

An evaluation of a micro-credit system to promote health knowledge among poor women in Bangladesh

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SUMMARY

A Micro-credit system (MCS) is a financial system to support the economic needs of the poor. It is thought of as a community-based method to solve various problems, including the lack of health-related knowledge. Participants are organized in groups that assemble in regular meetings. Hadi (Hadi in *Health Promotion International* 16, 219–227, 2001) investigated the MCS as a method to solve the lack of health-related knowledge among the poor in Bangladesh. His result among rural MCS participants shows a positive relationship between the duration of membership in a micro-credit group and health knowledge.

Further, more knowledge was ascertained among participants than among non-participants. The present research investigated the effectiveness of the MCS in increasing health-related knowledge. Comparisons were made between rural and urban groups on the basis of three different durations of membership and the influence of TV. This three-factorial design shows a significant increase in knowledge in a very short period in rural areas, whereas in urban areas, no systematic increase was found. TV plays a significant roll in increasing knowledge. Different theoretical conclusions are discussed on the basis of the results.

Key words: health knowledge promotion; Bangladesh; micro-credit programme; rural and urban areas

INTRODUCTION

One of the main problems in poor countries relates to health. To solve health problems, several methods have been introduced to promote and communicate health knowledge among specific target populations, and to build awareness and teach appropriate and responsible behaviour. In the present article, a strategy to inform about health related problems and solutions in connection with the micro-credit system (MCS) was evaluated in Bangladesh.

The MCS was developed in Bangladesh in the mid-1970s to give credits of small amounts of money to the poor, who could use the money for income generating activities. People with similar social, economic, and religious backgrounds are organized by NGOs or other

facilitators into small groups. The participants have group financial and social responsibility; this is the basic characteristic of the MCS in contrast to common bank credits. The main participants are women because of their higher financial and family reliability (Hülsken, 1998).

During the group meetings, participants have the opportunity to discuss problems that affect their lives with other group members and with the facilitator. In Bangladesh, people need access to education, preventive health care services, women rights, safe water, sanitation and governmental and non-governmental facilities. Health is a very important aspect of micro-credit programmes (Yunus, 1998), because the need for appropriate measures to promote health information is very high [e.g. (Rob and Mutahara, 2001; Khan, 2001)]. Independent studies have

shown that 25% of the failed loan instalments in MCS groups are caused by mental and physical illnesses (The Bangladesh Observer, 2004).

Several methods were implemented to provide the necessary health-related information, and these include mass media (Valente *et al.*, 1996) and clinical- (Davis and Reis, 1988; Huang *et al.*, 1994) and community-based interventions (Miles, 1988; Hussain *et al.*, 1997; Hadi, 2001). Valente *et al.* (Valente *et al.*, 1996) has suggested that mass media is not a behaviour change agent itself but a generator of personal communication as a source of information. Although mass media plays a significant role, it is naturally inappropriate to change behaviour in areas where there is a lack of access to it; therefore, another method to promote health knowledge has to be created.

Discussion rounds in connection with the MCS are community-based interventions that are characterized by the participation of the target population, emphasis on needs, problem identification, and dynamic communication in consideration of social circumstances. In their work on organizations, Crane and Carswell (Crane and Carswell, 1992) suggested sufficient staffing, respectful treatment and appropriate motivation of the target group, availability of equipment and supplies, planning the participation of affected individuals and ways to meet their needs. Emphasis is given to the dynamic process of communication, community needs and participation, identification of problems related to socio-economic and environmental factors and the role of the field workers (Jahan, 2000). Ahmed *et al.* (Ahmed *et al.*, 1991) and Stanton *et al.* (Stanton *et al.*, 1987) stress the involvement of community members to diffuse innovations using personal networks. A community-based intervention recommends a social structure to promote information a target population, but also points out that an appropriate network size is required for effective spread of information (Valente, 1996). Nevertheless, Rashid *et al.* (Rashid *et al.*, 1999) found no effective knowledge dissemination by community-based interventions among poor women living in rural areas in Bangladesh. The effect of community-based interventions on different socio-economic levels is also disputed (Ahmed *et al.*, 1991; Guldan *et al.*, 1993; Durkin *et al.*, 1994).

Hadi (Hadi, 2001) assessed the contribution of the MCS in raising health knowledge among poor women in rural Bangladesh. The author

assumed that women become more interested in health care, and interactions to improve their economic status and health knowledge are more effective when clubbed together than when separate programmes are undertaken at different levels. In general, the findings demonstrate that the fact and duration of participation in MCS groups play a significant role, along with exposure to media and education. Health messages were received better by participants of an MCS than by non-participants, which supports the community-based thesis. Although the level of knowledge among the sample remains very low, the results of Hadi (Hadi, 2001) indicate the effectiveness of these communication forms in comparison with other methods such as discussion meetings, newspaper articles, posters, billboards in public places, films and songs.

Further, the question is asked whether community-based intervention also shows success, e.g. in knowledge promotion, awareness building etc., in urban areas. There is not much comparative literature available to answer this. A comparison of community-based youth services of the Commonwealth of Virginia (Yeh *et al.*, 1997) showed no significant differences between large and small, urban and rural, and rich and poor communities. Although there was no difference between urban and rural communities, it can be expected that communication channels and methods and information sources are more heterogeneous in Bangladesh than in the communities studied by Yeh *et al.* (Yeh *et al.*, 1997).

Following the emphasis on community-based methods to promote health knowledge in Bangladesh and the results of Hadi (Hadi, 2001), findings have been reported of studies that investigate health-related aspects of MCS in further detail. The answers to four questions are being reported in this article: Is it possible to replicate the results of Hadi (Hadi, 2001) among a similar subgroup in southern Bangladesh that is organized by a different facilitator than in the mentioned study? The Bangladesh rural advancement committee? Is it possible to successfully raise health knowledge among those who have shorter durations of memberships (DOMs) than in the study of Hadi (Hadi, 2001)? Are there different processes of imparting health knowledge between a rural and an urban subgroup under the same circumstances? Finally, what influence does the mass media, especially TV, have on health knowledge in different areas?

METHODS

Participants

All participants of the investigation were members of MCS groups, which were led by the local non-governmental organization (NGO) Integrated Social Development Effort in the Chittagong Division in southern Bangladesh. A total of 144 participants took part in the present research. All of them were women. The participants met in weekly group meetings with one representative of the NGO. During the meetings, all financial, organizational and developmental problems were discussed. For the present investigation the women were selected on the basis of two criteria during the weekly meetings: *area of living* (AOL; urban, rural) and duration of membership (DOM; short, medium, long) in the present MCS group. The design was completely balanced with equal numbers of participants in both AOL groups and all three DOM groups. Seventy two participants lived in urban and 72 in rural areas. The urban area was Chittagong, the rural area was the upazila Chakaria (Figure 1). The selected groups consisted of 48 participants with three DOM (24 per AOL): short (for 1 year), medium (for 1 to 2 years) and long (for more than 2 years). These periods were selected due to the authors' expectancy of knowledge progress and the general durations of membership in the selected MCS groups the NGO organizes. In the urban area, women of 15 different groups (3 to 6 members each) and, in the rural area, of 16 different groups (3 to 6 members each) were interviewed.

Next to AOL and DOM, the selected socio-demographic data of the questionnaire were sex, number of persons in household, number of persons with own income in household, years of school education, access to media (TV, radio), literacy and member number. The average age of all participants was 30.57 years (SD = 9.86) with a range from 15 to 65 years. The average school education of all participants was 3.23 years (SD = 3.3 years) and in the average, 52.1% specified *literate*. The number of persons who live in the household was 6.01 (SD = 2.4) in the average, a ranging from 2 to 13 persons. An average of 1.78 persons (SD = 0.97, range 1–6) had their own income in the respective households. The access to media (ATM) was as following: 51.4% no



Fig. 1: Map of Bangladesh. Both research areas are marked. (Source: www.unescobkk.org/uploads/pics/bangladesh.png.)

access, 16.7% access to TV, 13.3% access to radio, 18.1% access to TV and radio. The only significant difference between the two sub-groups was the ATM in a chi-square test ($p < 0.001$). Among the urban population 68.0% and among the rural population only 1.4% of the participants had access to this information source (TV and TV + radio). All other data showed no remarkable differences. Further detailed sociodemographic data of each subgroup were listed in Table 1.

The analytical procedure and survey

Interviews were conducted separately with programme participants by employees of the NGO during the weekly meetings in March and April 2004. Each interview took ~5–10 min. In the urban area, one interviewer conducted all interviews, whereas in the rural area the interviews were conducted by the particular NGO worker who was responsible for the selected groups. For the evaluation procedure, an instrument was constructed that contained questions on several health-related aspects that affect the lives of the participants and that

Table 1: Detailed sociodemographic data of each subgroup. Divided by *Area*

Area	Age (years)	Education (years)	No. of persons in household	Persons with income in household
Chittagong (urban)				
Mean	31.08	3.56	5.86	1.93
SD	10.29	3.38	2.32	1.05
Chakaria (rural)				
Mean	30.10	2.89	6.17	1.61
SD	9.49	3.21	2.48	0.85
Overall				
Mean	30.57	3.23	6.01	1.78
SD	9.86	3.30	2.40	0.98

Access to media	Area		Overall
	Chittagong (urban)	Chakaria (rural)	
No access			
Number	18	56	74
Percent of no access to media	24.30	75.70	100.00
Percent of area	25.00	77.80	51.40
Percent of overall	12.50	38.90	51.40
TV			
Number	23	1	24
Percent of access to TV	95.8	4.20	100.00
Percent of area	31.90	1.40	16.70
Percent of overall	16.00	0.70	16.70
Radio			
Number	5	15	20
Percent of access to radio	25.00	75.00	100.00
Percent of area	6.9	20.80	13.90
Percent of overall	3.5	10.40	13.90
TV and Radio			
Number	26	0	26
Percent of access to TV and radio	100.00	0.00	100.00
Percent of area	36.10	0.00	18.10
Per cent of overall	18.10	0.00	18.10
Overall			
Number	72	72	144

group meeting discussions had dealt with. Selected health-related subtopics were nutrition, hygiene, immunization and diseases. The subtopics generated a general health index (GHI), which was assumed to be a comprehensive indicator of health knowledge. More health-related questions were used, covering a broader range of health knowledge, and a higher validity was probably achieved in this study than in the Hadi study (Hadi, 2001). The detailed questions are listed in the Appendix.

The present study was a cross-sectional one. The basic assumption to be examined was that participation in MCS-groups significantly raised participants' health knowledge. The variables of

interest were the AOL, DOM and the ATM (especially TV).

RESULTS

The selected quantitative procedure was the analysis of variance (ANOVA). The dependent variable was GHI. It was formed by adding all correct answers of the 10 questions on the questionnaire.¹ The possible maximum was 25

¹ The question 'How can you be infected with HIV/Aids?' was excluded from further analysis.

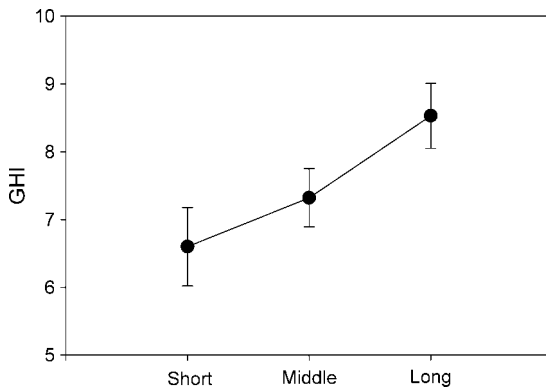


Fig. 2: The GHI of all study participants based on DOM. Bars indicate one standard error.

points.² The independent factors AOL (urban versus rural), DOM (short, medium and long) and ATM (TV versus no TV)³ were used to construct a three-factorial ($2 \times 3 \times 2$) ANOVA.

The overall average of the GHI was 7.07 (SD = 3.33) with a range from 0 to 16 points. The average in the urban area was 6.58 (SD = 3.07) points and in the rural, 7.56 (SD = 3.52). The values of the levels of DOM were as follows: Short 6.08 (SD = 3.2), medium 7.04 (SD = 3.34) and long 8.08 (SD = 3.21) points (Figure 2). The difference in GHI between the group with access to TV (mean = 7.14, SD = 3.21) and without access to TV (mean = 7.03, SD = 3.41) was minimal.

The ANOVA revealed significant effects for DOM [$F(2, 134) = 3.45, p = 0.035$] and significant interactions between AOL and DOM [$F(2, 144) = 4.26, p = 0.016$] as well as AOL and ATM [$F(1, 144) = 5.05, p = 0.026$]. No other effects or interaction showed significance.

The difference between the groups of short memberships and long memberships was significant ($p = 0.003$), whereas there were no significances between the other groups when DOM was further analysed, although there was an general increase of points when membership was longer. This indicates that women who take part in discussion rounds can raise their health knowledge.

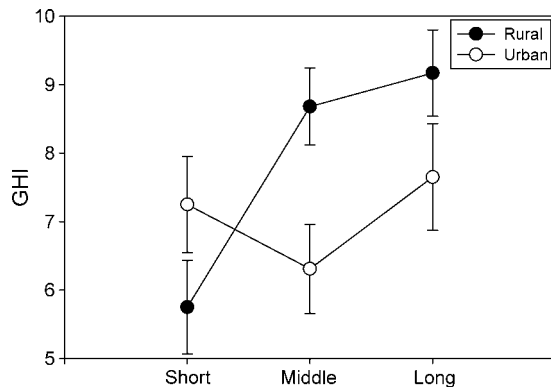


Fig. 3: The GHI of all study participants based on DOM and AOL. Bars indicate one standard error.

The interaction between AOL and DOM shows detailed results (Figure 3). When the groups with short memberships were compared, the urban group showed a higher value than the rural group (6.88 versus 5.29, not significant). This relationship is overturned for groups with memberships of medium duration (urban 5.71, rural 8.38, $p = 0.004$). This result shows the remarkable effect of discussion rounds and health promotion in the rural population even after a fairly short membership ($p = 0.003$). It also shows that the knowledge in the urban group decreases by a non-significant amount. Observation of participants with a long membership underlines the different processes in the urban and rural population, with a significant advantage for the latter group (7.17 versus 9.00, $p = 0.047$). To summarize, it can be assumed that there are different processes in the selected areas, although the results of the urban groups with medium memberships reduces the possibility of an unambiguous interpretation.

The interaction of AOL and ATM reveals different influences of media, especially TV, in the urban and rural areas (Figure 4). Among the urban population, there is a significant difference between women who have access to TV and women without access in respect to health knowledge (5.3 versus 7.18, $p = 0.014$). Unfortunately, the effect of access to TV in the rural group cannot be analysed and interpreted because there is only one woman with access to TV. The participants without access to TV in the rural population show higher values than the equivalent urban group (7.59 versus 5.3, $p = 0.005$). To interpret this result, different

² Responses coded as 'others' were excluded.

³ Responses coded as TV or TV and radio were judged as "TV", responses coded as no access to media or only radio were judged as "no TV".

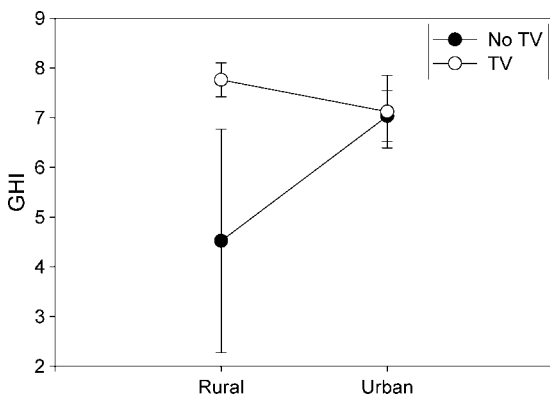


Fig. 4: The GHI of all study participants based on AOL and ATM. Bars indicate one standard error.

explorative variables (age, education, literacy etc.) were compared among these groups, but no significances were found. Thus, the available data provide no explanation for this difference.

The final conclusion is that the postulated positive effect of DOM could be shown in the overall sample which, in fact, is caused by development in the rural area. In the urban area, there was no general positive or negative effect to observe.

The MCS was very effective in improving the level of knowledge in rural areas, whereas it did not raise knowledge in urban areas. This detail means that an important duty of the MCS could not be fulfilled by the facilitators. Access to TV as a source of information seemed to be more important in this connection, because participants with access to TV had greater improvement in health knowledge compared to those women with no access. Unfortunately, the contribution of women with access to TV was too low to analyse this in detail in the rural area.

DISCUSSION

First, Hadi's (Hadi, 2001) result was that participants with a longer DOM (>5 years) have more health knowledge than participants with a shorter DOM (<5 years). This result could be replicated among the rural sample with increasing health knowledge correlated with longer DOMs in the MCS. This shows an effective use of community-based methods to promote health-related knowledge. Another finding was that Hadi's result could be replicated among a

separate rural population under the organization of a different NGO. It can be suggested that the area of application and the effectiveness of the MCS to promote knowledge is very general in Bangladesh. The present data do not exclude the possibility that effect of DOM and the progress of health knowledge is caused by a third variable, like interest or motivation.

Second, even after the very short time periods that were selected, a significant positive development, i.e. increased health knowledge, could be observed and measured in the rural sample. This further underlines the effectiveness of community-based interventions. It was possible to show fairly quick progress over a period of ~2 years, which is much shorter than the period selected by Hadi (Hadi, 2001). Probably, the questionnaire constructed for this study was more sensitive than the instrument Hadi used. Unobserved effects (e.g. area, facility) are able to play a significant role, of course.

Third, the results showed different developments in the selected areas. In the urban area, there was no progress or unique development to observe in the selected time period. That is, community-based interventions promoted health-related information in urban areas ineffectively. This is in contrast to the findings of Yeh *et al.* (Yeh *et al.*, 1997) who could not find any differences between backgrounds. The present study is not able to present reasons for this difference with the selected quantitative measurement but proves first indications that community-based interventions only succeed in particular backgrounds. Further qualitative studies are required to identify the course of this phenomenon.

On the basis of this outcome, a more specific view and implementation for community-based interventions has to be developed. Because of its ineffectiveness in the urban area, the dissemination through public sources of information is probably more important there. The results suggest that in urban and rural areas different channels exist to promote knowledge effectively. The unique progress of knowledge was closely connected with the MCS of the investigated facility in the rural area because most of the participants had no other source of information. Here, a programme like micro-credit has the potential of a communicator, disseminator and educator.

The way community-based interventions, especially discussion rounds, work and can

explain progress is reported in some studies. Lewis (Lewis, 1994) assumed that information in discussion rounds are appropriately designed for different reasons. The poor can understand them and make connections to their own personal circumstances. On the other hand, micro-credit programmes develop a kind of responsibility. Participants are more motivated to listen to appropriately designed health information. Through the homogenous interaction of all members in the discussion groups and beyond, women could understand the messages that were presented by the organization's staff. Hadi (Hadi, 2001) also concluded that women were able to organize the meetings, and as a result, they were more appropriate and relevant for them. To follow these assumptions, further qualitative investigations should be done in the selected target groups.

Our fourth question asked about the influence of mass media. In the urban area, a clear advance for women with ATM was found. Unfortunately, the results of the rural population are insufficient to answer this question. Future studies have to use ATM as a balanced selection criteria.

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APPENDIX

Questions (referred to the respective subtopics):

- Hygiene
 - I What is important for a healthy personal hygiene?
- Nutrition
 - II What is the reason for night blindness?
 - III What supplements are very important during pregnancy? (Hadi, 2001)
 - IV Which diseases will be caused by malnutrition?
 - V Why is drinking water from wells dangerous?
- Immunization
 - VI Which diseases cover the Expanded Immunization Program? (Hadi, 2001)
 - VII What can be done against polio?
 - VIII Which vaccine is very important for mothers during pregnancy? (Hadi, 2001)
 - IX How many doses of polio vaccine do children get after birth?
- Diseases
 - X What are the dangerous effects of diarrhoea?
 - XI How can you be infected with HIV/Aids?