

Intersection of Microcredit Participation and Health Status of Women

Malini Sharma

*Sr. Asst. Professor, Dept. of Economics, Daulat Ram College, University of Delhi
Ph.D. Research Scholar, Mumbai School of Economics and Public Policy (Autonomous),
University of Mumbai
E mail: malinisharma01@yahoo.co.in*

Abstract—Microfinance is primarily conceptualized in the financial context, but in realism, the concept arose from developmental predicaments. The primary objective of microfinance had always been development oriented in disposition, intended at eliminating poverty. But these aims cannot be addressed adequately without factoring in the issue of 'Health'. Often the poor, default on repayment of loans because of their ill health and accumulated financial strain of healthcare which makes them unable to earn. For microfinance to achieve its objective of providing financial security to the poor, it has to address health security too. Hence, it is imperative to study the relationship between the two – 'Intersection of Microcredit participation and Health Status'. Microcredit is one of the cost-effective tools to influence the health status of people particularly vulnerable segments of the population such as women. Amidst social bias, health status of women is a neglected issue. Child bearing, rearing and other household responsibilities, further aggravate this problem and women become victims of poor health. Hence, it is important to empower them socially, economically and to improve their health status through access to short term and frequent doses of credit. The present study uses a case-control technique to report a comparative analysis of the impact of participation in microcredit on health status of members of Self-Help Groups or beneficiaries of microcredit participation (Case group) vis-à-vis non-participants (Control group), primary data for which was collected through structured questionnaire based surveys of women respondents (ages 18 and over) in urban areas of Delhi. Statistical Analysis of data consisted of Two Proportion z tests for comparison across the groups, Independent Samples t-test, and Ordinary Least Squares Regression, using SPSS. SHG members demonstrate improved health status of self, and of her family vis-a-vis non-members. A strong reason for this trend is that SHG membership is a panacea for financing healthcare through the microcredit acquired by them.

Keywords: Case-control, Microcredit, Self-Help Groups, Health status, Financial.

1. Introduction

Poverty reduction and improved income inequality has become a global policy concern across several countries. Poverty impacts health and poor health can deepen poverty because of diminished ability to be economically productive. Health risks may also be positively correlated with social, economic, political and cultural exclusion. Women, in the Indian context are socially more vulnerable to deprivation. They are deprived of health and nutritional requirements as per the findings on the intra-household level distribution of income. Thus, health status of women is assumed to be lower than men. Apart from this,

The direct and indirect impact of microcredit has not been explored widely. Since banks do not give loans for health purposes, newer arrangements are welcomed to fill the gaps in health care financing. Microfinance has the potential to certainly bridge this gap, since it is an easy way out to tap and pool the local resources for better outcomes. Microfinance has been evolving across India as a mechanism of financial inclusion especially for women. It is broadly understood as extension of small loans to impoverished borrowers who typically lack collateral, steady employment and a verifiable credit history.

This study has targeted women in the primary survey. Women are especially vulnerable to poor health. They enjoy less economic and social independence and are overburdened by household chores, the expenditure on their health is less than minimal. The reproductive health issues and childcare responsibilities reduce their opportunities to participate in productive activities. Among other factors that have been identified to limit female economic power include lack of education, lack of awareness regarding legal rights, limited contingent factors such as poor housing, lack of sanitation, lack of safe drinking water, burden of household responsibilities and reproductive health related problems further affect their health status negatively. Access to financial and physical assets, lack of information, poor social networks, limited access to skill improvement and weaker bargaining power in labor markets. They face a number of social, cultural and economic restrictions that may affect their ability to seek and access credit vis-a-vis men. Due to their limited ownership of assets (including property), they lack collateral and

thus need to be supported and authorized by their spouses even before applying for loans. Therefore, interventions that improve women's access to credit are necessary.

Regarding the health status of women in urban areas, there has been a dismal trend in terms of growing prevalence of lifestyle diseases, high morbidity, anemia, dengue, malaria, reproductive diseases (PCOS) and respiratory infections. Apart from the disease burden, additional burden is due to low maintenance of health infrastructure, poor living conditions in the unauthorized urban settlements such as JJ clusters and slums, rapidly increasing medical costs, accessibility, affordability, cost effectiveness and so on. This has created a situation in which access to health is based on "ability to pay". Numerous studies have shown that women are three times more likely to go without treatment as compared to men and that gender inequalities persist with regard to access to health loans and other health services. Microcredit programs are designed to support primarily women as they are left out of the formal financial system and hence are victims of poor health.

The ability of a woman to access credit and its use for health purposes depends on her control and bargaining power in the intra-household resource allocation. The structural contexts in which women live is a determining factor in the effects of microcredit program on women's health status. This presents a rationale for studying the impact of microcredit participation on the health status of women in urban areas.

2. Review of Literature.

2.1 Introduction.

This section presents an evaluation of the contemporary literature on microcredit and the direction in which research on it has developed over the past decades. Microcredit has an incredible untapped potential and plays a substantial role in poverty alleviation, reducing unemployment and overall economic development, especially relevant in developing economies like India. The spillover effects, especially for women participants, includes, income generation, higher socio-economic ranking, economic empowerment and greater bargaining power in intra-household decision making. Another significant positive externality is an improvement in their health status. Thus, there has been an exponential growth in the interest of academicians about the multidimensional effects on microcredit participants in the informal sector, particularly on health status of women.

The beginning of microfinance in India was made with NABARD'S pilot project in Karnataka state of linking pockets of informal self-help groups (SHGs) with formal banks mediating through non-governmental organizations. This project was known as the SHG Bank Linkage Project or SHPI (Microcredit summit Campaign: State of the field of integrated health and micro finance in India, 2012). Self-help groups are the cornerstone of the microfinance activity in India. These groups of 10- 20 members each, of predominantly women, come together and form savings and credit organizations and help each other in times of need. Each member of the group saves a fixed amount on a monthly basis. They get linked to banks via NGOs or SHPIs, for opening savings accounts and for their credit requirements. The banks lend to them after assessing their credit worthiness. SHGs thus represent a good vehicle for promotion of financial inclusion in developing countries such as India (Sharma S., Deshmukh A., 2013).

The objective of this paper is to improve our understanding on the dynamics of the process of participation in microcredit programs, to provide a comprehensive discussion of current discourse and at the same time identify research gaps in available literature in order to offer major directions for future research.

2.2 Intersection of Microcredit and Health Status.

A small but growing number of studies that integrate microcredit with the other non-financial services seem to support the argument that it has positive impacts beyond the direct financial benefit, such as women's empowerment and decision-making agency (Manderson and Mark, 1997), and favorable health outcomes (Mohindra, 2008). Microcredit has been called "the" significant intervention in the fight against poverty for the twenty first century (Rahman, 1998, P.80). But the thrust of the movement has been specially to engage poor women, not only alleviate their poverty, but also to increase their access to resources and enhance their power in intra-household dynamics (Sundaram, 2001). Hamad and Fernald (2015) have also documented that Socio- economic conditions are influential determining factors of the health status of women.

Women experience greater rates and depths of poverty and were especially vulnerable to poor health (United Nations Development Program, 1995); Bangser, 2002). An established truism is that, in India, women are stereotypically at a disadvantageous position with respect to life expectancy as compared to their male counterparts, suggestive of systemic complications in overall health status of women (Velkoff and Adlakha, 1998) and deficient accessibility to healthcare services has been cited as the most important factor contributing to high rates of maternal mortality in India (The world Bank, 1996; Jejeebhoy and Rao, 1995). The cause of nearly 20 percent of all female deaths in India was found to be severe anemia (The World bank, 1996). While malnourishment in India was predominant amid entire strata of our population, lack of a proper

nutritive and balanced diet among women, begins during the stage of infancy and persists throughout adulthood and for their entire lifecycle (Chatterjee, 1990; Desai, 1994). The negative effects of malnutrition among women were compounded by poverty, by childbearing and rearing, and by special nutritional needs of women, resulting in increased susceptibility to illness and consequent higher mortality (Velkoff and Adlakha, 1998). All these factors exert a negative impact on health and nutritional status of Indian women. Gender inequity, particularly in untreated morbidity and health care costs continues to be severe (Sen G., Iyer A., and George A., 2002). Women continue to face inequities related to healthcare and often invisible within the discourse of the aging policy (Davidson P. M., DiGiacomo M. and McGrath S. J., 2011).

To summarize, there is only partial and limited exploratory research estimating the impact of participation in microcredit on health status of women in urban areas, using cross-sectional designs. Not many studies have been undertaken in urban areas of our capital city to evaluate the impact of microcredit participation on the health status of women beneficiaries. Hence, there are gaps in the literature. Thus, a critical analysis of contemporary literature sheds light on the path for future research.

3. Statement of the problem & Objectives of the study.

The robustness of claims that microcredit participation produces favorable health outcomes for women beneficiaries, must be scrutinized more carefully. Hence this study has made an attempt to examine the evidence of microcredit services' evaluation and has focused on the technical challenges of conducting rigorous health effect amongst the analysis of microcredit participation.

The *material and methods* section is designed to prove the following *primary objective* of the given research study:

- I. To conduct a comparative analysis of health status of the households of women beneficiaries and non-beneficiaries in the sample.

4. Research Methodology

4.1 Study Design and Conceptual Framework.

The present study has been initiated in the year 2016, and the primary data was collected from February 2017 till about January 2018. The PSU (Primary Sampling Unit) has been households with eligible women or those in the age group of 18 years and over. Multi-stage stratified sampling¹ design was used in order to generate representative samples. However, convenience and snow-ball sampling² techniques were resorted to, wherever required. The present study has a deductive research design. A well-known study design, a case-control design featuring cross-sectional study was used for the present work. Retrospective comparison of groups is known as a case-controlled study. With this design, we seek to identify possible predictors of health and other dependent outcomes in our women participants. Increasing the number of controls over the number of cases improves the study. A 2:3 ratio is maintained for the present study. Efficient statistical adjustment requires matching cases with controls. For the present study, women involved with SHGs and their health status (outcome of interest) were matched for area, age and other attributes, with a control group or women who are not involved with SHGs. Retrospectively, it will be determined which individuals show improvement in health and what was the agent causing this change in each of the study groups.

The advantage of this case-control study is simply to organize and provide a framework for us to retrospectively compare two groups; utilizers of microfinance schemes and their non-utilizing counterparts on all characteristics without creating a sample bias. This is a matched case control study, because cases and controls have similar socio-economic backgrounds, gender, geographical region and age structure (women of ages 18 years and over). The cases and controls are compared on all characteristics and as there is no randomization in the study, the chances of a sample bias are thus reduced. In addition, this can reduce/minimize the effect of confounding variables. The main *hypothesis* of the study is:

1. Participation in microcredit is associated with better health status of participants than non-participants.

4.2 Sample Design

Since, the SHPIs or microcredit promoting firms (especially Chetanalaya and its branches) are spread out in all districts of Delhi (each with different objectives and structures), we selected a sample of two SHPIs or firms promoting microcredit in North and

¹Multistage sampling refers to sampling plans where the sampling is carried out in stages using smaller and smaller sampling units at each stage. Multistage sampling can be a complex form of cluster sampling. Cluster because sampling is a type of sampling which involves dividing the population into groups (or clusters).

²Snow ball sampling is a nonprobability sampling technique where existing study subjects recruit future subjects from among their acquaintances. Thus, the sample group is said to grow like a rolling snowball. As the sample builds up, enough data are gathered to be useful for research.

Southern parts of Delhi. This was supported by the notion that the geographical area covered by these SHPIs is concentrated and finally the women members of these SHGs will be included in the study.

The primary study site was New Delhi, NCT of India. From the geographical area covered by the two chosen SHPIs in five major districts of Delhi, district North Delhi was selected as study area by applying simple random sampling. With the help of purposive sampling the other South Delhi district was selected, for adequate counter-factual which has socio-demographic, climatic, developmental and health indicators similar to North Delhi district on the basis of urban slums. In a nutshell, two districts viz., North Delhi district and South Delhi district were selected, where the SHPIs had their geographical presence. In both these districts Household surveys/interviews and FGDs were conducted to collect both quantitative and qualitative information, respectively. The local NGOs/SHPIs working at these sites were involved in gathering SHG women.

From each of these sample districts, census urban wards were independently selected by deploying PPS sampling (sampling with probability proportionate to size). The desired number of wards were selected from each district depending upon the population of the district and the total number of such wards. At the second stage, from each of the sampled wards, census enumeration blocks (EBs) were selected. A list was made of all the EBs in the selected wards in North and South Delhi districts. With comparable population numbers; 2-3 EBs were randomly selected using multi-staged stratified sampling to generate representative samples. For areas with higher number of households and with more than one enumeration block (EB), (blocks of roughly equal population) a single EB was randomly selected. This ensures that the sample selection is 'spread' properly across important population sub-groups. The primary sampling unit (PSU) is the households (with women in age groups 18 and over). A list of households with eligible women in each sample census enumeration block (EB) was generated, with the help of the household roster maintained by the central district office, where household ID numbers were listed. In both areas, N individual households per EB were selected by "random-walk" sampling. On the basis of information provided by the SHPI in their respective functional areas, eligible SHG member women were then selected. At this stage, respondents from various SHGs helped in contacting more SHG members from their area, due to which the sample design had an element of snowballing and convenience sampling too. This formed the case or treatment group.

For controls of the study, from the geographical area covered by the chosen SHPIs, women who are members of SHGs were matched for area, age and other attributes. Care was taken to see to it that there are no spillovers between the case group and the control group in order to generate an unbiased sample. It was ensured that only one woman got selected from one household. Sampling was kept as random as possible but we had to resort to non-random sampling too. Post the two stages of stratification in the survey derived from existing frames from the census, 2011, the survey developed a sampling frame of households (with women aged 18 and over) during the subsequent stages.

4.3 Sample Size

Literature search revealed and it is a usual statistical assumption that minimum prevalence about correct perception of SHG women regarding its usages is nearly 50% (Gupta & Veena, 2015) and considering 10% permissible level of error in the estimated prevalence. the sample size was calculated using the formula,

$$\text{Sample size } n = z^2 pq/d^2$$

Where, n= sample size=Z statistic for a level of confidence; for 95% confidence interval Z=1.96, p=expected proportion or prevalence, is what the researcher is going to estimate by the study (The scale of 'p' is from 0 to 1; if the confidence interval is within 10%-90%, p is assumed to be 0.5), d=precision. In the current case d' is set at 0.08. If prevalence is going to be between 10% and 90%, then the suitable precision can be 8% or 0.08.

Given, p=50% or 0.5, q=1-p=1-0.5=0.5, d=8% or 0.08, the sample size, on the basis of the above formula is calculated to be 150. Assuming 5% non-response error, the actual sample size achieved was (158) for the case group. We kept extra sample size for the control group. Since they were not enrolled in the study and were not SHG members, their motivation for participation was less and thus there was greater likelihood for non-response. Hence, the actual sample size that was achieved was 261 for the control group. A 2:3 ratio of case-control study was maintained.

Multistage sampling methods require a larger sample size to achieve the same precision. Thus, the calculated sample size has to be multiplied by the design effect. A design effect is an adjustment made to find the sample size of a survey, due to a sampling method (stratified sampling) resulting in a larger sample size and a wider confidence interval, than one would expect with simple random sampling. The DEFF shows the magnitude of these increases.

On the approximation that based on inclusion and exclusion criteria, with a correction factor for finite population (10,00,000); hypothesized % frequency of outcome factor ranging from 45-55%(50% ± 5% error); confidence limit of 5% and design effect of 1; OpenEpi (website)³ was used to check the authenticity of the sample size with the following equation:

$$\text{Sample size } n = \frac{[DEFF * Np(1-p)]}{[(d^2/Z^2_{1-\alpha/2} * (N-1) + p*(1-p)]}$$

4.4 Research Instrument: Questionnaire

Sample data was collected with the help of a structured questionnaire containing both open-ended and closed questions complementing each other. Primary data was collected by personally interviewing each respondent and SHPI representatives. Questions about involvement in self-help groups; use of the money obtained; processing of loans and generic health status were asked.

4.5 Statistical Analysis

The choice of statistical tools for data analysis depends on the objectives of the study. The primary objectives are to examine the impact of microcredit participation or SHG membership on health status of participants vis-à-vis non-participants. Parametric (t-test) tests of difference have been used to quantify differences in scale variables like health status scores based on their distribution as being associated with SHGs or otherwise. The set of analysis conducted to test the hypotheses-the first one is to conduct a z test and t test to check the difference across case and control variables while in the second case, OLS (Ordinary Least Square) regressions have been run, in order to validate the results.

4.5.1 t-Test

The independent samples t-test compares the means between two unrelated groups (SHG members and non-members) on the same continuous dependent variable, for example, health status scores. It helps us to examine whether usage of money for healthcare/ health status (dependent variable) differed based on SHG involvement or membership/microcredit participation (categorical independent variable).

4.5.2 Z-Test

A z-test is a statistical test used to determine whether two population proportions are different. What is relevant to us is the z test for difference in proportions. The test statistic is assumed to have a normal distribution, and nuisance parameters such as standard deviation should be known in order for an accurate z-test to be performed. In the current study, we need to test if there is any significant difference in the practices of the SHG group versus the Non SHG Group. We have obtained two independent samples and determined the proportion of several variables across the case and control Group in order to perform this test. Z scores are derived in SPSS, using a normalization. All tests were conducted at 95% confidence interval and 5% standard error.

4.5.3 Ordinary Least Squares Regression (OLS)

An OLS regression was run with dependent variable as the Health Score and independent variable as the membership of SHG which is a case/control variable.

5. Main Findings- Microcredit participation and Health Status

Public health services in urban slums of Delhi are inadequate, hence, SHG members had to depend on private health clinics, where services are more expensive. The average expenditure on healthcare is much greater than the total monthly per capita income of the poor. For example, data analysis of socio-economic status, had revealed that the monthly per capita income of case group respondents is in the ranges of <1000,2500-4999 and 5000-9999 and their average expenditure on healthcare accounts for nearly 89.4% of their incomes. Hence, bulk of their incomes gets spent on health. SHG membership is a step forward in helping finance healthcare through the loans acquired by them. According to the results of the z tests, majority of case group respondents of the magnitude of 96.2%, have reported an improvement in their health status, consequent to their joining a microcredit program. 88.6% of them informed a positive health status of their respective families too, which include their spouses, children and relatives. This result was not only validated and empirically verified by the outcomes of the Z test, the independent samples t-test and the OLS regression technique too.

- Independent Samples t-Test: The case group respondents reported mean ± standard deviation (for self-category) as 6.56 ± 2.020, whereas, 261 subjects in the control group reported a lower, mean ± standard deviation (3.99 ± 2.980). A similar trend was observed for the health status of not only spouse but also the first and second child as well. The average total health score is higher for SHG members in contrast to non-members.

³ <https://www.openepi.com>

Table 5.1:t-Test- Group Statistics (Health Status of Self, Spouse, Child 1, Child 2)

	Type	N	Mean	Std. Deviation	Std. Error Mean
Self	Case	158	6.5696	2.02018	.16072
	Control	261	3.9923	2.98070	.18450
Spouse	Case	158	6.06	2.703	.215
	Control	261	5.57	2.231	.138
Child 1	Case	158	7.19	2.381	.189
	Control	261	5.98	2.530	.157
Child 2	Case	158	6.61	3.064	.244
	Control	261	5.79	2.961	.183
Total Health Score	Case	158	26.4304	6.91474	.55011
	Control	261	21.3333	6.35670	.39347

Table 5.2: Independent Samples Test (Health Status: Self, Spouse, Child 1, Child 2)

Times		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Self	Equal variances assumed	56.628	.000	9.612	417	.000	2.57728	.26814	2.05022	3.10435
	Equal variances not assumed			10.533	411.708	.000	2.57728	.24468	2.09630	3.05827
Spouse	Equal variances assumed	4.936	.027	2.035	417	.043	.496	.244	.017	.976
	Equal variances not assumed			1.942	283.995	.053	.496	.256	-.007	.999
Child 1	Equal variances assumed	7.124	.008	4.831	417	.000	1.205	.249	.715	1.696
	Equal variances not assumed			4.903	347.001	.000	1.205	.246	.722	1.689
Child 2	Equal variances assumed	.197	.657	2.706	417	.007	.818	.302	.224	1.413
	Equal variances not assumed			2.683	322.478	.008	.818	.305	.218	1.418
Total Health Score	Equal variances assumed	.035	.853	7.694	417	.000	5.09705	.66249	3.79481	6.39928
	Equal variances not assumed			7.536	309.775	.000	5.09705	.67634	3.76624	6.42785

The t-test for equality of means, equal variances not assumed, shows that the self-health status of a woman is significantly related to her microcredit participation (p -value <0.05), $t(411.7) = 10.533$, p -value $=0.000$. The health status of the spouse is also significantly associated with the wife's microcredit participation. In child 1 category, (p -value <0.05 , equal variances not assumed), health status of the first child is significantly associated with the mother's participation in SHGs. A similar trend is observed in the case of the second child and also family's health status. Since, all the p -values <0.05 , we reject the null hypothesis that there is no difference in means and conclude that there is in fact, a significant difference in means which is not due to any sampling error. The overall analysis is that, SHG members (case group) demonstrate improved health status of not only her own self, but also, of spouse and children in contrast with non-members (control group). A strong reason for this trend is that women participation in microcredit enables them greater access to funds, thereby, contributing to the family's total income pool. This enables them to finance their health-care expenses and thus leads to better health status for themselves and for their families.

- Two Proportions z Test -Autonomy, Health care and Knowledge about Immunization status: 81% of cases versus 45.8% of controls have stated, not only greater affordability but also better accessibility to medical and healthcare facilities. Quite a few of them have also conveyed to have lesser anxiety, tensions and symptoms of depression as they now feel more secure that they will always have their SHG membership and the support from the SHPI as a cushion to fall back on, in the event of sudden contingencies of all kinds. Women who are members of SHGs are not only physically healthy but also mentally sound too. More than half (56% of the case group) of them are more aware about two or more than two types of immunization as compared to 32.7% of those women who are not members of SHGs.

Table 5.3: Two Proportions z Test -Autonomy w.r.t Health care and Knowledge about Immunization status

		Type						Significance
		Case		Control		Total		
		Count	Column N %	Count	Column N %	Count	Column N %	
Do you obtain health care for yourself?	Yes	128	81.0%	119	45.8%	247	59.1%	*
	No	16	10.1%	111	42.7%	127	30.4%	
	Don't Know	14	8.9%	30	11.5%	44	10.5%	
Any depression, anxiety or other mental health problems during pregnancy, delivery or postpartum? If yes, please explain	Yes	20	12.7%	95	36.5%	115	27.5%	*
	No	125	79.1%	118	45.4%	243	58.1%	
	Don't Know	13	8.2%	47	18.1%	60	14.4%	
Do you know about all types of immunization?	0			7	2.8%	7	1.7%	
	1	68	43.0%	133	52.4%	201	48.8%	*
	2	88	55.7%	83	32.7%	171	41.5%	*
	3	1	0.6%	22	8.7%	23	5.6%	
	4			4	1.6%	4	1.0%	
	5			3	1.2%	3	0.7%	
	6	1	0.6%	1	0.4%	2	0.5%	*
	7			1	0.4%	1	0.2%	

*Implies significance at 5%

- Two Proportion z Test-Microcredit participation and Health status: As a response to the question on usage of money specifically for healthcare, 89.4% of SHG members reported that they spend the loan amount specifically on healthcare vis-à-vis 69.9% of non-members. With respect to the parameter of the 'Amount spent on healthcare', it was observed that 15% of case group respondents quoted that they spent an aggregate amount of greater than fifty percent specifically on healthcare, while only 6.7% of non-participants informed the same. This is also evident from the finding that 35.7% of the children of SHG members versus only 16% of those of non-members were born in a medical facility. The reason for this observation is that a large number of SHG members devote the funds taken as loans to finance deliveries, pre- and post- natal care. A greater proportion of case group respondents vis-à-vis control group ones, have stated that they have not delayed buying medicines, healthcare products or seeking medical attention due to lack of funds. 33.8% of the former group, while only 3.5% of the latter group, were prepared for future health care needs. In response to the question on awareness about similar funding schemes, 66% of the cases stated that they are aware of other similar funding schemes as compared to a miniscule 10.5% of the controls, who were still living in ignorance.

Table 5.4: Two Proportion z Test-Microcredit participation and Health status

		Type						Significance
		Case		Control		Total		
		Count	Column N %	Count	Column N %	Count	Column N %	
Have you used money for health care Specifically?	Yes	135	89.4%	181	69.9%	316	77.1%	*
	No	14	9.3%	65	25.1%	79	19.3%	

	Don't Know			13	5.0%	13	3.2%	
In what capacity?	<10%	74	61.7%	131	73.2%	205	68.6%	
	10-50%	28	23.3%	36	20.1%	64	21.4%	
	>50%	18	15.0%	12	6.7%	30	10.0%	*
Have delayed buying medicines and other health care products for lack of funds?	Yes	114	75.5%	185	72.0%	299	73.3%	
	No	37	24.5%	39	15.2%	76	18.6%	
	Don't Know			33	12.8%	33	8.1%	
Are you prepared for immediate or future health care needs?	Yes	51	33.8%	9	3.5%	60	14.6%	*
	No	99	65.6%	121	46.7%	220	53.7%	
	Don't Know	1	0.7%	129	49.8%	130	31.7%	
Do you delay seeking medical attention due to lack of funds?	Yes	117	77.5%	185	71.4%	302	73.7%	
	No	31	20.5%	35	13.5%	66	16.1%	
	Don't Know	3	2.0%	39	15.1%	42	10.2%	
Were your children born in a medical facility?	Yes	51	35.7%	39	16.4%	90	23.6%	*
	No	92	64.3%	198	83.2%	290	76.1%	
	Don't Know			1	0.4%	1	0.3%	
Are you a part of any other funding schemes of similar nature?	Yes	97	65.5%	27	10.5%	124	30.5%	*
	No	50	33.8%	190	73.6%	240	59.1%	
	Don't Know	1	0.7%	41	15.9%	42	10.3%	
How long did you exclusively breast fed your children?	Never	2	1.7%	3	1.3%	5	1.4%	
	<6 months	42	35.0%	62	27.2%	104	29.9%	
	>6 months	76	63.3%	163	71.5%	239	68.7%	

*Implies significance at 5%

- Ordinary Least Squares Regression: An OLS regression was also run with Health score as the dependent variable which is continuous and the independent variable as the membership of SHG which is the case control variable and thus, it is dichotomous. The final result was that higher the participation in microcredit or SHG membership, higher is the health status (B is significant as p-value<0.05 and has a positive coefficient=2.350), thereby validating the hypotheses of the study.

Table 5.5: Results of OLS Regression -Health Score &SHG membership

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	11.065	.143		77.260	.000	10.783	11.346
	Case Control	2.350*	.233	.443	10.076	.000	1.892	2.808

a. Dependent Variable: Health Domain Score

*implies significant at 5%

6. Conclusion -The way forward

Microcredit is not a panacea, but could help to improve the health of poor women by addressing certain issues relevant to context. In addition to the potential unintended health benefits of participating in a microcredit program it could serve as a springboard to address local health challenges with complementary or parallel programs. Because of its vast contact with the poor, it has the potential to go a long way to fill the gaps. The main findings of this research are that the decision to participate in a microcredit program for health purposes leads to significant improvements in health status of women loan recipients. There are positive externalities of group behavior in health information and health practices. This study is expected to add insights about

such positive externalities⁴ and would be able to demonstrate how microcredit impacts the participant's health and help identify promising areas of investment, for government intervention and future exploration.

References

- [1] Aggarwal, O. P., Bhasin, S. K., Sharma, A. K., Chhabra, P., Aggarwal, K., & Rajoura, O. P. (2005). A New Instrument (Scale) for measuring the socioeconomic status of a family: preliminary study. *Indian J Community Med*, 30(4), 10-2.
- [2] Armendáriz, B., & Morduch, J. (2010). *The economics of microfinance*. MIT press.
- [3] Bangser M. (2002): Policy environments: macroeconomics, programming, and participation", in G. Sen, A. George and P. Ostlin (Eds.), *Engendering International Health: The Challenge of Equity*, MIT Press, Cambridge.
- [4] Becker, W. E., & Greene, W. H. (2001). Teaching statistics and econometrics to undergraduates. *Journal of Economic Perspectives*, 15(4), 169-182.
- Chandramouli, C., & General, R. (2011). *Census of India 2011. Provisional Population Totals*. New Delhi: Government of India.
- [5] Chatterjee M. (1990): *Indian women: Their Health and Economic productivity*, World Bank Discussion Papers.
- [6] Davidson P. M., DiGiacomo M., McGrath S. J., "The feminization of aging: how will this impact on health outcomes and services?" *Health Care for Women International*, Vol. 32, no. 12, pp. 1031-1045, 2011.
- [7] Desai, S. (1994). Gender inequalities and demographic behavior. *India, New York*, 16.
- [8] Gupta, M. K., & Veena, R. (2015). Empowerment and Engagement of SHG Women Against Violence During Sex/Intimacy: An Intervention Study From Karnataka, India. *International Journal of Current Research and Review*, 7(17), 59.
- [9] Hamad, R., & Fernald, L. C. (2012). Microcredit participation and nutrition outcomes among women in Peru. *J Epidemiol Community Health*, 66(6), e1-e1.
- [10] Hamad R. and Fernald L.C.H. Microcredit Participation and women's health: Result from a cross-sectional study in Peru", *International Journal for equity in health*, 14:62, 2015.
- [11] Jejeebhoy, Shircen J. and Saumya Rama Rao, 1995. "Unsafe Motherhood: A Review of Reproductive Health." Edited by Monica Dasgupta, Oxford University Press, New Delhi, India.
- [12] Manderson L., Mark T., "Empowering women: participatory approaches in women's health and development projects", *Healthcare for Women International* 18:17-30, 1997.
- [13] Mohindra, K. S., Haddad, S., & Narayana, D. (2008). Can microcredit help improve the health of poor women? Some findings from a cross-sectional study in Kerala, India. *International Journal for Equity in Health*, 7(1), 2.
- [14] NABARD (2011), "Status of microfinance in India 2010-2011" Retrieved April 20, 2012, Annual Report of National Bank for Agriculture and Rural Development.
- [15] OpenEpi Epidemiologic Statistics. (n.d.). Retrieved from <http://www.openepi.com>
- [16] Rahman, R.I., 1986. Impact of Grameen Bank on the Situation of Poor Rural Women. Grameen Bank Evaluation Project, Working Paper No. 1. Bangladesh Institute of Development Studies (Dhaka).
- [17] Reed. (2011). *State of the Microcredit Summit Campaign Report*. Washington: DC.
- [18] Sen G., Iyer A. and George A., "Structural reforms and health equity: A Comparison of NSS Surveys, 1968-87 and 1995-96", *Economic and Political weekly*, vol. 37, no.14, pp.1342-1352, 2002.
- [19] Sharma S., Deshmukh A.: A Study of Micro Finance Facilities and Analyzing the awareness level of people about microfinance in Nagpur city, *International Journal of Social Science & Interdisciplinary Research*, March (2013).
- [20] Sundaram I., "Self-help groups: Challenges & Opportunities", *Social Welfare*, July' 2001, pp.18-19, Delhi.
- [21] UNCDF/UNDP. (2003). *Microfinance Program: Impact assessment (2003) based on case studies in Haiti, Kenya, Malawi and Nigeria*. United Nations Capital Development Fund in conjunction with United Nations Development Program.
- [22] Velkoff V. and Adlakha A.: *International Programs Center, Women's health in India*, 1998.
- [23] World Bank (1993) *World Development Report, 1993: Investing in Health*, Oxford University Press, Oxford.
- [24] World Bank NCAER, *Rural Financial Access Survey, 2003* World Health Organization. (1996). *WHOQOL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version, December 1996* (No. WHOQOL-BREF). Geneva: World Health Organization.

⁴An externality is the cost or benefit that affects a party who did not choose to incur that cost or benefit. Economists often urge governments to adopt policies that "internalize" an externality, so that costs and benefits will affect mainly parties who choose to incur them.