

REVIEW

Integrating microfinance and health strategies: examining the evidence to inform policy and practice

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Introduction Single solutions continue to be inadequate in confronting the prevalent problems of poverty, ill health and insufficient health system capacity worldwide. The poor need access to an integrated set of financial and health services to have income security and better health.

Over 3500 microfinance institutions (MFIs) provide microcredit and financial services to more than 155 million households worldwide. Conservative estimates indicate that at least 34 million of these households are very poor by the definition in the Millennium Development Goals, representing around 170 million people, many in remote areas beyond the reach of health agencies, both private and governmental. A small but increasing number of MFIs offer health-related services, such as education, clinical care, community health workers, health-financing and linkages to public and private health providers.

Review of evidence Multiple studies indicate the effectiveness of microfinance and its impact on poverty. A small but growing number of studies also attempt to show that MFIs are capable of contributing to health improvement by increasing knowledge that leads to behavioural changes, and by enhancing access to health services through addressing financial, geographic and other barriers. While these studies are of uneven quality, they indicate positive health benefits in diverse areas such as maternal and child health, malaria and other infectious disease, and domestic violence. While more rigorous research is needed to inform policy and guide programme implementation to integrate microfinance and health interventions that can reliably enhance the well-being of the poor, there is useful evidence to support the design and delivery of integrated programmes now.

Conclusion Worldwide, current public health programmes and health systems are proving to be inadequate to meet population needs. The microfinance sector offers an underutilized opportunity for delivery of health-related services to many hard-to-reach populations.

Keywords Global health, health policy, poverty, health access

KEY MESSAGES

- Improving the health of the poor requires reducing poverty and facilitating health access simultaneously.
- Scientific evidence demonstrates that microfinance organizations can implement health programmes that increase knowledge, change health-related behaviours and improve access to health services.
- Microfinance institutions can provide a global infrastructure platform for integrating poverty alleviation and health improvement programmes.

Background: relationship of health and microfinance

Single solutions continue to be inadequate in confronting the prevalent and persistent problems of poverty, social exclusion and ill health (Sachs 2005). Meeting global needs in health will require more cross-sectoral approaches, and the potential for simultaneous achievement of both economic and health gains is capturing the interest of both the international development and public health communities. One tandem strategy that holds real promise, but is largely unleveraged, is the linking of microfinance service delivery with effective health-related services.

The term ‘microfinance’ refers to the full range of financial services that low-income people use, including not only credit but also savings, insurance and money transfers. Microfinance institutions (MFIs), as well as development non-government organizations (NGOs) with a strong microfinance component, are increasingly recognized for their capacity to provide effective and sustainable programmes to reduce poverty and associated vulnerabilities such as food insecurity among the world’s poorest people. Over 3500 MFIs around the world provide microcredit and other financial services to more than 155 million households (Daley-Harris 2009); these microfinance programmes represent a vast, private-sector infrastructure of service delivery. Estimates of the portion of MFI clients that are very poor, as defined by the Millennium Development Goals (MDGs), range from 22% to 69% (USAID 2007). Applying the low end of this range (22%) to 155 million households yields 34 million households that are both very poor by the MDG definition and served by MFIs in 2006–07. If the average household has five members, MFIs are reaching an estimated 170 million very poor people, many of whom live in remote areas beyond the reach of both private and government health agencies. Microfinance already reaches a significant portion of the MDGs’ target population through a variety of mostly self-financing delivery systems that potentially have the capacity to also deliver non-financial, including health-related, services.

Numerous impact evaluation studies from around the world support the effectiveness of microfinance and its impact on poverty (Goldberg 2005), despite ongoing controversies such as the ethics of lending practices of some MFIs and the more general risk that borrowers may become over-indebted in the absence of adequate safeguards. The robustness of impact results is also contested because of research design flaws or ambiguous findings reported as positive evidence. For example, World Bank-funded research that examined the impact of three MFIs in Bangladesh over a 7-year period found dramatic decreases in overall poverty (Khandker 2005); yet a re-analysis

of the same dataset by Roodman and Morduch (2009) found no such effects.

The most rigorous randomized controlled trials on microfinance to date (Banerjee *et al.* 2009; Dupas and Robinson 2009; Karlan and Zinman 2009) have found ‘modest positive effects on business investment and outcomes but no impact (positive or negative) on broader measures of poverty and social well-being’ (Odell 2010). These studies were relatively short-term and thus less likely to detect slower-to-develop impacts such as on poverty and health. Nonetheless, given the ongoing controversies, a compelling argument is made by Collins *et al.* (2009) that the most evident contribution of the microfinance sector is in offering reliable financial services to relatively poor households, mitigating the general environment of unreliability that they must live with every day.

Despite popular claims that microfinance has many non-financial impacts, *a priori* we would not expect microfinance alone to impact non-financial knowledge, behaviours and outcomes such as relate to health. The effects on health most likely would be indirect, through improvement of financial ability to access education and health care. Karlan and Morduch (2010) state in a recently published and broad review of microfinance that the evidence so far indicates that finance interventions alone may not be as powerful as ‘finance coupled with other interventions—training and healthcare’. A small but growing number of studies that integrate microfinance with other non-financial services seem to support the argument that MFI financial services have positive impacts beyond the direct financial benefit, such as women’s empowerment and decision-making agency (Manderson and Mark 1997; Kim *et al.* 2007), nutritional status of children (Dunford and McKnelly 2002) and health outcomes, including use of contraceptives, higher child-survival rates, reduced family violence and increased use of health services (Mohindra 2008). Nonetheless, most MFIs have naturally chosen to focus where their competencies are strongest, on microenterprise credit.

Multiple studies show that when families have fallen into poverty or remain trapped there, ill health often emerges as a key reason (e.g. Narayan 2000; Dodd and Munck 2002). MFI managers clearly see the effects of these health problems on the performance of their clients and more generally on the lives of their households and communities. Moved by their dedication to a social mission as well as the business imperative to have healthy clients, some MFIs have adopted a strategy of offering health-related programmes, including one or more of the following: health-related education (including nutrition and sanitation), health care financing (such as health loans or savings accounts), training community health workers, direct delivery of clinical services, and health microinsurance.

However, the uptake of health-related services by MFIs remains limited for several reasons: the imperative for MFIs to operate as efficiently as possible to minimize dependence on external funding and to keep interest rates low; the lack of expertise and skills required for an MFI to offer or create linkages to health-related services; and the need for better information about the types of health-related programmes that are effective in changing knowledge and behaviours and producing better health outcomes.

Organizations seeking to integrate health programmes with microfinance service delivery need guidance to select those interventions that are effective, feasible to implement and financially sustainable.

Purpose of the review and conceptual approach

This evidence review assesses the current state of knowledge and research regarding the experiences of MFIs with provision of health services and the associated benefits (or lack of) to clients. The goal is to evaluate the effect on health knowledge, health behaviours, use of health services and other relevant outcomes of combining health interventions with microfinance activities. The hope is to assist practitioners and influence relevant policy and development programmes.

In order to make sense of a diffuse and ill-defined field, we propose a simple conceptualization of three principle barriers to microfinance clients utilizing health-related services in resource-poor countries:

- Knowledge—awareness and information for behaviour change;
- Affordability—financial ability to pay for health care;
- Availability—convenience of access to effective and safe health services and products.

These barriers can be addressed to a greater or lesser extent by such interventions as are shown in Table 1. The available published evidence examines impact in some, but not all, types of interventions listed.

Table 1 Principle barriers to microfinance clients and examples of interventions

Barrier	Examples of interventions
Knowledge—awareness and information	<ul style="list-style-type: none"> ● Health education ● Health promotion and screening ● Trained community health volunteers
Financial ability to pay	<ul style="list-style-type: none"> ● Loans for medical care ● Community and personal savings accounts ● Health microinsurance
Availability of effective products/services	<ul style="list-style-type: none"> ● Direct delivery of clinical patient care ● Contracts and linkages with providers ● Community pharmacies/drug dispensaries ● Referrals to providers ● Loans to providers for capital investment ● Micro-franchising of health-related businesses

We searched for studies that looked at a wide range of process and outcome indicators potentially related to the health and well-being of microfinance clients. These included the following:

- changes in health knowledge;
- changes in health behaviours;
- increased availability and access to local health resources and the community public health infrastructure;
- health status of MFI members and families at an individual and household level; and
- burden of disease at a population level.

Review methods

We conducted an initial search in 2007–08 and repeated the entire search in June 2010 for validation and updating. The review, of English language literature in peer-reviewed journals, was not restricted by date. For inclusion, articles must have clearly defined research designs producing objective evidence, as well as a focus on one or more organizations offering some form of microfinance with individual or combined health services of any type, including:

- health education and promotion;
- direct provision of health-care services;
- health-related financial services (e.g. health loans, health savings or health microinsurance);
- community health workers;
- linkages to the provision of health services;
- micro-loans to private health providers for improved capacity or infrastructure; and
- access to health-related products such as pharmaceuticals, mosquito nets, etc.

Studies that primarily assessed the impact of microfinance services alone on the health of a microfinance client, family, household or community were excluded from the review.

We searched 10 electronic databases: Academic OneFile via InfoTrac Web (from 1980), Applied Social Sciences Index and Abstracts (ASSIA) (from 1987), Contemporary Women’s Issues via OCLC FirstSearch (from 1992), EconLit (from 1969), Embase (from 1988), POPLINE (from 1970), PubMed (from 1947), ScienceDirect (no date limit), Web of Science (from 1955), and Wiley InterScience (no date limit). In Embase, we used the advanced search feature to search for (Microfinanc* or microcredit* or micro-financ* or micro-credit* or village bank* or women* bank*) and (health* or disease* or insurance). Search strategies for the other databases, adjusted for the technical constraints of each database, are available from the corresponding author.

Using these search criteria, we identified 2091 articles in the 10 electronic databases (including duplicates across databases). One reviewer examined the titles of all of the articles identified by the search and selected articles for further review. After removing duplicates, the abstracts of 52 articles were reviewed by two authors with 33 of these articles selected for full-text review. Additional articles were reviewed from colleagues, forward searches and industry websites to ensure the search was comprehensive. Seventeen articles met the final criteria for

inclusion. We then carefully reviewed these articles for information about study design, outcomes and limitations, and have assigned the studies into three categories in terms of the of research design.

Challenges and limitations

There is a growing but still small number of studies that aim to document the impact of integrating microfinance services with health. The research limitations that apply to this body of literature have been described by Mohindra (2009) and include problems finding control groups; self-selection by clients joining MFIs (thus a potential bias toward healthier, more motivated people); non-random placement of microfinance programmes (thus a potential bias toward better-off, more co-operative communities or toward worse-off, even dysfunctional communities, depending on the priorities of the MFI); the complexity of the health production function; and finally, the many factors related to the different contexts in which MFIs operate that can affect performance and outcomes. The studies are constrained in the scope of interventions evaluated and are uneven in the rigour of research methodologies and thus limited in ability to demonstrate strong causal links between programme participation and improved health. The need for further research is clear and discussed later in conclusions.

Findings

The broad topic of health benefits derived from participation in microfinance services can be divided into three categories:

- (1) The impact of microfinance services alone on the health of a microfinance client, family, household or community.
- (2) The impact of integrating microfinance with some form of health-related services such as education, community health workers, health loans, product distribution, among many others for microfinance clients (predominantly women).
- (3) The impact of social enterprises for health service/product delivery where the health entrepreneur may or may not be a microfinance client and may serve both microfinance clients and non-clients. For example, we found studies on the use of microloans to private health-care providers to invest in their infrastructure, capacity and/or resources.

Our review focuses only on the intentional linkages of health-related services and products with microfinance, specifically findings in categories two and three above. The review identified 17 articles meeting our final criteria for inclusion, sorted by study design and categories of health-related interventions (Table 2). The articles are categorized into three study design types: those using pre- and post-intervention measurements in treatment and control groups (Type A); those comparing post-intervention measures in treatment and control groups (Type B); and those comparing pre- and post-intervention measures in the same group (Type C). Generally, the first of these three types of designs is considered the most methodologically rigorous. The methods and the findings are discussed below (and summarized in the Appendix Table), followed by a discussion section synthesizing the individual studies and discussing implications.

Type A evaluations

Agha et al. (2004)

Agha *et al.* (2004) tested the effects of distributing microfinance loans and business training to private sector midwives in Uganda. Using a quasi-experimental design with baseline and follow-up surveys of clients in both treatment and control clinics, they assessed the impact on client perceptions of quality and patient loyalty. The surveys were cross-sectional exit interviews with clinic clients ($n=779$ at treatment clinics, $n=439$ at control clinics) and longitudinal at the clinic level ($n=15$ treatment, $n=7$ control). In clinics that received loans, client perception of quality and service improved and higher client loyalty was observed.

Despite the pre- and post-intervention interviews in treatment and control groups, several limitations may constrain the findings. The assignment of treatment and control groups was purposive, and resulted in the control groups being located in an area with a large number of public clinics. During the study period, user fees at public clinics were abolished, causing secular changes in the non-intervention group. Additionally, the cross-sectional samples did not allow the authors to re-interview clients who stopped coming to a particular clinic. This may cause bias if these clients are systematically different or stopped for reasons related to the intervention.

Ahmed et al. (2006)

Ahmed *et al.* (2006) examined the effect of integrated grants, subsistence allowance, and health services and education on health-seeking behaviour of the ultra-poor in Bangladesh. Designed to help the ultra-poor overcome barriers to accessing existing services, the health component included essential health care services, counselling, free installation of latrines and financial assistance for health costs, among others. The areas for interventions were purposively selected and the intervention was given to everyone who qualified ($n=2189$ at baseline), with control households ($n=2134$ at baseline) from the same areas selected from the pool of ineligible ultra-poor community members. After the intervention, the same households were re-interviewed (96% follow-up rate) to assess the effect of the programme. Among the experimental households, poverty status improved, increasing the capacity for household health expenditures; this resulted in increased use of formal health services. Additionally, these households demonstrated increased health knowledge and awareness of available resources.

The study limitations include the fact that the households excluded from the intervention are likely to be systematically different, causing selection bias. Secular trends in the control group may have been caused through demonstration effects and advocacy of the intervention; however, contamination, if present, would likely cause the results to be somewhat understated from their true values.

Desai and Tarozzi (2010)

In a randomized control trial in Ethiopia, Desai and Tarozzi (2010) evaluated the effect of linking microcredit and family planning services. 133 areas were randomly assigned to one of four groups: microcredit services only, family planning services only, microcredit and family planning services, and control. They conducted baseline and follow-up surveys of

Table 2 Articles identified through systematic review for inclusion*

Study (publication date)	Country	Design	Type of intervention							
			Health education and promotion	Direct provision of health-care services	Access to health-related financial services	Community health workers	Linkages to provision of health services	Microloans to private health providers for improved capacity or infrastructure	Access to health-related products such as pharmaceuticals, mosquito nets, etc.	
Agha <i>et al.</i> (2004)	Uganda	A							X	
Ahmed <i>et al.</i> (2006)	Bangladesh	A	X	X	X	X	X			
Amin <i>et al.</i> (2001)	Bangladesh	B	X			X				
Blanchard-Horan (2007)	Uganda	B			X					
De la Cruz <i>et al.</i> (2009)	Ghana	A (results analysed as B and C)	X							
Desai and Tarozzi (2010)	Ethiopia	A						X		X
Dohn <i>et al.</i> (2004)	Dominican Republic	A	X				X	X		
Hadi (2001)	Bangladesh	B	X				X			
Hadi (2002)	Bangladesh	B	X				X			
Kim <i>et al.</i> (2007)	South Africa	A	X				X			
Kim <i>et al.</i> (2009)	South Africa	A	X				X			
Pronyk <i>et al.</i> (2006)	South Africa	A	X				X			
Pronyk <i>et al.</i> (2008b)	South Africa	A	X				X			
Pronyk <i>et al.</i> (2008a)	South Africa	A	X				X			
Seiber and Robinson (2007)	Uganda	A								X
Sherer <i>et al.</i> (2004)	Malawi, Guatemala and Thailand	C	X							
Smith (2002)	Honduras and Ecuador	A	X							

*Type A research designs are those that include comparisons of a treatment and control group, as well as baseline and follow-up measures. Type B designs are those that include comparisons of a treatment and control group. Type C designs are those that compare baseline and follow-up measures for the same group.

cross-sections of households in the study areas ($n=6440$ households baseline, $n=6275$ households follow-up). Using an intent-to-treat analysis, they found that none of the interventions significantly increased contraceptive use or the intent to use family planning over the control group.

Limitations of this study include possible contamination of the control groups by the availability of other services within these communities and the lack of longitudinal follow-up. One major problem with the study was that the family planning methods available through the implementing organizations (pills and condoms) were not well matched to the services desired in the communities (injectibles). Additionally, during the time period there were major economic and demographic changes happening within all of the groups, including the control, that were likely unrelated to the interventions.

Dohn et al. (2004)

Using a quasi-experimental research design, Dohn *et al.* (2004) implemented and evaluated a 13-month health promotion programme targeting childhood illness and women's health in the Dominican Republic. The intervention employed monthly visits to households by community-based health promoters. Evaluation was conducted using cross-sectional baseline and follow-up interviews ($n=27$ households per community) in three communities: one with an existing microcredit programme, one with the new health promotion programme and one with both programmes. The three communities were purposively selected for inclusion; the two communities with the health promotion scheme were urban and adjacent, whereas the microcredit only community was in a semi-rural area. Using an intent-to-treat analysis within communities, Dohn *et al.* found that measured health indicators improved in all communities, but more of the indicators improved in the community with the health promotion and microcredit programme. In this treatment area, 9 of 11 health indicators improved including the use of vaccines and preventative services. The researchers also found there was some benefit to microcredit; as compared with areas without microcredit, there was improvement on 5 of 11 indicators.

Limitations of the findings include methodological problems such as the purposive selection of communities based on existing programmes and community willingness to participate, lack of longitudinal follow-up, and the urban/rural differences between the intervention and comparison groups.

IMAGE Study [Pronyk et al. (2006), Kim et al. (2007), Pronyk et al. (2008a), Pronyk et al. (2008b), Kim et al. (2009)]

The Intervention with Microfinance for AIDS and Gender Equity (IMAGE) combined a microfinance programme with gender and HIV training in South Africa for young women aged 14–35 years. The quasi-experimental research design pair-matched eight villages with no prior access to microfinance by size and accessibility; one village from each pair was randomly selected to receive the intervention. Pronyk *et al.* (2008a), Pronyk *et al.* (2008b) and Kim *et al.* (2007) evaluated the programme using interviews with loan recipients ($n=426$) and women from control villages, matched on age and poverty status ($n=419$). Follow-up interviews were conducted with re-interview rates of 90% for the intervention group and 84% for the comparison group. Women under age 35 were given an

additional survey about HIV risk behaviours ($n=108$ intervention, $n=112$ control), used by Pronyk *et al.* (2008b). These 845 women are in cohort 1 of the study conducted by Pronyk *et al.* (2006). Pronyk *et al.* (2006) also included two other cohorts in each of the control and treatment areas: cohort 2, household co-residents aged 14–35 years ($n=1455$; 75% and 71% follow-up in treatment and control, respectively); and cohort 3, community residents aged 14–35 years ($n=2858$; 58% and 63% follow-up). Additionally, 105 transcripts were examined from focus groups, informant interviews and loan group observations.

In intervention groups, Pronyk *et al.* (2008b) found higher levels of HIV-related communication, higher likelihood of having used voluntary counselling and testing, and lower likelihood of having had unprotected sex at last intercourse with a non-spousal partner. Qualitative data showed a greater acceptance of intra-household communication about HIV and sexuality. Kim *et al.* (2007) found that participating in the intervention was associated with a significantly reduced risk of past year physical or sexual violence with an intimate partner. Additionally, all nine indicators of empowerment were increased in the intervention group, although only one was a statistically significant increase after adjusting for baseline measurements. Pronyk *et al.* (2006) found a significant reduction (55%) in intimate partner violence for participants in the integrated programme. They did not find the intervention to have an impact on the rate of unprotected sexual intercourse in young household residents of participants, or on HIV incidence in cohort 3.

Limitations of the overall study design include non-random selection of villages due to the pair-matching, selection bias resulting from interviewing women who chose to take up the intervention (loan recipients), a small number of clusters ($n=8$) and secular changes resulting from increased access to government grants in the study areas. Additionally, since the control group in cohort 1 is exposed to neither microfinance nor health education, it is unclear which of these interventions is more useful.

To account for the control group not being exposed to health education or microfinance, a third group of villages was later selected for a microfinance only intervention, with baseline and follow-up data collected. Kim *et al.* (2009) found that both the microfinance only and IMAGE groups showed economic improvements relative to the control, and improvements were not statistically different from one another. The IMAGE programme had consistent associations across all measures involving women's empowerment, intimate partner violence and HIV risk behaviour, although only some of the empowerment measures were significantly different from microfinance alone. Although this additional control group helped separate the contributions of each part of the programme, it does not control for any secular changes in the 2 years between the IMAGE implementation and when this group was recruited.

Seiber and Robinson (2007)

As a follow-up programme to the credit system described in Agha *et al.* (2004), Seiber and Robinson (2007) gave loans and business skills training to private sector health workers in Uganda, including doctors, nurses, clinical officers, pharmacists

and midwives. They conducted cross-sectional baseline and follow-up exit interviews with clients at intervention clinics ($n=22$) and control clinics ($n=7$) (total $n=2387$ clients). Seiber and Robinson found that perceived quality improved among clinics receiving the intervention, and clients were more likely to choose these clinics based on drug availability, fair charges, cleanliness and confidentiality. They found mixed results for loyalty to the clinic for those receiving the intervention; they found lower levels of loyalty, but this may be attributable to increased client flows.

Limitations of this study include the non-equivalent control groups, differences between areas in the number of public clinics available and the lack of longitudinal follow-up at the client level, which could lead to selection bias.

Smith (2002)

In urban slums of Honduras and rural villages of Ecuador, Smith (2002) compares conventional village banking with a health bank model combining microfinance and health education services. Three groups of women with and without children under 2 years of age were formed: members of credit-only bank, members of health bank and non-members (total participants: $n=981$ Honduras, $n=963$ Ecuador). Baseline and follow-up cross-sectional surveys were conducted. In both countries, health bank participation raised subsequent health care use (specifically cancer screening) over credit-only participation. In Honduras, being a member of the health bank was associated with reduced probability of diarrhoea. In Ecuador, Smith found that village banking may lower diarrhoea probability, but adding a health tie-in does not have a further effect. There was little statistical evidence that the intervention impacted the probability of breastfeeding.

Study limitations include purposive selection of communities in which to put banks and the selection of women into the banks. Additionally, the lack of longitudinal follow-up of women may bias the results if women who are in the programme at the end of the period, and therefore eligible to be interviewed, are systematically different from those who drop out during the intervention.

Type B evaluations

Amin et al. (2001)

Amin *et al.* (2001) used a quasi-experimental design to assess the impact of the integration of microcredit with family planning, an Extended Program of Immunizations (EPI) and later an Essential Services Package (ESP) of reproductive, maternal and child health services. The integration of the ESP was through the operation of an NGO clinic. In the two study phases there were experimental and control areas. The first phase employed cross-sectional baseline and follow-up surveys in the experimental area ($n=2105$), with post-intervention measurement only in the control area ($n=1721$). The second phase, which was the expansion of the ESP and opening of the clinic, was evaluated with a follow-up survey 6 months after implementation with no baseline ($n=1068$ experimental, $n=700$ control). Amin *et al.* found a significant increase in contraceptive use, a decline in fertility, and an increase in dissemination of information and utilization of ESP services in broader community. They did not find a significant difference

between the two groups in the decline in infant mortality. Outcomes may have been enhanced by the ability of health promoters to effectively link clients to a well-managed health clinic where they could obtain recommended services.

Study limitations include the purposive selection of the experimental and control areas, concurrent programmes in microfinance and family planning operating in all areas, and the lack of baseline surveys.

Blanchard-Horan (2007)

Using a multi-site qualitative case comparison study in Uganda, Blanchard-Horan (2007) studied the effect of health micro-insurance (HMI) on participants' knowledge of malaria and on delays in seeking care for malaria. HMI was offered in three separate areas: in one area the HMI was offered through a MFI to groups in which 60% of members agreed to pay the premiums; in the second, HMI was targeted through several avenues, one of which was 'credit and savings programmes'; in the third, no MFIs were involved. Selected subjects were interviewed ($n=203$) and self-reported their enrolment in a HMI scheme to create treatment and control comparisons. Blanchard-Horan found no difference in the awareness of malaria, although non-enrollees were likely to wait longer for treatment and had slightly higher hospital admission rates.

The findings of this study are limited by the selection bias; those who select into an insurance scheme are likely systematically different than those who choose not to enrol. Additionally, insurance status was self-reported, which may not be a reliable measure.

De la Cruz et al. (2009)

As reported by De la Cruz *et al.* (2009), microcredit members in selected communities in Ghana were randomized to receive either malaria education or diarrhoea education. Researchers conducted a cross-sectional baseline and follow-up survey ($n=213$ malaria education, $n=223$ diarrhoea education, $n=268$ control). Although pre- and post-intervention data were collected for treatment and control areas, the authors analysed the data over time within groups and across groups for the same time period, instead of doing a difference-in-difference analysis. At follow-up, malaria education clients scored significantly higher on several knowledge indicators. Baseline to follow-up comparison within groups showed significant improvement on knowledge indicators in all groups; the clients with malaria education have the largest absolute difference, although the authors do not report the statistical significance. Additionally, malaria clients were also significantly more likely than non-clients to own at least one bed net at follow-up.

There were several limitations to this analysis: baseline differences between groups, variation in educational session attendance, differences in interview locations between clients and non-clients, and conducting the baseline and follow-up interviews in different malarial season environments. The authors claim that the seasonality of the interviews would actually cause their results to be understated. Self-reported information on bed net ownership and use is known to have reliability issues.

Hadi (2001)

In Bangladesh, Hadi (2001) selected 500 women with at least one child under 5 years in an area where there was an integrated microcredit and health programme in place prior to the survey. The programme included health education, community health workers and direct provision of some health services. Women in credit groups ($n=258$, combined for those participating for less and more than 5 years), poor women who were eligible but did not join ($n=118$) and women of non-eligible households ($n=124$) were selected for evaluation. Hadi found higher levels of health knowledge relating to pre- and post-natal care among credit forum participants than non-participants. Additionally, he found that longer duration of membership with the integrated programme corresponded with a higher likelihood of having increased knowledge.

The study utilized a cross-section of members and non-members for an existing intervention and is thus subject to significant selection bias. The clients who are earlier adopters of microcredit are likely different, both in measured and un-measured ways. Additionally, without a baseline measurement, it is difficult to attribute the findings entirely to the health promotion programme.

Hadi (2002)

Hadi (2002) used a cross-sectional survey of women with a child under 5 years to evaluate the effects of using community health workers to educate women about acute respiratory infections (ARI). This intervention, in rural Bangladesh, was combined with microcredit. Surveys were conducted with three groups of women: members ($n=958$), non-members ($n=1239$) and those not eligible for microcredit ($n=618$). Hadi found that credit alone raised knowledge of ARI prevention and symptoms, but the effect was even greater when health education and microfinance were combined.

Based on the cross-sectional design of this survey, there is significant selection bias of women into the credit programme. Comparisons with non-eligible members of the community do not control for this, as these women are also likely to be quite different. Without a baseline, the results are difficult to interpret.

Type C evaluations**Sherer et al. (2004)**

In Malawi, Guatemala and Thailand, an integrated microcredit and health education programme was implemented. Sherer *et al.* (2004) evaluated the programme using surveys on income and health knowledge. To evaluate financial outcomes, the researcher interviewed new clients at baseline and conducted follow-up interviews 1 year later ($n=227$ Guatemala, $n=68$

Malawi, $n=208$ Thailand). Cross-sectional interviews of new clients and clients who had been in the programme for 1 year were used to evaluate the change in health knowledge. Sherer *et al.* found improvements in household income ranging from 22% to 64%. Small but significant gains in health knowledge were found in all three countries. There were also significant increases in the percentage of women seeking care for signs of sexually transmitted infections, and in the percentage accessing primary care for child health.

This evaluation is limited by the lack of a control group for comparison purposes and a likely selection bias in that people who take up the intervention, and participate throughout the year, may be systematically different from those women who drop out and are not accounted for in the evaluation.

Discussion

The available evidence is of uneven strength but does tend to support integrating microfinance and health services. In this section, we identify the general areas of benefit that may be of most interest and utility to institutions, policy makers and practitioners for the design, implementation and support of integrated programmes. Table 3 summarizes where the reviewed studies report interventions associated with positive benefits.

Impact of health education and promotion on client knowledge

Health education, often delivered during routine microfinance group meetings, can improve knowledge and lead to behavioural change associated with positive health outcomes in diverse areas that are critically important to achieving the MDGs, such as maternal and child health and infectious disease (Leatherman and Dunford 2010). Most of the studies assessed the impact of health education and health promotion activities on some aspect of client health knowledge and practice. The majority of studies found significant improvement in client health knowledge when microfinance services were combined with health education, whether this was provided by MFI staff through regular client education sessions (Hadi 2001; Smith 2002; Sherer *et al.* 2004; Pronyk *et al.* 2006; Kim *et al.* 2007; De la Cruz *et al.* 2009), or community outreach with trained community health workers (Hadi 2002; Amin *et al.* 2001; Dohn *et al.* 2004; Ahmed *et al.* 2006). An interesting finding reported by Amin *et al.* was the diffusion of information, specifically an increase in dissemination of information and utilization of an Essential Services Package (reproductive, maternal and child health services) in the broader community beyond the targeted population of the programme.

Table 3 Type of health intervention and benefit achieved

Intervention	Client knowledge	Health behaviour	Use of health services	Client health outcome	Improving health services
Health education/promotion	X	X	X	X	
Health clinic and trained community workers	X	X	X	X	X
Linkages to community providers	X	X	X		
Health microinsurance			X		
Microloans to health providers			X		X

Impact on client and household health behaviours

Beyond improved health knowledge, multiple studies assessed and found improvements in self-reported changes in health practices of MFI clients related to leading causes of morbidity and mortality among the poor, such as diarrhoea (Smith 2002) which is both the most common cause of illness and the second leading cause of child death in the world (GAVI Alliance 2009). Changes in behaviour were reported in a diverse range of health areas including reproductive health, malaria and gender-based violence (Amin *et al.* 2001; Smith 2002; Sherer *et al.* 2004; Ahmed *et al.* 2006; Pronyk *et al.* 2006; Blanchard-Horan 2007; Kim *et al.* 2007; Pronyk *et al.* 2008b). This has significant implications, if able to reach large populations, for mitigating the negative impact of common morbidities and threats to health and life.

Impact on use of health services

Improving access to effective health care services can be accomplished by addressing the barriers to health care previously mentioned: knowledge, affordability and geographic reach. Several studies assessed the impact of education on use of health services. For example, Sherer *et al.* (2004) in Malawi, Thailand and Guatemala found significant increases in the percentage of women seeking care for signs of sexually transmitted infection and seeking primary care for child health. Increased utilization of preventive services was found in several studies, including vaccination uptake in the Dominican Republic and cancer screening in Honduras and Ecuador (Smith 2002; Dohn *et al.* 2004).

Research is scant on the impact of health financing options (offered with other microfinance services) to facilitate affordability, but innovations in health financing options for the poor is a gap needing attention. Recent literature confirms what has been intuitively known; the poor not only bear a disproportionate share of the global disease burden, but also are unable to manage the costs of health care, even when medically necessary. In northern Ghana the cost of malaria treatment represented just 1% of wealthy households' income, but 34% of poor households' income (Barat *et al.* 2004). A study from Kenya showed that 30% of all households faced 'potentially catastrophic cost burdens' as a result of illness (Chuma *et al.* 2007); this type of liability can totally subvert any gains made in microenterprise at a household level. The effects of health microinsurance on health behaviours—specifically seeking treatment for malaria—were studied by Blanchard-Horan (2007) in Uganda. Findings indicated that participants with health insurance were less likely to delay seeking care for malaria than those without, and a higher number of those without insurance were admitted to the hospital, suggesting that those with insurance seek care earlier when the disease is less severe. This is consistent with findings from a study in Senegal (not specific to microfinance clients so not included in the evidence table), which analysed the impact of community financing on access to health care, and found that a mutual health insurance scheme resulted in members having a higher probability of using hospitalization services than non-members and at a reduced cost (Jütting 2003). This is also consistent with other published studies; a global evidence review of the impact of health microinsurance has been completed and is

forthcoming (Leatherman *et al.* 2010). As health microinsurance is unlikely to be targeted toward the ultra-poor because of increased risks, it is of particular interest and import that the BRAC Integrated Program in Bangladesh (Ahmed *et al.* 2006) resulted in increased use of formal allopathic care and reduced self-care as a result of increasing the capacity for health-related spending among the targeted ultra-poor population.

Impact on building community capacity for health services

The World Health Organization (2007) has stated that it will be impossible to achieve international and national goals (including the MDGs) without innovation and investment in effective health services and systems in the public and private sectors. Integrated programmes of microfinance and health can act as catalysts to strengthen community health capacity in a number of novel ways, ranging from national-level initiatives to targeted local strategies.

Perhaps the best illustration of this integration at the national level is in Bangladesh. There, institutions such as BRAC have launched integrated programmes over the past three decades to combat poverty by combining health, education and credit services, including partnering with the national government for large-scale tuberculosis control (described in health outcomes section below) and malaria control initiatives.

At the local level, our review yielded two studies (Agha *et al.* 2004; Seiber and Robinson 2007) demonstrating how microloans can be deployed for health capacity-building in communities. Private health providers were given microloans and business skills training with the tandem goals of increasing the capacity of small-scale, private health-care practices and improving public health outcomes. The results included investments by providers, such as facility improvements and expanded pharmaceutical supplies. Results indicated that clients noticed improvements, resulting in increased client flow. Although these are just two studies, the potential implications merit further testing of microloans to health providers as a means of improving health facilities' infrastructure and capacity, supporting workforce enhancements, and increasing both demand and choice among the poor for health services.

Health outcomes

Although health outcome data are infrequently collected, there are multiple studies that included changes in health status or other outcome indicators. Integrating the delivery of health education with microfinance, a strategy that is replicable across the world, resulted in positive outcomes in a number of significant areas, including the following:

- reproductive health;
- prevention and primary care for children;
- child nutrition and breastfeeding;
- child diarrhoea;
- HIV prevention;
- domestic abuse/gender-based violence;
- tuberculosis; and
- sexually transmitted infections.

The BRAC Tuberculosis Control Program, in co-operation with the Bangladesh government, achieved high rates of detection (at least half of existing cases were detected by the programme) and treatment compliance with a cure rate of over 85% and a dropout rate of 3.1% (Mushtaque 1997, not included in the evidence table due to lack of explicit link to microfinance). In the Dominican Republic (Dohn *et al.* 2004) and Honduras (Smith 2002), studies found significant improvements in a range of indicators spanning knowledge, behaviour and health outcomes, including reductions in rates of childhood diarrhoea. In the IMAGE Study, researchers Kim *et al.* (2007) and Pronyk *et al.* (2006) found that the risk of physical or sexual abuse by intimate partners was reduced by more than half. Amin *et al.* (2001) found a significant increase in contraceptive use and a decline in fertility.

This listing of areas of positive outcome has broad implications for significant reductions in morbidity and mortality. This is important information that can guide practitioners, funders and policy makers in identifying priority areas for investment in health-related services for microfinance clients.

Summary

The poor need access to a co-ordinated set of financial and other development services to improve household resources and health. MFIs offer a unique and underutilized opportunity, admittedly with challenges, for delivery of health-related services to those most in need. The evidence is instructive in clearly indicating that the addition of health-related programmes to microfinance services can change knowledge and behaviours associated with important and measurable health outcomes as diverse as reductions in fertility, decreases in morbidity, abatement of gender-based violence and changes in utilization of health services.

Though the evidence supports the adoption and testing of various methods of integrating microfinance and health services, the challenges in doing so are not trivial. Implementation of these health-related services requires knowledge and competencies beyond those necessary for microfinance alone, adjustments in administrative systems, quality control of service delivery, additional types of communication and education capabilities, and ongoing co-operation and co-ordination with the official policies and systems of both private and public sectors.

Organizations which currently offer microfinance (both MFIs and NGOs) and are seeking to add health-related services need information in order to make judicious decisions regarding which programmes and interventions are the best investment for their clients and also feasible and reliably sustainable for the institution. Usually these organizations operate very leanly, dealing with considerable complexity and adversity, and simply do not have the luxury of testing to compare multiple options.

This review identifies the weaknesses of applied research in this field. Notable are gaps regarding study of the range of health interventions that are or could be integrated with microfinance programmes. Most of the studies examined the impact of only health education and training to improve health knowledge and change behaviours, mainly because health education is by far the most common intervention integrated with microfinance. Even in health education, there are significant gaps, such as education about chronic disease. Figure 1 provides a summary view of the full range of health-related needs of current and future microfinance clients and an illustrative spectrum of the health-related interventions that could be developed and refined for clients and their families and communities. This offers a high-level road map for further research and development.

The careful design, implementation and evaluation of cross-sectoral programmes to link microfinance and health represents an innovative approach to addressing the ongoing challenges of

Client needs	Awareness/knowledge of health practices	Ability to pay for health expenses	Access to competent health-care workers in community	Access to health-related products and services	Access to predictable health coverage
Illustrative responses	Health education and promotion	Health loans and savings accounts	Linkages to health providers Facilitated referrals Trained community health workers Microloans to private providers for capital investment	Co-ordination w/public providers Social health entrepreneurs Community dispensaries	Prepaid health and insurance plans Contracted arrangements with government programmes

Figure 1 Range of health-related interventions to serve microfinance client needs

poverty, social exclusion, chronic hunger, high maternal and infant death rates, the spread of infectious diseases, and the rising incidence of chronic illness. This is currently an underutilized strategy with unrealized potential. There is clear opportunity, perhaps even an imperative, for the microfinance and public health communities to engage with each other more actively and collaboratively.

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Appendix A

Evidence Table: Summary from literature search

Study (date)	Country	Design	Subjects and sample	Study aim	Research intervention	Key findings
Agha <i>et al.</i> (2004)	Uganda	<ul style="list-style-type: none"> Quasi-experimental Cross-sectional baseline and follow-up surveys 	<ul style="list-style-type: none"> Clinic users of midwife clinics ($n = 22$) 779 users of clinics with microfinance institution (MFI) loans 439 users of clinics without loans 	To assess impact on client perceptions of quality and patient loyalty of providing business skills training and loans from MFI to private sector midwives	Business skill training and MFI loans to private sector midwives	<ul style="list-style-type: none"> Improvement in client perceptions of quality and service Higher client loyalty High rate of loan repayment followed by additional and larger loans (at midwife level)
Ahmed <i>et al.</i> (2006)	Bangladesh	<ul style="list-style-type: none"> Quasi-experimental Cross-sectional baseline and follow-up surveys 	<ul style="list-style-type: none"> 2189 intervention households and 2134 control households (high concentration of ultra-poor households) Selected from 3 purposively selected districts, composed of 21 sub-districts 	To examine whether targeted intervention could change health-seeking behaviour of ultra-poor towards greater use of health services/ 'formal allopathic' providers	BRAC programme for integrated health and social protection targeting the ultra-poor	<ul style="list-style-type: none"> Poverty status was improved, increasing capacity for health expenditures Increased health knowledge, awareness of resources, immunizations, and perceived health status and use of formal health services
Amin <i>et al.</i> (2001)	Bangladesh	<ul style="list-style-type: none"> Quasi-experimental 	<ul style="list-style-type: none"> Women 15–50 years of age Phase 1: 1992 pre-intervention household survey of 656 women from experimental area; 1997 post-intervention survey of 2105 women and 1721 women from experimental and control areas, respectively Phase 2: 1998 post-intervention survey of 1068 women and 700 women from experimental and control areas, respectively 	To assess impact of a pilot with expansion of immunizations and an Essential Services Package (ESP) on reproductive, maternal and child health	<p>Phase 1: Integration of family planning and Extended Program of Immunizations</p> <p>Phase 2: Incremental addition of ESP of reproductive, maternal and child health services</p>	<ul style="list-style-type: none"> Significant increase in contraceptive use and decline in fertility No decline in infant mortality Increase in dissemination of information and utilization of ESP services in broader community
Blanchard-Horan (2007)	Uganda	<ul style="list-style-type: none"> Multi-site case comparison study 	<ul style="list-style-type: none"> Health micro-insurance participants and non-participants; 203 qualitative interviews 	To examine effect of micro-insurance on how quickly 3 different MFI groups waited to seek care for treatment of malaria and knowledge of malaria (causes and prevention)	Enrolment in health micro-insurance scheme (one area through MFI, one area through 'credit and savings organizations', third through traditional groups)	<ul style="list-style-type: none"> No difference in awareness of malaria Non-enrollees likely to wait longer for treatment Hospital admission rates slightly higher for non-enrollees with no difference in length of stay
De la Cruz <i>et al.</i> (2009)	Ghana	<ul style="list-style-type: none"> Community randomized trial 	<ul style="list-style-type: none"> 3 groups: malaria education ($n = 213$); diarrhoea education ($n = 223$); control ($n = 268$) 	To explore impact of malaria education among micro-credit clients on malaria knowledge and behaviours	Health education	<ul style="list-style-type: none"> Malaria education programme effective in knowledge measures (ex. malaria risk and pregnancy complications) and changes in behaviours such as purchase and use of mosquito nets Malaria education did not impact treatment-seeking behaviours of children <5 years

(continued)

Appendix A Continued

Study (date)	Country	Design	Subjects and sample	Study aim	Research intervention	Key findings
Desai and Tarozzi (2010)	Ethiopia	<ul style="list-style-type: none"> Randomized control trial Cross-sectional baseline and follow-up surveys 	<ul style="list-style-type: none"> 133 peasant associations (administrative areas) randomly allocated, stratified by region. Baseline and follow-up cross-sectional surveys of households ($n = 6440$); follow-up $n = 6275$) Analysed in 2 regions, programme implemented by different organizations 4 groups: credit and family planning services; family planning only; credit only; neither 	Evaluate the effect of linking micro-credit and family planning programmes on contraceptive use	Combined microcredit and family planning services	<ul style="list-style-type: none"> Neither type of intervention increased contraceptive use, or intention to use family planning
Dohn <i>et al.</i> (2004)	Dominican Republic	<ul style="list-style-type: none"> Quasi-experimental Cross-sectional baseline and follow-up surveys 	<ul style="list-style-type: none"> 27 households in each area 3 communities: health promotion only, microcredit only, both health promotion and microcredit programme (parallel administration by MFI and education programme) Different households at baseline and follow-up 	To assess impact of microcredit and health promotion programmes (offered by community health workers) separately and as integrated approach	Health promotion programme by trained community-based health promoters targeted at childhood illness and women's health (breast and cervical cancer screening)	<ul style="list-style-type: none"> Results for health indicators improved for all communities, but highest for community with parallel health promotion and microcredit programme in 9 of 11 indicators Some benefit to microcredit (improvement on 5 of 11 indicators)
Hadi (2001)	Bangladesh	<ul style="list-style-type: none"> Cross-sectional survey 	<ul style="list-style-type: none"> 500 women with at least one child aged <5 selected from surveillance region in three groups: women in credit groups >5 years; women in credit groups <5 years (combined participants, $n = 258$); poor women who were eligible but did not join ($n = 118$); women of non-eligible households ($n = 124$) 	To assess the contribution of health promotion activities administered through a microcredit institution on women's knowledge of certain aspects of pre- and post-natal care	Integrated microcredit and health programme, including health education, community health workers, and direct provision of some health services	<ul style="list-style-type: none"> Higher levels of health knowledge among credit forum participants than non-participants Duration of membership (longer duration corresponded with higher likelihood of having increased knowledge) and exposure to media coverage were also significantly correlated with increased knowledge
Hadi (2002)	Bangladesh	<ul style="list-style-type: none"> Cross-sectional survey 	<ul style="list-style-type: none"> Women with at least one child aged <5 ($n = 2814$ total) selected in 3 groups: non-credit participants ($n = 1239$); active credit participants ($n = 958$); non-eligible ($n = 618$) 	To assess impact of using community health workers to expand maternal knowledge of prevention and symptoms of acute respiratory infections (ARI) in children <5 years	Community health worker outreach programme related to detection and treatment of ARI	<ul style="list-style-type: none"> Significantly higher knowledge of ARI prevention and symptoms in areas with both credit and educational outreach programme

(continued)

Appendix A Continued

Study (date)	Country	Design	Subjects and sample	Study aim	Research intervention	Key findings
Kim <i>et al.</i> (2007)	South Africa	<ul style="list-style-type: none"> Quasi-experimental Longitudinal baseline and follow-up surveys 	<ul style="list-style-type: none"> 8 villages pair-matched and randomly allocated within pairs to receive intervention Selected 2 groups: women enrolled in microcredit/education programme; women from control communities age and poverty matched to loan recipients 430 loan participants and equal number of matched control participants 	To examine impact of combining micro-loans and comprehensive training and education on intimate partner violence and HIV prevention on women's empowerment	Integrated micro-loans and comprehensive training and education on intimate partner violence and HIV prevention	<ul style="list-style-type: none"> After 2 years the risk of past-year physical or sexual violence by intimate partners was reduced by more than half Improvements in all 9 indicators of women's empowerment
Kim <i>et al.</i> (2009)	South Africa	<ul style="list-style-type: none"> Quasi-experimental Longitudinal baseline and follow-up surveys 	<ul style="list-style-type: none"> 8 villages pair-matched and randomly allocated within pairs to receive intervention Selected 3 groups of women aged 14–35: women enrolled in microcredit/education programme (IMAGE); matched sample from control community; group of microfinance only 430 loan participants and equal number of matched control participants; 549 in control group of MF only 	To compare impact of combining micro-loans and comprehensive training and education on intimate partner violence and HIV prevention on women's empowerment with the impact of microfinance alone	Integrated micro-loans and comprehensive training and education on intimate partner violence and HIV prevention	<ul style="list-style-type: none"> Both microfinance only and IMAGE groups showed economic improvements relative to control, but not statistically different from one another IMAGE group showed consistent associations across all measures involving women's empowerment, intimate partner violence and HIV risk behaviour, although only some of the empowerment measures were significantly different from microfinance alone
Pronyk <i>et al.</i> (2006)	South Africa	<ul style="list-style-type: none"> Quasi-experimental Longitudinal baseline and follow-up surveys 	<ul style="list-style-type: none"> 8 villages pair-matched and randomly allocated within pairs to receive intervention 3 cohorts of women aged 14–35 in each of the treatment and control communities Cohort 1: Women in micro-credit/education programme ($n=843$; 90% and 84% follow-up in treatment and control); Cohort 2: Household co-residents aged 14–35 years ($n=1455$; 75% and 71% follow-up); Cohort 3: Community residents aged 14–35 ($n=2858$; 58% and 63% follow-up) 	To examine the impact of combining micro-loans and a comprehensive training and education intervention on intimate-partner violence (cohort 1), unprotected sexual intercourse (cohort 2) and HIV incidence (cohort 3)	Integrated micro-loans and comprehensive training and education on intimate partner violence and HIV prevention	<ul style="list-style-type: none"> Reduction (55%) in intimate partner violence for participants in integrated programme No impact on rate of unprotected sexual intercourse in young household residents of participants, or on HIV incidence in cohort 3

(continued)

Appendix A Continued

Study (date)	Country	Design	Subjects and sample	Study aim	Research intervention	Key findings
Pronyk <i>et al.</i> (2008a)	South Africa	<ul style="list-style-type: none"> Quasi-experimental Longitudinal baseline and follow-up surveys 	<ul style="list-style-type: none"> 8 villages pair-matched and randomly allocated within pairs to receive intervention Women aged 14–35 receiving the intervention ($n = 426$) and age and poverty matched women from treatment communities ($n = 419$) 105 transcripts (focus groups, interviews, loan group observations) for qualitative part of study 	To assess effects of combined microfinance and training intervention on social capital among young female participants in rural South Africa	Integrated microfinance with education/training on AIDS	<ul style="list-style-type: none"> Higher levels of structural and cognitive social capital in intervention groups, although the increases were not statistically significant after controlling for baseline measures Qualitative research showed ways in which economic and social gains enhanced participation in social groups
Pronyk <i>et al.</i> (2008b)	South Africa	<ul style="list-style-type: none"> Quasi-experimental Longitudinal baseline and follow-up surveys 	<ul style="list-style-type: none"> 8 villages pair-matched and randomly allocated within pairs to receive intervention Women aged 14–35 receiving the intervention ($n = 112$) and age and poverty matched women from treatment communities ($n = 108$) interviewed about HIV risk behaviour 105 transcripts (focus groups, interviews, loan group observations) for qualitative portion of study 	To assess effects of combined microfinance and training intervention on HIV risk behaviour among young female participants in rural South Africa	Integrated microfinance with education/training on AIDS	<ul style="list-style-type: none"> Participants had higher levels of HIV-related communication, were more likely to have accessed voluntary counselling and testing, less likely to have had unprotected sex at last intercourse with non-spousal partner Greater acceptance of intra-household communication about HIV and sexuality
Seiber and Robinson (2007)	Uganda	<ul style="list-style-type: none"> Quasi-experimental Cross-sectional baseline and follow-up surveys 	<ul style="list-style-type: none"> Clients at small private sector health clinics Exit interviews at intervention ($n = 22$) and comparison ($n = 7$) clinics ($n = 2387$ clients total) 	To assess the impact after 2 years of micro-loans and business skills training on client perceptions of quality and patient loyalty for preventive and curative health services	Business skill training and micro-loans to private sector providers	<ul style="list-style-type: none"> Perceived quality improved among clinics receiving intervention Clients more likely to choose clinics based on drug availability, fair charges, cleanliness and confidentiality Increased client flows Mixed results for loyalty to clinic (found lower levels, but may be attributable to new clients)

(continued)

Appendix A Continued

Study (date)	Country	Design	Subjects and sample	Study aim	Research intervention	Key findings
Sherer <i>et al.</i> (2004)	Malawi, Guatemala, Thailand	<ul style="list-style-type: none"> • Quasi-experimental • Longitudinal (financial) and cross-sectional (health) baseline and follow-up surveys 	New MFI clients, and clients with 1 year experience in each of 3 countries: Malawi (<i>n</i> = 68), Thailand (<i>n</i> = 227), Guatemala (<i>n</i> = 208)	To assess the impact of integrated micro-lending and health education on income, health knowledge, and use of health services in 3 countries with high levels of HIV prevalence	Integrated microcredit and biweekly 1-hour health education sessions	<ul style="list-style-type: none"> • Improvements in household income ranging from 22% to 64% • Small but significant gains in health knowledge in all 3 countries • Significant increases in percentage of women seeking care for STI signs, and who accessed primary care for child health
Smith (2002)	Honduras and Ecuador	<ul style="list-style-type: none"> • Quasi-experimental • Cross-sectional baseline and follow-up surveys 	<ul style="list-style-type: none"> • 3 groups of women aged 15–49 years with and without children <2 years: members of credit-only bank; members of health bank; and non-members • <i>n</i> = 981 Honduras and <i>n</i> = 963 Ecuador 	To compare conventional village banking with their health-bank model (combining microfinance and health education services)	Integrated microcredit and health education	<ul style="list-style-type: none"> • In both countries, health bank participation raised subsequent health care (specifically cancer screening) over credit-only participation • In Honduras, health bank reduced conditional diarrhoea • In Ecuador, found that village banking may lower conditional diarrhoea probability, but adding a health tie-in does not have a further effect • Basically no statistically significant effect on breastfeeding probabilities, either in banks only or all samples