greater than the non-leader members. We also find that the leader members get more opportunities in taking loans from the group. Again, their involvement in banking activities and communication with the government officials and local political leaders make them more confident than non-leader members. From the study, it is found that the leaders reap most of the benefits of joining SHGs. So proper steps should be taken regarding rotation of leadership and to make minority group members more active in the group related activities. The government should conduct appropriate training programme for all the members and make sure their attachment to this programme, especially for the women of remote area where they are in more adverse situation. These steps can play a significant role in the long-term empowerment process of leaders as well as non-leader members of women SHGs.

Appendix:

Table IA: Collinearity Statistics

Collinearity Statistics		
	VIF	Tolerance
YOE	1.26	0.794
DUR	1.20	0.834
FIPM_A	1.11	0.904
DRSHG	1.14	0.880
RLGN	1.56	0.642
AGE	1.40	0.714
PIPY_A	1.08	0.923
TOFN	1.16	0.861
SOCA	1.62	0.618

Source: Calculated from Field survey Data by using jamovi.

Table IIA: Normality Test (Shapiro-Wilk)

Normality Test (Shapiro-Wilk)	
Statistic	p
0.994	0.560

Source: Calculated from Field survey Data by using jamovi.

Table IIIA: Explanatory variables and the expected signs of their coefficients

Serial No	Name of the Variable	Explanation	Expected Sign of the Coefficient
1	Age (AGE)	As older women have more experience in life, it is expected that age of the group member have positive impact on empowerment.	+
2	Year of education (YOE)	Education enables women to access opportunities and to challenge the social norms.	+
3	Family income per month (FIPM_A)	High household income decreases burden on women and increase social status.	+
4	Personal income per year (PIPY_A)	Personal income makes women more confident and self-reliant.	+
5	Duration of SHG membership (DUR)	It is expected that longer duration in membership in SHGs should have positive impact in empowerment.	+
6	Religion (RLGN)	From field survey experience we see that women from Hindu family	+

Serial No	Name of the Variable	Explanation	Expected Sign of the Coefficient
		have greater mobility, opportunity to engage in any income related activity etc.	
7	Social Category (SOCA)	Here we take general category as base. We expect that the empowerment of women belong to general category to be higher than reserve category (SC, ST, and OBC).	-
8	Type of family (TOFN)	Type of family dummy we have taken joint family as base. Women in nuclear family enjoy more freedom regarding mobility, decision making etc.	+
9	Designation (DRSHG)	In this case, we have taken non-leader member as base. Women who act as leader in the group will have do banking activity, maintained record books, communicate with government officials. Therefore, their empowerment level may be greater than the non-leader members may.	+

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