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Published online: 10 Nov 2009.

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ABSTRACT. Results are presented from a study on a microcredit program with self-help groups implemented for widowed and abandoned women in Tamil Nadu shortly after the Indian Ocean Tsunami. Data were collected from 109 participants measuring the women's investment patterns, loan amounts, demographics, and overall well-being (psychological, economic, communal, and familial). Results indicate that loan amounts and investment patterns were not significantly related to the women's well-being. Length of group participation and having children were negatively related to the women's well-being. These findings are discussed in relation to social and cultural contexts. Suggestions for programs for this population of vulnerable women and other marginalized groups are proposed.

KEYWORDS. Microcredit, self-help groups, widows, gender, South Asia, India

The devastating Indian Ocean Tsunami of 2004 left thousands of people without housing or their livelihoods. The effort undertaken to provide relief revealed the inequalities that exist in Indian society; certain groups of people, based on caste, gender, or age, were excluded from receiving aid. A survey of women's rights violations in the aftermath of the tsunami confirms that women were more vulnerable than men during the disaster (Asia Pacific Forum on Women Law and Development [APWLD], 2006). Their marginalized and disempowered status placed them at greater risk than men because financial and other forms of aid were not equitably distributed.

The South Indian state of Tamil Nadu was among the regions severely affected by the tsunami because of its large coastal area and numerous fishing communities. Besides the loss of more than 8,000 lives, the livelihoods of most of the people in this area were affected because thousands of boats and fishing nets were destroyed. People who lived in the surrounding rural area were also affected by the tsunami.

Because the saline water from the ocean flooded the land and made it unfit for farming, rural inhabitants could not work. *Dalits* ("untouchables" or outcastes) and people from scheduled castes, who provided labor to the fishermen through cleaning and selling fish, also lost their jobs.

A needs assessment conducted by the local nongovernmental organization (NGO) Kalangarai[1] during the weeks after the tsunami revealed that there were 1,700 widowed or abandoned women in the rural or coastal areas of Tamil Nadu who were particularly at risk because of the lack of access to resources, their extreme level of poverty before the tsunami, and the discrimination they experienced in their communities. Kalangarai found that these women were not being supported by relief efforts and that they faced progressively worse economic conditions because of the loss of their livelihoods. In response, Kalangarai developed self-help groups for widowed or abandoned women throughout the area and provided financial assistance in the form of microcredit loans.

The overall purpose of this study was to determine what impact the post-tsunami microcredit program implemented by Kalangarai had on the women's well-being. In particular, we examined the relationships among loan use, amount of loan, length of participation in self-help groups, and demographic factors on the women's overall well-being.

BACKGROUND

The Situation of Widows in South India

For centuries, Indian women who become widowed have been denied many basic human rights and privileges. According to Hindu religious teachings, widowed women are not permitted to remarry and are considered bad luck or impure (Chen, 1998). Despite the enactment of the Hindu Marriage Act of 1954, which permits Indians to intermarry regardless of religion or caste, the remarriage of widows is still looked down on and discouraged. Widows' inheritance rights, especially when it comes to land, are not often recognized (Chen, 1998). The marginalization of women and widows in Indian society of-

ten results in low levels of literacy, low purchasing power, poor health status, and low participation rates in the formal economy (Lahiri-Dutt & Samanta, 2006). It is difficult to find data on widows' well-being because they usually appear in statistics as members of households headed by someone else (Nussbaum, 2000). While limited studies exist, research suggests that widows are particularly at-risk for social exclusion, poverty, and violence. For instance, in their study of widows in rural South India, Dreze and Srinivasan (1997) found that among Indians, widows were the poorest, followed by never married women, widowers, and never married men. Moreover, Mari Bhat (1994) found that mortality rates among Indian widows were nearly twice as high as mortality rates of married women of the same age.

The exclusion of widows from both land rights and relief services was evident in the aftermath of the 2004 Indian Ocean Tsunami. The Indian government provided some widows with financial compensation following the death of their husbands. However, given the rampant illiteracy among widows, many women had to rely on family members, often males, to assist them with accessing these funds (Human Rights Watch [HRW], 2005). More often than not, post-tsunami widows did not receive this compensation and had little recourse for their legal inheritance rights from village *panchayats,* the elected governing boards. There was also evidence that widows and other women were at risk of abuse within the relief camps that were set up following the tsunami (Asia Pacific Forum on Women Law and Development [APWLD], 2005; HRW, 2005).

MICROCREDIT PROGRAMS FOR RURAL WOMEN IN SOUTH ASIA

Research Evaluating Effectiveness

During the past decade there has been a tremendous growth in rural Indian development with the intention of raising women's socioeconomic status and economic self-sufficiency through self-help groups and microcredit programs. By 2001 about 800–1,000 NGOs were engaged in implementing savings and

microcredit programs for the poor (Sinha & Patole, 2003). These programs offered access to credit and savings services for self-employed livelihood projects to those people who would not qualify for loans using the traditional criteria of collateral (e.g., land or capital). Access to loans depended on the borrower's active membership in self-regulating groups that ensured loan repayment through peer pressure or social capital (Milgram, 2005).

Two of the most well-known models of microcredit programs for poor women have been developed by the Grameen Bank in Bangladesh (replicated throughout the world) and the Bangladesh Rural Advancement Committee (BRAC) (Develtere & Huybrechts, 2005). The Grameen Bank's model uses a minimalist philosophy in which microcredit is the primary intervention for eliminating poverty. The BRAC model is referred to as the "credit plus" approach because it started as a relief organization and has extended its services to include education, skills, training, and microcredit.

The post-tsunami microcredit program that is the focus of this study was originally implemented as a form of economic relief to widows and abandoned women in Tamil Nadu. In December 2005, Kalangarai, a local NGO, provided from 3,000 to 10,000 rupees (US\$73–\$242)[2] to 750 widowed and abandoned women so that they could reestablish their livelihoods. Some women invested in food shops, vegetable farms, and fish shops, while others bought cows and goats. At the same time that the loans were distributed, 71 self-help groups of about 12–20 women each were organized and two women from each group were assigned as leaders. Savings accounts in local banks were opened in the names of each pair of leaders so that as the women repaid their loans, the leaders would deposit the money in the group account. When the loan was fully repaid, the participant was eligible to receive a second loan. Each group determined their own schedule of loan repayment and when a new loan would be dispersed. As the program progressed, Kalangarai became concerned with the sustainability of the benefits of the program and services such as skills training, legal counseling, and other types of social support were added to the program.

Several recent studies have reported a generally positive impact from microcredit programs on women's assets and household income. For example, an evaluation of programs for Bangladesh reported that microcredit had lessened the severity of poverty and helped increase total income per household by 29% (United Nations, 2000). A World Bank study of rural Bangladesh found that moderate poverty in their sample of villages declined overall by 17% between 1991–1992 and 1998–1999 and extreme poverty declined by 13% (Khandker, 2005). In India, microcredit studies with groups dealing with dairy farming have noted positive profit levels and short payback periods for loans (Kay, 2003).

Despite the positive impact on economic well-being, researchers are now questioning whether the benefits of these programs can extend to the enhancement of women's overall quality of life. Specifically, researchers are exploring whether these programs have impacted other aspects of life, such as health, education, nutrition, and sanitation. In a study in Bangladesh, Ahmed, Chowdhury, and Bhuiya (2001) examined the effects of a credit-based income-generating program on participants' emotional well-being by comparing poor women who were in the program to those who were not in the program. Although they did not find significant differences in emotional well-being between these two groups of women, their analysis revealed several predictors of emotional stress, including poor health (past and present), having children, needing to sell household assets, and disputes with neighbors (often provoked by intergenerational land disputes). Factors that predicted less emotional stress included being married, being in good health (past and present), generating family income, and having household land holdings.

In their review of findings from studies on microcredit institutions, Develtere and Huybrechts (2005) concluded that programs such as the Grameen Bank and BRAC not only impact the economic well-being of women but also have spillover effects into the participants' social and familial lives. Child welfare, including food consumption and school enrolment, was positively influenced in the Grameen Bank program (Develtere & Huybrechts, 2005). Microcredit

programs have been found to have a positive effect on women's participation in household expenditure decision making, contraception or fertility regulation, and women's time allocation (Mahmud, 2003). Less clear are the effects of the programs on reallocation of household resources and the family members' access to health care. In their ethnographic study of the effects of a microcredit program on women of the scheduled caste in South India, Leach and Sitaram (2002) observe that the mere participation in a microfinance program was not sufficient for women's empowerment and long-term well-being.

In sum, the research on the effectiveness of microcredit programs for women in poor countries of the global south is mixed. A recurring theme in the literature on the economic development of poor women has been the need to focus beyond the individual and propose programs that empower women to make change on a societal level. While studies have shown economic gains for women participating in these microcredit programs, the long-term impact on empowering women to make social change is somewhat obscure. Furthermore, in a social context where women experience multiple discriminations based on caste, gender, and marital status, the effects of these programs may be even weaker.

An Empowerment Perspective on Microcredit Programs

From a feminist and empowerment perspective, microcredit programs are based on the premise that women's well-being is attained through giving women choices and promoting their agency. For vulnerable groups such as widows and abandoned women, it is critical that the women become aware of their marginalization and work toward gender equality and the removal of barriers to their social inclusion. "The feminist paradigm regards women's empowerment as an end in itself, requiring both a process of internal change at the individual level and organization at the macro level . . . women's individual economic empowerment is believed to lead to wider social, political and legal empowerment and to contribute to building 'social

capital' through developing and strengthening women's networks" (Mahmud, 2003, p. 581).

Although personal advancement is desirable, collective empowerment is essential for sustainable outcomes with marginalized populations (SinghaRoy, 2001). On a group level, women can be empowered to take collective action by pooling their resources, working cooperatively, and promoting social change in their communities. Within this framework, self-help groups are viewed as forces that can promote inclusion by enabling marginalized women to come together and overcome what they perceive as barriers to their participation in the life of their community.

Research Questions

Drawing on the key premises of empowerment theory, this study proposes that certain aspects of the self-help microcredit program will positively affect the psychological, social, and economic well-being of widowed and abandoned women in South India. Our specific research questions included: How did the women use their loans to build their assets? Did the type of loan use and amount of loan affect their psychosocial and economic outcome? Were there differential outcomes based on the woman's age, level of education, number of children, length of self-help group participation, and geographic location of program?

METHODS

Sampling

The sample was recruited from approximately 750 widowed or abandoned women who were participating in a self-help microcredit loan program along the southern coast of Tamil Nadu, an area of India that had been most devastated by the Indian Ocean Tsunami. The microcredit program was started in December 2005, almost 1 year after the tsunami occurred, and the sampling and interviews were carried out in May 2007. Sampling occurred in multiple stages. There were 71 self-help groups made up of approximately 12–20 women per group. The groups were from five geographical zones. Because we wanted representation from all five zones, we

randomly selected five groups from each zone. Depending on the size of the group, we recruited 4–5 women. To ensure a sample size of at least 100 women, a total of 115 women were selected. All but six of the women agreed to participate. The six women who declined stated that they could not be present at the interview because of their work schedule.

Procedure

Five graduate students from the Madras School of Social Work conducted the interviews. The interviewers were trained in the research protocol by one of the principal investigators. In addition, all of the interviewers completed the National Institutes of Health (NIH) Human Participants Protection Education for Research Teams online course before collecting data, and the protocol was approved by the institutional review board at Boston College.

Measures

A structured interview included items measuring the women's demographic characteristics, how the loans were used, their work and financial situation before the loans, benefits of the loans, their degree of participation in the self-help group, suggestions for improving the program, and their treatment as a widow. Except for the last two topics, all of the questions were closed ended. The interview questions were translated into the women's native language, Tamil, and were pilot tested to ensure cultural sensitivity and clarity.

Independent Variables

The loan amount and loan use were two main independent variables indicating the level and pattern of investment. Measured in Indian rupees, the loan amount was 3,000, 5,000, or 10,000 rupees per person, depending on the individual participant's intended use of the loan. For example, a woman who planned to buy an animal requested and received a higher loan amount, usually of 10,000 rupees. To measure loan use, we utilize a three-level categorical variable denoting the *purchase of an animal,* such as a

cow or goat; the *investment in a small business,* such as selling prepared food; or spending for an *other nonincome-generating use,* such as a child's school fees, house repairs, and the payment of debts. The loans were used for multiple purposes, including increasing assets, smoothing consumption, or enhancing well-being. The length of participation in the self-help group was measured in months from the start date to the interview date in May 2007. The range of time in the self-help groups was from 8 to 17 months.

We measured the demographic characteristics of the women in the self-help groups, including their age, years of education, marital status, and number of children. Marital status reflected whether the respondent was widowed, abandoned, or never been married. Preliminary analyses revealed that only 2% of the respondents indicated they had never been married. These were set to missing. Hence, for this study martial status is assessed at two levels (0 = widowed and 1 = the abandoned group). Economic characteristics such as amount of daily wages in rupees and type of current work were also measured. The participants were asked to estimate daily wages before program participation and their current wages at the time of the interview after they received the microcredit loan (which could range from 8 to 17 months depending on when the women's group was established). We also categorized the way the women made their living into the groups of *selling things, working in the fishing industry, farming, construction, raising animals*, or *domestic household work.*

To examine the influence of geography/location on self-help group members, we utilized a five-level categorical variable for the geographic region of each participant. Nagapattinam is a district that consists of a costal city by the same name and several other *taluks* (subdivisions within the district). The microcredit self-help groups were established in four *taluks* within Nagapattinam: Vedaranyan, Tharangambadi, Sirkali, and Nagapattinam. Since Sirkali had a large number of widows' groups, it was further divided into two clusters: Poombuhar and Koolidam. Thus, the five regions of the self-help groups were Vedaranyan, Nagapattinam, Tharangambadi, Poombuhar, and Koolidam.

These four *taluk*s have a high concentration of *dalits* who experience poor socioeconomic conditions as well as limited political participation and influence. The people living in Tharangambadi primarily make their living from the ocean (carrying fish from the shore, buying and selling small fish, carrying and selling ice for processing fish, etc.). The residents of Sirkali are mostly involved in agricultural activities. Their jobs depend on the monsoon and the subsequent swelling of water in the Kaveri River. If there is little monsoon rain, alternative work must be sought. Although they are all agricultural laborers, very few people in Sirkali own land—most are daily wage earners. Sirkali residents are more likely to rear animals, because they can lease land and have sufficient places for grazing. Vedaranyan is situated closer to the sea and thus salt extraction is a major business. From that region, salt is supplied to different parts of India. However, because of the hazardous work conditions in the salt pan, most women are eager to get out of this work and invest in things such as making and selling *idlies* (a type of pastry), selling rice, or owning a small shop. Nagapattinam is the headquarters of the district and is more urban than the other *taluks*. Women there usually run businesses such small shops and sell vegetables or fish.

Dependent Variables

Four different indices were created to measure the economic, communal, familial, and psychological effects of the microcredit program from the perspectives of self-help group members. Each index was composed of variables extracted from the structured interviews of the women in the self-help microcredit groups. Each of the indices was made up of binary variables (yes/no) and the items were summed to create each index. The economic index consisted of four variables: earning more money, increased earning power, household items, and the amount of food in the household. The communal index was made up of two variables: the participant's ability to help other women and benefits from the self-help group experience. The familial index included four variables: the quantity of food for children; quality of food for children; children's health, education, and happiness; and the amount of time the mother spent with the children. The psychological index contained two variables: feelings of self-value and psychological benefits from participating in the program.

Although the operationalization of items on these four measures appear to be conceptually sound and reliable, a Cronbach's alpha was conducted to assess how well items on each of these measures reflect unidimensional latent constructs. The scales were within the acceptable range of reliability: 4-item economic well-being ($\alpha = .53$), 2-item communal effects ($\alpha = 0.51$), 4-item familial well-being ($\alpha = 0.70$), and 2-item psychological well-being ($\alpha = 0.60$).

Data Analysis

A series of univariate statistical procedures were performed to describe and summarize certain aspects of the data, for example, age, number of children in the household, geographic region of the widows' group, and loan use. Following this, bivariate analyses were performed to examine the association between demographic characteristics and key program components. Correlations were obtained for the sample's demographic characteristics and loan amount and loan use. Bivariate correlations were also obtained to explore the relationship between loan use and the geographic region of the women. To understand the effect of the microcredit program on the overall well-being of the participants, multiple regression procedures were utilized. Particularly, four regression models were obtained—separate regressions for each area of well-being: economic, communal, familial, and psychological. A number of demographic variables including age, number of children, loan use, and geographic region were entered in each model as controls. Prior to the analysis of main effects, a series of preliminary multivariate analyses were performed to assess the extent to which the assumptions of regression are met. These tests indicated that linearity, normality, and homoscedasticity can be assumed.

RESULTS

Descriptive Statistics

Sociodemographic characteristics of the sample are presented in Table 1 and reveal that the age of participants range from 22 to 75 with an average age of 45 ($SD = 11$). Eighty-three percent of the women identified their marital status. The majority of the respondents were widowed (66%) and the remaining were abandoned and/or never married (17%). Program partici-

TABLE 1. Descriptive Characteristics of Study Participants (N = 109)

	Percent/Mean (SD)	Missing
Age		
Average	45(11)	
Range	22–75	
Less than 30	13%	
31 to 40	29%	
41 to 50	30%	
51 to 60	22%	
61 and older	5%	
Marital status		17%
Widowed	66%	
Abandoned or never married	17%	
Education		
None	68%	
5 or fewer years	20%	
>5 years	12%	
Children in household		1%
Average number of children	2.3(1.5)	
None	7%	
1 or 2	53%	
3 or 4	30%	
>4 children	10%	
Geographic zone		
Nagapattinam	23%	
Vetharanyam	18%	
Tharangambadi	20%	
Boombuhar	20%	
Kollidam	18%	
Types of work		2%
Selling things	17%	
Fish-related business	16%	
Farming	14%	
Construction	13%	
Unemployed	11%	
Raising cows	8%	
Domestic work	8%	
Daily wages	6%	
Raising goats	5%	
Sewing	2%	

TABLE 2. Characteristics of Participation in Self-help Groups Loan Amounts, Loan Use, and Group Meetings (N = 109)

	Percent/Mean (SD)	Missing
Individual loan amounts		
3000 Rs.	50%	
5000 Rs.	38%	
10000 Rs.	13%	
Primary loan use		
Invested in business	40%	
Bought animals	39%	
Other use	21%	
Length of time in groups		9%
Average (months)	14.5 (2.5)	
Range (months)	8–17	
Frequency of group meetings		6%
Less than once a month	1%	
Once a month	20%	
Twice a month	39%	
Weekly	21%	
Daily	14%	
Average daily earnings		
Pre-loan (Rs.)	43.4(31.8)	6%
Post-loan (Rs.)	46.0(31.2)	1%

pants were evenly distributed in terms of region of residence (about 18%–23% per zone). Most of the respondents (93%) had at least one or more child in the household. Respondents were engaged in a wide range of enterprises (from selling food items to domestic household work). Only 11% of the women report being unemployed. The majority of the respondents (68%) had no formal schooling. Characteristics of the loan investments and the length of the women's participation in the groups are presented in Table 2. Most of the groups met twice a month (39%), weekly (21%), or once a month (20%). Few groups met daily (14%) or less than once a month (1%). The pre- and post-loan difference in earnings was only 2.4 rupees.

Bivariate Correlations

In terms of the investment patterns, the loan amount is positively related to investment in a small business at a statistically significant level (see Table 3). An association is also present between the loan amount and the geographic

TABLE 3. Correlations of Participant Demographics, Investment Types, and Geographic Regions (N = 109)

Variables	Age	Years of Education	Marital Status	No. of Children	Amount of Loan	Investment in Business	Investment in Animal	Investment in Other
Age								
Years of Education	−0.08							
Marital Status	−0.45**	0.04						
No. of Children	0.28**	0.03	−0.26*					
Amount of loan	−0.09	0.12	0.01	−0.07				
Investment in Business	0.09	−0.19*	−0.02	−0.17	0.20*			
Investment in Animal	0.01	0.12	−0.09	0.18	−0.10	−0.65**		
Investment in Other	−0.12	0.09	0.13	−0.01	−0.12	−0.41**	−0.43**	
Nagapattinam	0.03	0.34**	0.07	0.02	0.15	−0.25**	0.44**	−0.23*
Vedaranyan	0.07	−0.12	0.00	−0.06	−0.35**	0.11	−0.25*	0.16
Tharangambadi	0.06	−0.08	−0.02	0.05	0.25**	0.03	0.15	−0.20*
Koolidam	0.00	−0.01	−0.09	−0.08	0.14	0.31**	−0.39**	0.10
Poombuhar	−0.16	−0.14	0.03	0.06	−0.21*	−0.16	0.01	0.19

*0.05 level of significance.
**0.01 level of significance.

zone of the widows group. Specifically, residing in Tharangambadi is positively related to the loan amount ($r = 0.25$, $p < 0.01$) while residing in Vedaranyan is negatively associated with the loan amount ($r = 0.35$, $p < 0.01$). Moreover, our results indicate an association between the loan use and the geographic zone of the widow group. We note that participants from Nagapattinam are more likely to invest in an animal compared to participants from other regions ($r = 0.44$, $p < 0.01$) while program participants from Koolidam are more likely to invest in a small business ($r = 0.38$, $p < 0.01$). On the other hand, participants from Tharangambadi are less likely to invest their loan money in "other" ways, such as on a child's education, house repairs, or the repayment of debt ($r = −0.20$, $p < 0.05$). Program participants from Vedaranyan are less likely to invest in an animal ($r = −0.25$, $p < 0.05$). Demographic characteristics of the women in this sample are not related to either loan amount or type of investment. However, a participant's level of education is inversely related to investment in a small business ($r = −0.19$, $p < 05$); that is, the lower the level of education, the more likely the woman is to invest in a small business. Participants from Nagapattinam are more educated than participants from other regions ($r = 0.34$, $p < 0.01$).

Perceived Effects of Participating in the Microcredit Program

To understand overall program effects on the social, psychological, and economic functioning of program participants, we estimate separate regression models for each area of functioning. The results of the first model assessing perceived economic effects of the loan are significant ($F(9,67) = 2.63$, $p = 0.01$). The variables in the model together explain 26% of the variance in the dependent variable. An examination of regression coefficients reveals that only two variables, length of group existence ($b = −0.13$, $t = −232$, $p = 0.02$) and being from the Nagapattinam region ($b = −0.25$, $t = −2.46$, $p = 0.02$), are significantly related to economic effects. Neither the loan amount nor type of investment are associated with this effect.

Results of the second model assessing perceived communal effects of participating in the program are also significant ($F(9,67) = 2.01$, $p = 0.05$) and explain 21% of the variance in the dependent variable. Specifically, only two variables, length of group existence ($b = −0.07$, $t = −2.23$, $p = 0.03$) and geographic zone of the widow group—Nagapattinam ($b = −0.11$, $t = −2.03$, $p = 0.05$), are related to the dependent variable in this model. It is important to note that

years of schooling approaches significance ($b = 0.05$, $t = 1.81$, $p = 0.08$).

Results of the model examining the relationship between perceived familial effects and participating in the loan program are significant ($F(9,67) = 2.59$, $p = 0.01$). The variables in the model together explain 26% of the variance in the dependent variable. Examination of regression coefficients suggests that having children in the household ($b = 1.69$, $t = 2.84$, $p = 0.04$), age of the participant (being younger) ($b = -0.04$, $t = -2.09$, $p = 0.04$), and geographic location (Nagapattinam) ($b = -0.31$, $t = -2.14$, $p = 0.04$) are significantly associated with familial effects. However, neither the loan amount nor type of investment are related to the dependent variable.

Findings from the model assessing perceived psychological effects of participating in the loan program are significant ($F(9,67) = 2.38$, $p = 0.02$) and explain 24% of the variance in the dependent variable. Specifically, having children ($b = -0.62$, $t = -2.18$, $p = 0.03$), being from Nagapattinam ($b = -0.14$, $t = 2.02$, $p = 0.05$), and the length of time that the group has been in existence ($b = -0.09$, $t = -2.49$, $p = 0.02$)

are significantly related to psychological effects. Neither the loan amount nor type of investment are associated with psychological effects. Regression results are shown in Tables 4a–d.

TABLE 4b. Summary of Regression Analysis for Variables Predicting Communal Effects for Participants in Kalangarai Microcredit Program ($N = 109$)

Variables	b	se	t	p-value
Constant	2.35	0.82	2.85	0.01
Geographic zone	−0.11	0.06	−2.03	0.05*
No. of children	−0.30	0.24	−1.26	0.21
Amount of loan	−2.34E-05	0.00	−0.69	0.49
Respondent's age	−6.27E-05	0.01	−0.01	0.99
Length of group existence	−0.07	0.03	−2.23	0.03*
Years of education	0.05	0.03	1.81	0.08
Marital status	−0.15	0.20	−0.75	0.46
Investment in animal	−0.18	0.18	−1.00	0.32
Investment in other	−0.06	0.19	−0.31	0.76
R^2	0.21			
F	2.01			
df	9			

Note: b = Unstandardized regression.
*0.05 level of significance.
**0.01 level of significance.

TABLE 4a. Summary of Regression Analysis for Variables Predicting Economic Effects for Participants in Kalangarai Microcredit Program ($N=109$)

Variables	b	se	t	p-value
Constant	4.37	1.45	3.01	0.00
Geographic zone	−0.25	0.10	−2.46	0.02*
No. of children	0.28	0.42	0.67	0.51
Amount of loan	−1.79E-05	0.00	−0.30	0.77
Respondent's age	−0.02	0.01	−1.48	0.14
Length of group existence	−0.13	0.05	−2.32	0.02*
Years of education	0.02	0.05	0.35	0.73
Marital status	0.26	0.35	0.75	0.46
Investment in animal	0.23	0.31	0.72	0.47
Investment in other	−0.43	0.33	−1.29	0.20
R2	0.26			
F	2.63			
df	9			

Note: b = Unstandardized regression.
*0.05 level of significance.
**0.01 level of significance

TABLE 4c. Summary of Regression Analysis for Variables Predicting Familial Effects for Participants in Kalangarai Microcredit Program ($N=109$)

Variables	b	se	t	p-value
Constant	4.68	2.08	2.25	0.03
Geographic zone	−0.31	0.14	−2.14	0.04*
No. of children	1.69	0.60	2.84	0.01**
Amount of loan	−8.63E-05	0.00	−1.01	0.32
Respondent's age	−0.04	0.02	−2.09	0.04*
Length of group existence	−0.08	0.08	−1.09	0.28
Years of education	−0.01	0.07	−0.20	0.84
Marital status	−0.37	0.50	−0.72	0.47
Investment in animal	0.45	0.45	1.00	0.32
Investment in other	0.30	0.48	0.63	0.53
R^2	0.26			
F	2.59			
df	9			

Note: b = Unstandardized regression.
*0.05 level of significance.
**0.01 level of significance.

TABLE 4d. Summary of Regression Analysis for Variables Predicting Psychological Effects for Participants in Kalangarai Microcredit Program (N = 109)

Variables	b	se	t	p-value
Constant	3.62	1.00	3.62	0.00
Geographic zone	−0.14	0.07	−2.02	0.05*
No. of children	−0.62	0.29	−2.18	0.03*
Amount of loan	−6.38E-05	0.00	−1.55	0.13
Respondent's age	−0.01	0.01	−0.62	0.54
Length of group existence	−0.09	0.04	−2.49	0.02*
Years of education	0.03	0.03	0.91	0.37
Marital status	0.01	0.24	0.05	0.96
Investment in animal	−0.21	0.22	−0.96	0.34
Investment in other	−0.15	0.23	−0.64	0.52
R^2	0.24			
F	2.38			
df	9			

Note: b = Unstandardized regression.
*0.05 level of significance.
**0.01 level of significance

DISCUSSION

The overall aim of this study was to ascertain the impact of a microcredit self-help program on the lives of widowed and abandoned women as perceived by the participants of the program. In particular, we examined factors related to the loan use, amount of loan, length of the self-help group's existence, and sociodemographic factors on the women's psychosocial and economic well-being. We did not examine the period of loan repayment because each self-help group determined its own repayment schedule. The factors related to how the women used the loan (investment in business, pay debts, children's education, etc.) and the amount of the loan were not significant predictors of the women's well-being. Because the loan amount was determined by the women's needs, the lack of an impact of the loan amount suggests that the overall amount of the loan is not as critical as perhaps the matching between the amount and what the borrower plans to do with the loan. According to previous research, poor women tend to borrow small sums frequently. Also, the needs of low-income clients are often best served by highly flexible financial services (Lahiri-Dutt & Samanta, 2006). A loan that is too large may impose a burden of repayment on a woman with limited resources. Yet the loan needs to be large enough to meet a particular need in a woman's life. To this end, the NGO Kalangarai appeared to successfully match loan amounts to the needs of the participants.

How the women used the loan also did not make a significant difference on the outcomes of the program for the women. While microcredit programs have traditionally been developed to help poor women invest in small businesses, it appears that this is not the only way that these loans can be helpful. For example, a small loan can help a woman get out of debt or pay down a loan from a moneylender who is charging her a high interest rate. Relief from debt may allow more of her income to be used for food, shelter, and other basic needs. For this population, starting a business may not always yield a large return on the initial investment because of discrimination. Because widows are considered inauspicious, people may be reluctant to do business with them. Investments in farm animals can also have drawbacks. These drawbacks may include no means to market the milk from cows, animals perishing because of disease or flooding, or waiting at least a year before animals can be sold for a profit.

The self-help group formation and social connections among the women have been important components of microcredit programs. In this study, we found that more recently formed groups have a significantly greater impact on women's well-being. While this finding may seem counterintuitive, it can be explained in a couple of ways. First, more recently formed groups may be benefiting from the experience of the NGO and the leaders of previously formed groups who serve as mentors. With this support, perhaps newer groups become more skilled at helping each other on psychosocial and economic levels. A second explanation deals with the challenge of maintaining a program's effects. With many psychosocial interventions, there can be a high level of effectiveness immediately after the intervention is implemented with a leveling off or decline over time. According to the director of Kalangarai, some of the group leaders have been able to empower the women in the groups to assert their rights in their communities; others have not been successful in doing this. When

change on a societal level is not occurring, the self-help group participants may lose interest in the groups and question the value of remaining in the group.

For all the indices, living in the Nagapattinam *taluk* was a significant predictor of lower well-being. Although Nagapattinam is a relatively urban center with opportunities for investments and income-generating activities, the town is surrounded by villages that are quite rural and poor. The influence of the traditional beliefs about widows and gender bias continues to be strong in Nagapattinam and its surrounding villages, making it difficult for women to participate in the economy. Being aware of the opportunities for investment but not being able to take advantage of them because of their status as widows could be quite discouraging to the participants in the self-help groups of Nagapattinam. A discrepancy between potential income-generating activities and what the women are able to actually do can lead to some dissatisfaction.

Having children was another factor that was related to a poorer psychological outcome for the participants of the program. While children can give women a sense of meaning and purpose in their lives, they are also an additional responsibility and burden, especially to women living on a meager income. Ahmed, Chowdhury, and Bhuiya (2001) found that among poor rural women participating in microcredit programs, more emotional stress was experienced by women who had children in comparison to those women without children. Other researchers have noted that women in microcredit programs may be spending more time in the workplace and less time participating in household-related activities such as caring for their children (Leach & Sitaram, 2002). Indeed, some of the Kalangarai staff observed that women hesitate to come to meetings because the women's children want them to spend more time with them. These conflicts may lead to more psychological stress on women who are trying to balance multiple roles.

FUTURE DIRECTIONS FOR RESEARCH AND PRACTICE

The findings of this study provide evidence of the benefits of a microcredit program for wid-owed or abandoned women. Participation in this program helped the women smooth consumption, build productive assets, and invest in their children's education and nutrition. However, the findings were not conclusive regarding the exact mechanism by which the program helps the women. Future research needs to examine those specific characteristics of a self-help microcredit group that would enhance psychosocial and economic improvement outcomes for women.

Results of this study suggest an association between the geographic region in which the women live and their perceptions of the impact of the loans. This is important and may suggest that attending to the investment opportunities in a particular geographic area before allocating the loans may be a critical component of these programs. For example, if a woman wants to invest in a small business, there should be some assessment of community support and market for that particular business. The self-help groups can be instrumental in helping the women make these decisions.

The fact that recently formed groups had a significantly greater impact on women's well-being is noteworthy. In this study group experience was measured broadly by the length of group membership. A more refined understanding of this variable, including group size, the caste, and the religion of group members, would enable rigorous comparison of within- and between-group differences.

Going forward, a capabilities approach to research may also help us answer the question of how the program works. With this approach, the focus becomes on enhancing the women's capabilities, namely, what they are actually able to do and be. As Nussbaum (2000) argues, the question is not How satisfied is the woman? but What was she actually able to do and to be as the result of the program? What opportunities and freedoms does she have to function in a fully human way? Hence, the measurement of a program's effectiveness will need to capture more than women's perceptions of the psychosocial and economic benefits. Based on the capabilities approach, we propose several additional outcome measures such as, individual and family health, ability to move freely from place to place, affiliations, recreation, being able to

participate in political choices that govern one's life, and being able to own property. These are the opportunities and goals that we hope programs for vulnerable women will be able to embrace and foster.

Attention could also be devoted to understanding the entrenched discrimination and widespread prejudice that prevent vulnerable women from fully participating in the economic market. Regardless of the country, poverty typically afflicts people living at the margins of society who have been socially excluded from mainstream society (Silver & Miller, 2003). An effective approach for a self-help microcredit program targeting vulnerable women will need to address their unfair and inequitable treatment by the rest of society. The women themselves may need to be empowered to learn about their human rights and channels of redress in order to position themselves to claim those rights. Leaders of the self-help groups may also need to be skilled at advocating and motivating the group members to enhance their life chances.

NOTES

1. The name of the NGO was originally South Asian People's Initiative and was recently changed to Kalangarai, which means "lighthouse" in Tamil.

2. We converted rupees into US dollars using the 2007 average US: rupee exchange rate of 41.3 (Economist Intelligence Unit, 2008).

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