

Impact of riverbank erosion on women: cases from two villages in Bangladesh

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ABSTRACT

There has been a massive impact of global climate change on the environment that is already evident in various parts of the world. Bangladesh is heavily affected by different climate change issues, and riverbank erosion is one of them. Among others, women are the most vulnerable and suffer the most during the riverbank erosion in Bangladesh. Thus, the key focus of this paper was to understand the impact of riverbank erosion on the lives of women applying a qualitative research method. The objective of the paper was to understand the vulnerabilities and survival strategies of women living in riverbank erosion areas. Findings suggest that the impact of riverbank erosion on the lives of poor women is diverse. It creates a burden for the family members, and in most cases, they fall into a vicious circle of poverty. Despite the increased workload of women due to the unequal distribution of labor in the family, some women also experience a sense of empowerment with their engagement in various income-generating activities, decision-making process and increased physical mobility.

Keywords: *Climate change, riverbank erosion, vulnerability, gender, empowerment*

INTRODUCTION

Riverbank erosion is considered one of the major natural disasters in Bangladesh (Nishat and Mukherjee, 2013), one of the adverse consequences of climate change. Riverbank erosion continues to create hardship and stress on the lives of people living in riverbank areas in Bangladesh (Rahman and Gain, 2020; Islam et al. 2017). The impact of riverbank erosion on the natural resources and socio-economic conditions of the displaced population is diverse. The effect of riverbank erosion increases poverty and affects families, particularly low-income families, who find it hard to survive for a certain period (Rahman, 2010). Besides, sufferers of riverbank erosion had to lose their familial and social ties through isolation from their kin's (Baki, 2014). Many people lost everything and became poor in a short period due to

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riverbank erosion. Men who had lands once lost everything and moved to slums in the city area due to riverbank erosion. For the riverbank erosion, people are forced to migrate, which increases the number of internally displaced populations (IDPs) who also face many unavoidable problems at different stages of such migration process. Migration forced a vast population to lead a floating life (Rana and Nesa, 2017). They are also known as the 'environmental refuges' (Black, 2001; Bates, 2002; Myers, 2002 & Hartmann, 2010).

Under such a context, women seemed to be more vulnerable to natural disaster than men are (Dutta, 2011 & Islam, 2010). Furthermore, Women's limited access to decision making, technology, credit, properties, education and training made them more vulnerable to climate change. Women are the primary victims of environmental hazards, especially floods that often damage their crops, livestock, fish stock, properties and lives (Ahmed, 2010). Having a significant impact on livelihood and poverty in many areas, Bangladesh received relatively less attention on the impacts of riverbank erosion on women (Hutton & Haque, 2003).

Moreover, there is no effective plan of action to resolve this problem in Bangladesh (Sovacool, 2018). Therefore, this paper aimed to explore the nature of vulnerability that women face due to riverbank erosion. We are particularly interested in focusing on riverbank erosion that affected women in two villages. This paper argues that riverbank erosion increases the workload for women, which creates a double burden for them. Thus, it affects their health and well-being in the end, where their male counterparts always neglect the health condition of affected women. The paper also shows that many women enjoy a sense of physical mobility and empowerment despite various adverse impacts as they started to take part in various economic activities to maintain the family.

RIVERBANK EROSION AND VULNERABILITIES AMONG THE WOMEN

The impact of climate change is diverse and varies based on geographic location. Such impact also varies by gender, economic condition, and social status. However, poor women without many socio-economic rights are more vulnerable to natural disaster than men (Omari, 2010). Besides, people from riverbank erosion areas of developing countries are more affected than others are, and among them, women are the most vulnerable. Since gender-based inequalities are pervasive in the developing world (Denton, 2002), riverbank erosion further aggravates the gender-based disparities. Bangladesh is one of the most affected countries by climate change. Bangladesh, as the largest delta in the world formed by the Ganges, the Brahmaputra and the Meghna (GBM) river system with a dense population, made Bangladesh very sensitive to climate change. The sea-level rise due to global warming causes floods, riverbank erosion, land loss in many parts of Bangladesh.

Riverbank erosion is a common experience for many rural people in Bangladesh; thus, temporary and internal displacement (some say climate refugees) due to climate change are the harsh reality for Bangladesh. Displacement brings significant changes to low-income families. Due to climate changes, the vulnerability of Bangladesh, including riverbank erosion, is causing the loss of land and associated natural resources of riparian households, which threatens the livelihood, health and food security of these vulnerable communities (Alam et al. 2017). Riverbank erosion induced displacements have different impacts on affected people depending on gender, education, age, economic condition (Mutton & Haque, 2004).

Displaced women face various social and cultural constraints that limit their capacity to adapt to the demands of migration and urban living. Women are generally left alone to raise children in impoverished and squalid conditions. The marginalization of families often forces women to seek work outside of the home, typically in low-paying, menial jobs such as earth-cutting and brick-breaking (Mutton & Haque, 2004). The vulnerability of women largely depends on their access to resources. Approximately seventy percent of the people who live on not more than one dollar per day are women with limited access to assets, no decision-making power in the family, and restricted mobility outside the home, making women more vulnerable to natural disasters than men (Aguiler, 2009). Thus, it is extremely difficult for women, particularly poor women and female-headed households, to survive such natural disasters as riverbank erosion.

Riverbank erosion causes difficulties in maintaining the regular social and economic life, putting enormous challenges in their health and sanitation sector and accessing education of the children of the *char* dwellers (Sarker et al. 2003). Many poor women remain unemployed during and after floods. Many women suffer from injury, domestic violence and different types of harassment while taking shelter or refugee at community centers. Thus, poor and disadvantaged women are more vulnerable to riverbank erosion than men are (Azad et al. 2013).

Climate changes impact the entire world; this change varies by income group in which low-income people face more difficulties and insecurity than the people with higher income. The impact of climate change (droughts, floods, increasing incidence of diseases and growing food and water insecurity) disproportionately affect the world's 1.3 billion poor, the majority of whom are women and women are forced to bear the extra burden of the consequences of climate change (Alam et al. 2015). However, the reality is, women do not have access to the property and decision-making process, which makes them more vulnerable. Women's historic disadvantages—their limited access to resources, restricted rights, and a muted voice in shaping decisions—make them highly susceptible to climate change (Habtezion, 2013). They have been systematically excluded from the decision-making process (Alam et al. 2015). Since women are the most affected group of climate change, climate adaptation activities for women within their societies require narrowing the

gender-based discrimination and gaps by creating pro-women strategic planning and policy-making on climate change (Preet et al. 2010). Besides, women contribute to the economic sphere in many ways, which cannot be overlooked. They engage substantially in agricultural production, both paid and unpaid, in developing countries (Habtezion, 2013). Despite their wider contribution, their voice was not heard while dealing with hazards like riverbank erosion. Therefore, increasing emphasis was given on prioritizing women's voices from the local community (Trung, 2013).

METHODS

We adopted a qualitative approach for better understanding and addressing the research objectives. As the key aim was to understand the vulnerability and coping strategies of women, the qualitative research method provided the opportunities to develop trust and build a relationship with the respondent, which facilitated the collection of personalized data for this research. In-depth Interview (IDI) was the primary tool for this research to collect data. The purposive sampling method was used along with snowballing sampling method to identify and recruit respondents. Two villages (Bacha-mora village and Lautara village) in Doulotpur Upazila (sub-district) were selected for the study area situated in the Manikganj district. These villages are located on the Jamuna riverbank, which is badly affected by frequent riverbank erosion and monsoon flood. We conducted a total of 30 semi-structured in-depth interviews. It was not very difficult to find respondents for this study, as it is a riverbank erosion-prone area. Almost all people from this village experienced riverbank erosion at least once in their life span.

FINDINGS: DIFFICULTIES AND CHALLENGES FOR WOMEN

The findings of this paper are organized based on key thematic areas that have been identified during the data analysis to understand the vulnerability of women and their coping mechanisms. The most common problems that the women face in this area due to riverbank erosion are increased workload, gender discrimination in the workplace, sickness and diseases, poor sanitation, mental stress, feeling of restlessness, social stigma, restriction to work outside and many more. The findings will begin with the increased workload, discrimination and double burden. The rest of the findings will discuss the transformation of social role of women and their well-being.

Increased Workload, Discrimination and Double Burden

The increased workload is a big concern for many women in this area. It puts them in a situation of a double burden. First, they have to help their men while moving and rebuilding their houses. The second is to continue with their regular household tasks, from looking after their children to maintain other household tasks. They need to engage in various additional works due to flood and riverbank erosion, which is an addition to their current role. It creates an

enormous burden and stress on their everyday lives, evident from the field data. Sometimes they feel restless during the day. Almost all women reported that they hardly get time to take a rest.

In contrast, men can have their resting time even under such a difficult time as many respondents reported that men could rest after moving their household things to a new place. However, as women have to do their regular household work over the extra work, they cannot rest. Almost all women mentioned that their workload had increased significantly during the riverbank erosion. Some participants said that they work more than men during riverbank erosion. They had to do extra tasks with their husbands to prepare and rebuild their house, tie the fence, shift household goods. Besides, they had regular household tasks of cooking, looking after children, looking after livestock, walking for a long distance to arrange drinking water, etc. They deal with the problems as a family unit; thus, the entire family is engaged in different types of work. Even their children help them to cope with the situation. Generally, women do not work outside their household in rural areas that much. However, under such a problematic riverbank erosion situation, many women have to work outside their house. In this context, a female respondent mentioned,

“My husband does fishing and works in other people’s land to earn money. Being a *meyemanush* [woman], I go out to get grasses for our cattle. Furthermore, I had to work more during the time of riverbank erosion. I move household things and goods from one place to another and help my husband to rebuild a house, etc.”

Another woman mentioned that her entire family depended on her during this time of difficulties. She had to decide what needs to be done to overcome the situation. It has also increased her workload as she needed to lead them from the front. As she reported,

“All responsibilities fall on me to shift the house during the riverbank erosion. From planning and moving, everything has to be decided by me. My husband and children depend on me for this entirely. I had to spend a hectic life at this time. Despite having physical difficulties, I had to look after my family as well.”

Many women are engaged in heavy manual labor. Firstly, women help their male counterparts to move their house to a safer place. They also need to move their household goods and materials. Almost all women mentioned that excessive amount of work during this time in many cases have a negative impact on their health. These difficulties aggregate further for the female-headed households in the region. Many of them work as day laborer in road constructions, brick factory and carry goods to earn money for supporting the family. Since patriarchal norms are powerful in rural areas, women have to face problems working and going outside their home. It sometimes creates frustration among many women living in such a difficult situation. Furthermore, the hard work of women in many cases is not recognized and

acknowledged by the family members. A respondent in such context expressed her frustration. She mentioned,

“Sometimes, I do not feel well due to the increased workload. I had to do the same thing repeatedly. I had to work even if I am sick. I feel sick and tired, but still, I work for the betterment of the family. Sometimes, I think of leaving the family towards a distant land. I sometimes think that everything should be washed away by the river, and I watch these sufferings reluctantly sitting idle. I do not have the energy anymore. After crying alone, I start doing my household tasks again. I will have to work hard to live. No one will come to do my job.”

Girl children from the riverbank prone areas and families also suffer the most as many of them had to leave the schools forcefully. Thus, they have a higher dropout rate compare to the boy child. The extreme nature of riverbank erosion in this area creates a devastating problem in the education system of young children. The dropout rate from school is higher in this area. Since this is a riverbank erosion area, the process of rebuilding many government schools is frustratingly slow. Thus, many schools remain non-functional for many months as many schools go underwater, and it takes a longer time to reconstruct and rebuild such schools. The long-distance to reach the school demotivates many parents to send their children. This is why dropout from schools in this area is very common.

Another reason for dropout from school is poverty. Many people mentioned that they are unable to bear the cost of the education of their children. Thus, they had to force their children to leave schooling to help the family. Surviving from the riverbank erosion is more important for them than sending their children to schools. In many cases, children have to start to work from a very young age to support their family. Child marriage of girls in this area is also another reason to dropout of school. A female respondent mentioned,

“I have two daughters; the first one had to leave the school after finishing her primary education. Moreover, the younger daughter is studying in class four; she will also leave the school after finishing primary level. It is expensive to get admission to high school. We do not have that much money to continue their study. We are thinking about their marriage.”

Thus, women and children face difficulties and suffer the most during the riverbank erosion. Increased workload, discrimination, and child marriage are the most challenging reality for them.

Physical Mobility and Transforming Social Role

A female-headed household's economic condition is not good compared to a male-headed household. Women from such families may need to work outside their home as day laborers to meet their daily needs and cope with the extreme situation due to riverbank erosion. They have to perform their daily household

work, looking after children, rearing cattle and many more. During the time of riverbank erosion, they have to maintain everything on their own with the help of other people. In many cases, they need to request and urge neighbors to help. A female respondent who is widowed for 12 years mentioned,

“I have to work in other households as a helping hand or as a day laborer for earning for my family. My son has to work as a day laborer or work in a shop and cannot go to school for my poor economic condition. Sometimes it becomes difficult to provide food for my family members.”

This statement shows the nature of vulnerability that female-headed households face during the time of riverbank erosion. Another widow responded that,

“At the time of riverbank erosion, I have to do everything for shifting the house. Because I do not have money, I could not hire a laborer. Sometimes I have to request all of my neighbors and wait for their help. In the rainy season, I do not get any work. Even it becomes difficult to provide food for my children.”

Women have to face criticisms from many people, as they believe that women should stay inside the house and maintain *purdah*. Staying home and maintaining *purdah* is sometimes quite impossible for women who have been living under such difficulties during the time of riverbank erosion. However, many of them reported the concern of not maintaining the *purdah* while working outside for earnings, maintaining other household tasks, and helping their husbands while moving their houses from one place to another. Sometimes they have to face backbiting from other people. A female respondent mentioned,

“I had to work in the field as I do not have any alternative. People talked about it behind me many times. Some say good stuff, and some say bad words. Some people also help us a lot.”

Some families were once very wealthy in their areas but have lost most of their fortune due to severe riverbank erosion. Many of them have lost almost everything as most of their land remains underwater for a more extended period. It is tough for them to go out for an ordinary job of a day laborer in such a situation. They even feel shy to ask or request their relatives for foods or other types of help. It is challenging for female family members to work outside their home, as they never experienced such an extreme situation. Many men decide to go to the capital city Dhaka as a day laborer for a shorter period, as a woman mentioned. However, the female member cannot do it due to shyness, shame and honor. But at the same time, a female respondent expressed that shyness would not bring food for them. It creates a painful situation, and many of them feel depressed. A female villager mentioned,

“My father-in-law is a *haji* [refers to a person who performed *hajj* at least once], how could I work outside or go to a market place in case of

emergency. I will not be able to do that. I will have to maintain *purdah* every time and need to stay inside my house.”

This is a dilemma for many women in this area. However, to cope with the extreme economic difficulties, they need to find alternative ways. Consequently, some women are forced to work, accepting this challenging part of their lives. Female-headed households face such difficulties more than other women as they do not have alternatives to go out and engage themselves in income-generating activities.

Health Concern and Well-being

The state of health of women deteriorates during riverbank erosion compared to other times. Women struggle a lot with their health problems during riverbank erosion. Due to economic hardship, many people cannot build a proper latrine and sanitation system. Some people generally build temporary toilets (popularly known as *kacha* latrine). Lack of access or inadequate access to the toilet causes various health problems for both children and adults. Some people need to go to other houses to use toilets. The scarcity of drinking water is also a significant concern as building tube well during this time is a major challenge for the poor people that increases the risk for many waterborne diseases. Due to poor access to pure drinking water, many women have to walk long distances to collect water. Getting drinking water is generally seen as a role for women in rural Bangladesh.

Many people, particularly women, become sick due to heavy work while moving their house from one place to another. They particularly suffer more from back pain for frequently engaging in manual labor (i.e., loading and unloading goods, moving and carrying heavy materials and many more) when they move their house. Different types of health problems are prevalent among women living in this area. The most common health problems women face in this area are back pain, body ache/ pain, injuries, minor and severe, and fever. Back pain is widespread among them, as they have to engage in various types of manual labor without having proper rest and treatment. A respondent mentioned,

“I had to move many household goods including materials of a house. I sometimes cut a tree and move a pillar of a house, digging while rebuilding a house. Due to this heavy work, I mostly suffer from back pain, which is very common in our area. Most of the women in this area have back pain. Many women are unable to walk standing straight. This time, I worked 15 consecutive days during the riverbank erosion.”

Frequent and increased workloads make women feel very tired throughout the day. It affects their everyday life, particularly their well-being. This is also a sign of a lack of sufficient nutrient for them. Thus, they feel tired and lack the spirit of work during the day. A female respondent mentioned,

“During the time of erosion, we cannot manage time to cook for shifting our house. We eat *muri* [puffed rice] and sometimes *panta vat*

[soaked rice]. We feel hungry, but we do not have sufficient food. We have to continue our work and do not have time to prepare food. We do not have money to buy something from the shop.’’

Another respondent mentioned,
 ‘‘I feel so tired all the time that I slept in the field while getting grass for my cattle once. We have to work very hard. We work under the sun and rain without looking at the time. This is why we frequently face different health problems. We get medicine from doctors [local medicine sellers] in credit. Sometimes, local doctors do not charge any fee [local medicine sellers].’’

It was also evident that women rarely go to see a doctor if they have any health problem. As they live in a remote area where they do not have any medical treatment facilities, they hardly can see a doctor. The nearest hospital is located in the sub-district that is not too close to their village. No doctors are available in the neighboring rural market area (popularly known as *hat* or *bazar*). Thus, they mostly rely on locally available medicines. Some people rely on the local health service providers from the informal sector like *kabiraj* (Traditional herbal medicine practitioner) and from local medicine sellers who are not well trained. Many people cannot afford to go to the doctor if they face any health problem. Thus, they rely on God’s will to become well.

Findings in this section show that women face different health problems caused by increased and heavy work during flood and riverbank erosion. The key obstacle for them not to see a doctor is not having enough money and access to health centers due to long distance. A female respondent mentioned,

‘‘I do not go to see a doctor. I use self-made different herbal medicines out of different leaves. I use the paste of such leaves if I have any injury or a headache. Sometimes, I eat paste of skins of certain trees and use basil leaves on various occasions. I do not go to the doctor. I do not take any other medicines. How could I afford it, as I do not have enough money for my health issues? Sometimes, I become bedridden but cannot see a doctor.’’

Many women reported that they need the help of their husbands to maintain many of their daily household tasks that require manual labor. They are unable to carry out heavy work by themselves. It creates frustration and depression among many women. Frequent shifting houses during riverbank erosion negatively affect their mental well-being. They frequently need to adjust to the new situation, environment, people and social set up, as they need to move away from the riverbank erosion-prone areas to other areas to live. A middle-aged woman mentioned in this case that she feels sorry and pain while moving to a different place. As she reported,

‘‘When I witness the impact of riverbank erosion, I feel so sorry and pity inside that I am unable to express it in words. We live with our neighbors for about 3-4 years, building a good relationship, and suddenly due to riverbank erosion, we need to move to a different

place. We start looking for a convenient place to build a house. It hurts me a lot. Gradually we become familiar with a new condition and people.”

This statement shows the mental condition that they have to experience during the time of riverbank erosion that is in many ways frustrating for them. Frequently moving out from one place to another seems to be an important issue that affects their mental well-being.

DISCUSSION

Riverbank erosion has multifaceted impacts on the lives of people who have been facing it frequently for many years. The effect of riverbank erosion on women is even worse than men, as the study findings show. This section mainly deals with the key results for discussion: loan and short-term migration; increasing poverty; the increased burden for women; the impact of riverbank erosion on the well-being; *purdah*, physical mobility, women empowerment and transformation of social role. The following section will discuss these issues, comparing and contrasting them with the contemporary and available literature.

Study findings show that riverbank erosion put an extra burden on women in many ways. Every member had to work hard to cope with the situation as a family that continued for a prolonged period. The nature and amount of work for women was also noticed to be increased during this time. Women are generally the victims of gender-based discrimination. Especially, if we look at a load of work in a household, it can easily be seen that there has been an imbalance of work distribution. As per the practice of gender norms, women become responsible for taking over child-rearing tasks, household and private space work due to the female reproductive organ and childbirth capacity (Bhasin, 2000). Apart from their added workload caused by riverbank erosion, women need to carry out their regular work. The nature of increased burden was also evident in some studies (Ferdous and Mallick; 2019 and Akter et al. 2019). At the same time, extra work during difficulties increases their economic activities (Ferdous and Mallick; 2019).

This burden has multifaceted impacts on their health, which have been evident in this research. Women in this area continue to be engaged in additional work that put their health in a vulnerable situation. This is why many women suffer from various health problems derived from over-work, which in most cases go untreated. In a study focusing on the vulnerability among the women living in the coastal zone in Bangladesh, Islam (2010) showed that women faced various health problems, including early pregnancy loss, premature delivery and other delivery related issues. Generally, the health situation of women in rural families does not get appropriate attention from family members. Riverbank erosion is causing further health hazards in their lives. In most cases, they go to informal health service providers mainly to reduce the health service cost. Informal health service providers are

generally popular among disadvantaged population of society (Mahmud et al. 2015).

Lack of appropriate treatment impacts their overall well-being as there has been a strong connection between mental stress and well-being with riverbank erosion. Frequently moving out from one place to another is seen as a vivid example of hard work and heavily affects their well-being. Generally, people in rural areas are not habituated to frequently move their houses, as these places connect with their emotions. It is also known as '*vita*' that closely linked with the heritage of their ancestor. Suddenly, forced displacement from this place of a long-term connection and memories with their ancestral land due to riverbank erosion impacts every aspect of their well-being and mental satisfaction of living a regular life. Sometimes, many people do not find any motivation to live such a nomadic life in this modern era. It creates painful memories of trauma for many women. In illustrating the situation of women, a study on women in coastal zone observes that women face mental trauma and torture by men during the time of disaster (Islam, 2010).

The research findings show that physical mobility in rural areas, especially riverbank erosion areas, is a grave concern for women. It affects their lives in both positive and negative ways. In negative ways, they need to hear the 'bad words' from their neighbors while they work or go outside to meet their family needs or demands as women should not go out according to their standard norms and rules practiced in rural areas. Hussain and Smith (1999) showed that even higher education does not impact women's mobility. Age, working status, membership in NGOs are the most important factors, which are likely to increase women's physical mobility in rural areas. However, our findings suggest that despite many restrictions and criticisms by the neighbors, women had to go outside to work to cope with the riverbank erosion for meeting family needs. Women from female-headed households have to work out for earnings. Women are in danger of facing further poverty and economic insecurity than male-headed households (Chant, 2004). Although they face a double burden, their mobility is much higher than women from male-headed families. In a rural context, Rozario (2001) argues that participation in various economic activities does contribute to the increased physical mobility of women in general. Our study also corroborates with Rozario's findings, which shows that women living under riverbank erosion areas tend to enjoy some degrees of increased physical mobility. Besides, we observed increased empowerment for some women.

Our findings also show that participation in different economic activities in riverbank erosion-prone areas tend to empower women. Despite having various limitations and the gender-biased position of women in society, they either consciously or unconsciously enjoy increased empowerment within their family structure. Many male-headed family members rely on the active efforts of women in the family. This was evident in many cases in our research where women take the lead on the decision-making process while shifting and moving their houses or deciding the place of their new home, which is very

optimistic even under such a difficult situation. Decision-making is seen as one of the key indicators for women empowerment (Kabeer, 2005), and the findings of this paper also show this positive sign. Although Chanda et al. (2012) showed that decision-making is linked with their level of education and awareness, the findings of this study show that the extreme condition of riverbank erosion forces women to participate positively in the decision-making process in the family. This can be seen as an example of increased empowerment.

It was also noticed that there had been a gradual transformation of the social roles of women, particularly women whose husbands live in the Middle Eastern countries, to earn their livelihoods. In such a family structure, women have to deal with, lead and manage all household activities independently, which allows them to perform a positive social and familial role, where women are generally seen as the most vulnerable group of people under climate change and disaster (Dutta, 2011; Islam, 2010). As Rozario (2001) shows, involvement in economic activities helps women to increase their physical mobility. The above-mentioned scenario is also observed in this study.

CONCLUSION

Women face vulnerabilities during riverbank erosion in every step of women's life. They are vulnerable to riverbank erosion in many ways; for example, it increases workload and physical health problems during the rainy season and riverbank erosion. If we look at the nature of their health problems, it could be easily seen that they face different kinds of health problems like back pain, flu, cold, and various types of waterborne diseases. Under such difficult times, they hardly get appropriate healthcare services. One of the reasons is not to prioritize the health condition of women in riverbank erosion-prone areas. This is why, in majority contexts, the health issues of women go untreated as their health gets less priority from the family. This is why they need to rely on indigenous knowledge and inexpensive, informal healers available in society. Thus, most of them depend on traditional healers (*kabiraj*), local medicine sellers and herbal medicine made by them.

Riverbank erosion increases the nature of burden for the women in the family. Women have to face the increased workload in the family in various ways, which relates to the gender-based discrimination in unequal distribution of domestic labor and workload in the family. Women from a single-parent household or female-headed household have to work outside to earn to manage their family. If people say something or criticize them for their physical mobility, they do not care because nobody would help them by providing food for their family during their hardship. The female-headed households face more physical, mental and economic hardship than other homes do. However, they do not face any restriction to go outside or work outside because they have to arrange foods and meet different family needs.

Despite all these hardships, our findings show that this adverse environmental situation helps some women to increase physical mobility, which allows them to engage in different economic activities. It also allows them to be actively involved in the decision-making process of their family. Many women take the leading role in the decision-making process. It indicates that some women enjoy or experience some degree of empowerment. They can participate more in the decision-making process and economic activities in some contexts with increased physical mobility. It creates a positive sense of empowerment despite all their sufferings due to riverbank erosion.

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