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The Case for Microcredit: Does It Improve Maternal and Child Health and Wellbeing?

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ABSTRACT

It is possible to achieve the above development goals, if disposable income, especially of the poor, is increased. A joint research project in Bangladesh was initiated by BRAC and ICDDR,B to evaluate the extent to which socioeconomic development engineered through microcredit might enhance maternal and child health programs and to determine the impact of rural community development programs on community well-being. We conducted a systematic review on BRAC-ICDDR,B Joint Research Project Working Paper Series. The series contained 32 working papers out of which we only selected papers that examined or had references to maternal and child health (n=13). We developed a checklist based on the Transparent Report of Evaluations with Nonrandomized Designs (TREND) criteria. The BRAC papers show promising positive linkages between implementation of microcredit programs in rural areas and (1) increase in income, (2) increase in health status and (3) improvement in women's health. The assumption that increasing women's empowerment through income and education leads to improvements health and survival is referred a number of times in the BRAC studies, however, this assumption has not been tested in well controlled intervention studies and further independent research needs to be conducted in order to test the hypotheses set out by the BRAC papers. The data from BRAC is a unique opportunity to examine pre and post intervention of the impact of microcredit and such data sets can provides researchers with the prospect of conducting continuous rigorous research in the country.

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1. INTRODUCTION

There are about three billion people, half of the world's population, living on the income of less than two dollars a day. Among these poor communities, one child in five does not live to see his or her fifth birthday.The ratio of the income between the 5% richest and 5% poorest of the population is 74 to 1 as compared to the ratio of 30 to 12 in 1960 [1]. To enhance international development, the United Nations Organization (UNO) announced the millennium development goals, aimed to eradicate poverty by 2015[2].I t is possible to achieve the above development goals, if disposable income (especially of the poor) is increased [3].One of the main avenues of increasing disposable income of the poor in developing nations is through the use of microfinance and microcredit [4].

Bangladesh is often viewed in most microcredit and health literature as a 'test case for development' [5]. Several dozen NGOs and international organizations operate in the country including ICDDR,B (International Center for Diarrheal Disease Research, Bangladesh) and BRAC (Bangladesh Rural

Advancement Committee) which have been collaborating for almost 25 years. ICDDR,B operates demographic surveillance system and MCH-FP (maternal child health-family planning) programs in various districts. BRAC is an indigenous non-governmental organization involved in promoting welfare and development in response to the mass migration and resettlement of refugees in northeastern Bangladesh following the civil war [6].The NGO has been focused on the fundamental goal of poverty alleviation since its inception in 1972 and BRAC's RDP (rural development program) is an integrated, multi-sectoral initiative involving institution building, functional education, saving and group trust funds, credit disbursement, and training in income and employment generation activities, legal literacy and non-formal primary schooling. The RDP organized the rural poor into groups who work as instruments for development of human resources and occupational skills. Group members are encouraged to take on income generating activities facilitated by BRAC's credit program [7].

A joint research project BRAC and ICDDR,Bwas initiated by researchers from BRACto (1) evaluate the extent to which socioeconomic development engineered through microcredit might enhance the MCH-FP program effectiveness and (2) draw on ICDDR,B's demographic surveillance system to determine the impact of RDP on community well-being [8]. Underlying socioeconomic development policies and programs are assumption about their presumed benefits for raising health status and human well-being [8]. Marked gradients in socioeconomic differentials have been noted in life expectancy by income, education, occupational class for many different diseases and in diverse populations [9]. However, the majority of studies investigating the relationship between socioeconomic development and health are either cross sectional or conducted as trend analysis making it difficult to explore the intervening pathways and mechanisms that link socioeconomic development, health and well-being. Some research suggests that income tends to be related to health through a direct effect on the material conditions necessary for biological survival and through an effect on social participation an opportunity to control life circumstances [10]. A twenty five year follow up from the Whitehall studies [11] found that while there is no evidence of a threshold, there seems to be a clear gradient in mortality for the general population that runs from the least the most deprived. A framework developed by UNICEF identifies poverty as a key element to a decreasing quality of life [2]. Additionally, pathways between increasing economic development and health status have been hypothesis by a number of researchers. Sen's capability approach [12], Grossman's health production theory [13],and Mohindra and Haddad's conceptual framework all explore the linkages through which increased economic and microcredit activities impact health outcomes, especially for women in developing countries [14].

This background paper is a rapid synthesis of some current evidence on linkages between microcredit and women's health with a centralized focus on reviewing the BRAC working paper series from Bangladesh.It will first review the linkages between household income and microcredit, then synthesize existing literature including literature from BRAC between income and health with a focus on women and finally look at the ways that microcredit might have a positive effect on health outcomes for women. Table 1 provides a synthesis of selected papers from BRAC and assesses their methodology and results.The papers explore a number of themes crosscutting the gamut of research on microcredit and examine collection of data/baseline information on the demographic surveillance system (DSS) variables, gaining insights in concepts of illness and their causes from women's perspective and corresponding social and family attitude, identification of factors/inputs (such as microcredit) and institutions responsible for creating health/women's health outcomes and testing of hypothesis on better health status of members of RDP programs which can justify continuity of the BRAC initiatives. These multifaceted objectives would enable investigators/researchers to take a holistic view on the importance/justification of the continuation of BRAC-ICDDR,B linkages and assessing the impact of economic development programs such as microcredit on income and health outcomes.

2. RESEARCH METHOD

We conducted a systematic review on BRAC-ICDDR,B Joint Research Project Working Paper Series. The series contained 32 working papers out of which we only selected papers that examined or had references to maternal and child health (n=13). T Criteria for evaluating the studies were determined before reviewing the articles. We developed a checklist based on the Transparent Report of Evaluations with Nonrandomized Designs (TREND) criteria [15]. In contract to the CONSORT guidelines for reporting randomized trials, TREND guidelines emphasize more detailed reporting of theories use, descriptions of interventions and possible comparison conditions. Reviewers completed a TREND checklist for each article and the analysis for selected TREND criteria are provided in Table 1.

3. RESULTS AND ANALYSIS

3.1 Linkages between microcredit and income

Ever since the inception of Grameen bank, microfinance programs have been used to target and increase disposable incomes among the poor. In the past decade, microcredit has been a development stalwart in underserved countries. In general, microcredit is a term used to describe programs that offer access to small loans, financial literacy, and social support. The concept of microcredit has evolved, and terms like microfinance, microenterprise, and micro lending, all represent some level of access to financial and/or social resources. Anecdotal evidence exists to suggest that microfinance can make a difference in the lives of those served, however, rigorous quantitative evidence on the nature and magnitude of microfinance is still lacking [16]. A systematic review byDuvendack et.al found that a vast majority of studies on microfinance are methodologically weak and have insufficient data [17] and Stewart et.al further found little evidence to suggest that microfinance has a large impact of poverty [18]. Both these review focused on studies that relied heavily on RCT (randomized controlled trial) design. It can be argued, however, that RCTs may not be the best approach to determine complex relationships in an interconnected system and for a broader picture; researchers need to embrace other methodologies [19]. Economists have long posited that participation in microcredit programs improves economic wellbeing (of the poor) by increasing income, building assets, decreasing economic inequalities and enhancing capacity for success but these variables might not have been measured in the RCTs.

The TREND reviews from Table 1 demonstrate strong correlations between microcredit programs and a general increase in disposable income and savings, especially among women [5,8,20]. The women in the BRAC program often save money in the traditional way and 'know the value of savings' [21]. In addition, according to female BRAC members, RDP savings, credit and training programs provided the means to engage and diversify remunerative activities and support their husbands' income generating activities [22]. Most women also perceived related increases in their influence over household decision making. In addition, group interviews among participating men elicit that men are often humiliated at the prospect of borrowing money from friends, neighbors or the local *Mahajans* (money lenders). Becoming BRAC members not only saves them from approaching others, but many times the wives borrow money from the program and the men altogether do not have to approach anyone [21].

3.2 Linkages between income and health outcomes

The TREND analysis of the BRAC working papers from Table 1 further found instances of relationships between economic health and health outcomes.Economic health is one of the many inputs that determine health output and status (others include biological, psychological, cultural and social) and has to be modeled with other inputs to have a significant effect on health [23].Others suggest that while some linkages between income and poverty alleviation from an economic perspective, the all-encompassing nature of poverty demands that we understand how improvements in also improves the lesser measured or quantifiable psychosocial relationships such as health status, social inferiority, isolation, powerlessness, humiliation and accepting low status work [7]. Other suggested mediators between income and health were (a) functional education, (b) health literacy, (c) increasing child education, and (d) establishing primary healthcare program [5].

3.3 Linkages between microcredit, income and women's health outcomes

While microcredit interventions are not explicitly designed to have an impact on health, few practical microcredit/microfinance models such as the Grameen bank model of microfinance, posit that economic and social poverty (which includes poverty of health) go hand in hand and should thus be tackled simultaneously [14]. The relationship between poverty and ill health has been characterized as synergistic and bidirectional- poverty confines the capacity to produce health and ill health leads to further impoverishment that diminishing the potential of individuals and households to improve their economic status and there is a growing recognition that poor health is a dimension of poverty; therefore, one potential result of poverty reduction is progress in the health of the poor.An increase in microcredit activity has been linked to improvements in socioeconomic status, poverty alleviation and increased empowerment for women through an increase in individual income levels [5]. Previous empirical evidence from developed countries exists to suggest that women tend to allocate a larger share of their income to meet the health and nutritional needs of household members, especially children [24, 25].

Nevertheless, there seems to be a conceptual 'black box' [23] surrounding the pathways through which increases in income produces health change and researchers need to continue to 'unpack' the black

box surrounding the pathways through which an improvement in SES leads to an improvement in health status? This is an especially important question in developing countries where microcredit programs have been flourishing. Mahbub, Mayeed and Roy presented some self-reported evidence that suggests strong linkages between increases in income via microcredit activities for women [26]. The key question is whether the women are using the extra disposable income to augment theirs and their children's' health status'. If strong pathways and positive relationships exist between increasing microcredit lending and health status, the microcredit model may be used to decrease health equity beginning with maternal and child health equity.

The 1995 study conducted by Scott, Evans and Cash [23] to study the impact of BRAC's socio-economic interventions including microfinance activities on the wellbeing of the rural poor uncovered that although a wide variety of scales and measures exist in the BRAC interventions that measure 'ill-health' such as morbidity and mortality there are no indicators that measure 'health' outputs.Chowdhury and Bhuiya hypothesized several pathways linking the various BRAC rural development programs to improvements in health status [8].Specifically, they hypothesized that increases in household credit would lead to an income increase and a secure household livelihood with decreased vulnerability, equitable intra household food distribution and greater coping capacity. A second pathway linked credit programs and other income generating activities to an overall improvement in household socioeconomic status. Greater available household income may contribute to better environmental conditions within the household, permit greater spending on curative illness episodes and preventive health, improve food supply and nutrition, and increase access to and use of good quality health care services provided by BRAC and other agencies. These income effects may enable earlier illness detection and management, timely referral to healthcare facilities, improved nutritional status and higher coverage of preventive health care services. In addition to physical health, there might be pathways linking successful microcredit activities to mental health [8]. Bhuiya and Chowdhuryfurther hypothesize that participation in RDP will benefit households by increasing women's ability to respond to illness episodes and management of severe illness within the family and suggest that this process will be mediated through a reduction in gender disparity, improved husband-wife communication and greater female participation in household decision making processes [5]. Some anecdotalevidence from the BRAC working papers suggest than in Bangladesh, increase in microcredit lending in rural sectors of the country has led to an increase in social capital among women [22, 27].

One of the confounding factors in determining the association between increase in microcredit loans among women and positive health outcome is the role and depth of engagement in public participation. Substantial research exists to show that participation in the public sphere, with or without access to microcredit, may improve quality of life for women. Some examples of the positive outcomes associated with participation for women in developing countries include increased levels of contraceptive use and knowledge of family planning based on survey data from three development agencies in rural Bangladesh [28]; an increase in women's feelings of empowerment based on eight indicators related to women's roles and status within the family and community using a multi-cluster design in four locations in Bangladesh with women participating in two development agencies [29]; a reduction in domestic violence suggestive of increased public visibility and social support in Bangladesh [30]; and improved health literacy related to media exposure and education, and a positive impact on the nutritional status of participants and their families [31].

However, summary data from all BRAC studiessuggest while being a female leads to a 24% rise in odds of becoming a BRAC member, women in general, borrow much less than men and are not engaged as actively as their male counterparts [7]. Therefore, the income that women generate may not be enough to invest in healthcare, especially preventive healthcare. Additionally, Adams et. alalso discovered through participatory research, that unlike most countries, in Bangladesh, *men* tend to be primarily responsible for major health decision making in the household [22]. Women's involvement in health decision making tends to be restricted to minor illnesses, or times when their male counterpart is absent. Further understanding of women's health status in Bangladesh also needs to take into account women's perceptions of illness for them and their children. An exploratory study of women's perceptions of illness found that women describe themselves as ill when they can no longer work and were bed ridded [32]. This perception might pose substantial issues in preventive health education. Along with structural and institutional availability of medical services these factors serve as major barriers to improving women and children's health. Even if women's income increases as a result of microcredit interventions, she might not use the income for any preventive healthcare and therefore, her health status might remain as before [32].

Table 1. Sample of the analysis of selected BRAC working papers targeting women's empowerment, economics and health

Author(s), Year	(1) Bhuiya&Chowdhury (1995)	(2) Scott, Evans, Cash (1995)	(3) Chowdhury&Bhuiya, 1995

Author(s), Year	(1) Bhuiya&Chowdhury (1995)	(2) Scott, Evans, Cash (1995)	(3) Chowdhury&Bhuiya, 1995
Paper design	Conceptual	Conceptual	Conceptual study proposal
Sample size, description of sample	Target population- people who do not own more than 0.5 acre of land including homestead and who earn their livelihood by selling manual labor	N/A	N/A
Research aims	(1) Conduct baseline survey before staring rural development project. (2) Link BRAC interventions with demographic surveillance system of ICDDR, B to monitor fertility, mortality, nuptuality and migration. (3)Establish database with information on variables that are linked with DSS system. (4) Establish small scale in-depth village level continuous data collection system for understanding the pathways of influence of the RDP on health and socioeconomic status.	An individual experiences innumerable health inputs (economic factors like microcredit being one of them). The balance between predisposing and responding inputs can result in a change of state where the individual interprets the altered state through a sociocultural filter. The resultant state of health/illness is found on a spectrum of ever changing health outcomes.	RDP members and their dependents have lower morbidity than non-members. RDP member have greater access to modern healthcare. RDP members and their dependents have better nutritional status than non-members.
Description of research	The paper describes how the study aims will be accomplished. Program process development begins with identifying households of the target group. Program organizer (PO) discussed problems and initiates formation of village organizations. Members begin a savings program. Gradually members are encourages to take on income generating activities facilitated by BRAC's credit program. Elect management committee from the village.	(1) Review health definitions. (2) Create a health status model of health where production of health/illness is considered to be based on simplified health inputs giving rise to health output. (3) Explores method of examining mechanism through which health interventions produce health outcomes. (4) Proposes further research to understand mechanisms by which health interventions produce health outcomes.	The proposal has a number of hypotheses related to health, healthcare access and women's health. The researchers propose a number of small scale studies that will be conducted to get in-depth information to explain mechanisms of the impact of RDP on women's lives.
Theories/methodology and frameworks used	N/A	N/A	N/A
Target variables/activities	(1) Functional education (2) Facilitated group meetings (3) Savings and group trust fund (4) Training (5) Providing credit (6) Children's education (7) Legal literacy (8) Primary health care program	Health inputs/outputs 1. Biological 2. Psychological 3. Environmental 4. Cultural 5. Social 6. Health sector 7. NGO/government	Hypothesized pathways: (1) The first pathway links decreased morbidity and mortality with an increased utilization of effective healthcare services provided by BRAC's programs. (2) Second pathway links credit programs and other income to an overall improvement in household socioeconomic status. (3) It is further hypothesized that participation in RDP will benefit households by increasing women's ability to respond to illness and management of illness within the family mediated by reduced gender disparity, improved husband wife communication and great female participation in decision making.
Results/observations	N/A- This paper is only describing how the study aims will be accomplished. The study (we assume) has been conducted elsewhere.	Many inputs from the BRAC approach are multifaceted and do not lend themselves to direct quantitative analysis. The challenge is to derive intermediate input variables	N/A- is a proposal but no study has been conducted

Author(s), Year	(1) Bhuiya&Chowdhury (1995)	(2) Scott, Evans, Cash (1995)	(3) Chowdhury&Bhuiya, 1995
		that are amenable to quantification. Consider health output measures of 'health' in addition to measures of ill health such as morbidity/mortality. A particular intervention has no association with morbidity/mortality but people consider themselves to be healthier. Health indicators need to add self-report based on individual's perception of their health status. Measuring morbidity and mortality often provide no specific information for assessing the effectiveness of interventions.	
Comment/qualities	There is a rich empirical data source that can be mined from the DSS database that will help researchers assess variables that mediate and moderate the linkage between income an d health	The paper provides an interesting conceptual framework for considering health inputs. The moderating variable from predisposing and responding factors is hypothesized as the interpretation of health outputs according to an individual's socio cultural lens that determines where the individuals falls on the spectrum of health and illness.	The paper lays out the hypothesized linkages between microcredit and health.

4. CONCLUSION AND IMPLICATIONS FOR THE FUTURE

While these and other moderators and mediators of the association between income and health have been hypothesized, more studies using rigorous methodology needs to be conducted. It can be argued that to understand the relationships between income and health in developing countries, we need to focus on the simultaneity as well as the two pronged relationship between country-level income generation process (through programs like microcredit) especially of the poor and their health status and identify the factors/control variables which promote or inhibit the strength of the two stepped relationship. These findings will help to formulate policies and ascertain the overall availability of materials and social resources that can enable the poor to enjoy quality healthcare. These important findings based on rigorous research can further extend to non-governmental activities such as the introduction of microcredit and microfinance by outside organizations in addition to BRAC.

A key element in decreasing social poverty and ill health among the poor is to increase maternal and child health (MCH) outcomes within underserved countries. One of the largest differences in health indicators among developed and developing countries is their maternal mortality and morbidity rates where a vast majority of the 529,000 women who die each year from complications of childbirth belong to developing countries [2]. Maternal and child health have remained pervasive and damaging to overall quality of life improvements in low and middle-income countries [3]. The health of mothers and children is closely related to the general health of the community and measures that bring about improvement in general health also tend to produce improved maternal and child health. In addition, rapid increases in population stemming from early marriage and lack of family planning can further have negative effects on health and development; however, they can be mitigated by spurring economic development, especially among women. A vital component in defining women's empowerment has been the assess women's influence over household spending on family well-being. A 2001 Nepal Demographic and Health Survey found that "[w]omen who are employed and earn cash have more say in household decision making than women who do not work and women who work but do not earn cash income" (p. 47); this included decisions about their own health care [33].

The assumption that increasing maternal empowerment through income and education leads to improvements in child health and survival is widespread and has been incorporated into many policy documents. However, this assumption has not been tested in well controlled intervention studies and further independent research needs to be conducted in order to test the hypotheses set out by the BRAC papers. It is also conceivable that BRAC facilitated socioeconomic development (especially microcredit) may also have negative effects on the health status of young children. Women's participation in employment and other activities may involve leaving the supervision of small children to other caretakers less able to respond to their particular health needs, such as for breast-feeding or the preparation of energy dense weaning foods [34, 35]. Therefore, interventions tackling women's empowerment also need to focus on 'collective empowerment' and not just individual empowerment. This can be accomplished through a number of viable and low cost methods such as an establishment of community center or providing microcredit loans to women to begin low cost day care for other women.

There has been further critique about the myopic focus on the positive outcomes of participation in microcredit while minimizing issues such as loan control and misuse by male members of households (Goetz & Gupta, 1996); concern about the best interests of the participants, including increased workloads and responsibilities and financial sustainability over time [36] ; criticism that the programs have difficulty reaching the most vulnerable populations whether related to choice or exclusion [37]; apprehension about the gender and power relations and the social/cultural constraints placed on women in and outside the home, which can lead to poor outcomes [34]; association between health decline and business failure [38]; concern about the overuse of empowerment for women related to participation [39]; and a difficulty in discerning the aspects of the programs that lead to positive outcomes [40]. Further interventions need to be developed in a way that addresses these legitimate issues and concerns.

In addition, quite apart from BRAC's socioeconomic development interventions, other background factors can also influence the direction, velocity and nature of possible pathways of changes in well-being and these confounding variables need to be accounted for when discussing the impacts of microcredit on health and wellbeing of any community, not just maternal and child health. For example, urbanization (Islam 1990), modernization and the diffusion of new ideas, sectoral transformation [41], and increasing poverty [42] as well as regional differences are key variables that can affect population health. Further studies of BRAC data need to rigorously control for these factors to understand which pathways are the most significant.

Furthermore, based on the current literature, microcredit/health research could utilize several existing theories and engage additional theory development. For example, critical social theory, which addresses power and privilege from a historical and social perspective, would support an upstream-thinking approach to discover systems and behaviors that limit opportunities and create barriers for women to receive and use microcredit [43]. Chaos theory, which posits that small changes during a sequence of events can alter outcomes in a system and that order can be found within seemingly chaotic patterns [44], would support a social ecological approach to identify pathways and evaluate changes related to health and low income women. To extricate the influences of individual pathways in a mechanism as complex as health status is a daunting task. Nonetheless, a determination of inputs and variables that increase health and wellbeing, especially maternal and child health and wellbeing, should be undertaken. While BRAC has undertaken substantive research on microcredit, key questions remain- what are the pathways through which microcredit can influence health outcomesso that microcredit can be used as an effective instrument for improving health status.

The following concept may be helpful in logically formulate a 'model' for undertaking rigorous policy research. A 'demonstrative' econometric framework can establish the relationship between microcredit and health outcomes and assist in identification of instruments for strengthening the relationship. There can be a four stepped relationship between microcredit and woman/child health outcomes. This can be conceptualized by the following system of functional forms.

(1) Income = f (Microcredit, education and skill, heath, other relevant local variables), (2) consumption of 'health 'goods and services =f (Income, Availability of health goods and services/state of health infrastructure, cost of health services), (3) Consumption of health goods and services by women / children = f (Consumption (total) of health goods and services, appropriate variables representing women's empowerment), and (4) Appropriate status indicator of women's/children health =f (Consumption of health goods and services by women/children, food consumption/nutrition by women/children, sanitation, time spent by women for work keeping them away from children).

There are two notable features in the above system. First, there is simultaneity between health and income (equations 1 and 2). Furthermore, in addition to primary independent variables (Microcredit in 1, Income in 2, Consumption(total) of health goods and services in 3 and Consumption of heath goods and services by women/children in 4) there are a number of auxiliary variables (education in 1,health

infrastructure and cost of health services in 2,women's empowerment in 3,nutrition,time spent by women for working keeping them away from children).The auxiliary variables modify(positively or negatively) the strength of the relationship or the elasticity between health of women and children and primary variables such as income or microcredit. These elasticities, when estimated in a proper way, will give very useful policy guidance if microcredit is to be used as a potent instrument for improving health status of women/children.

The data from BRAC research is a unique opportunity to examine pre and post intervention of the impact of microcredit and such data sets can provides researchers with the prospect of conducting continuous rigorous research in the country.

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