

Obstacles to Women's Adaptation and Capacity- Development in Flood-Affected Areas of Bangladesh: A Qualitative Study

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ABSTRACT

Women in Bangladesh are disproportionately affected by recurrent flooding events, which have a negative impact on them. Women are more susceptible and less adaptable than males in flood disasters due to socio-cultural barriers perpetuated by society. The objective of this research is to explore the challenges impede women's ability to adapt and increase their capacity in flood-affected areas of Bangladesh. To accomplish this goal, a qualitative research approach was utilized, including Focus Group Discussions with six unique groups, and conducting In-depth interviews with a total of thirty participants. The research illustrates that women's susceptibility issues are worsened by rural communities and flood disasters due to their lack of adaptability. This is mostly attributed to the patriarchal culture prevalent in rural Bangladesh, which poses challenges in acquiring the necessary knowledge, skills, resources, and capacity for adaption. Hence, this article argues in favour of the government's unwavering commitment to effectively utilizing the complete potential of women to enhance their ability to adapt and integrate them into the broader fabric of society, thereby promoting positive societal progress by reducing their vulnerability.

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Contribution/Originality: This study makes an important contribution to the existing literature of vulnerability study by highlighting policy goals for decreasing the susceptibility of women and justifying the importance of disaster policy planning based on needs to enhance the ability of women to adapt. This study is one of very few studies which have investigated socio-cultural aspect of gendered vulnerability.

1. Introduction

Climate change represents an enormous and formidable challenge to humanity. It threatens worldwide ecological stability and human civilization's continued existence and progress (He Jian-Kun, 2015). Considering the dynamic nature of climate change, it is imperative to enhance the capacity of individuals residing in susceptible regions to successfully address the escalating frequency of shocks (Tambo, 2016). Resilient households exhibit a higher propensity to foresee, resist, cope with, and overcome the consequences of climate change like frequent flood. According to the [Intergovernmental Panel on Climate Change \(2001\)](#), the effects of climate change exhibit regional, generational, age-related, socioeconomic, income-related, occupational, and gender-related variations. The susceptibility of an individual to disaster will be contingent upon their ability to adapt. Women are increasingly susceptible to vulnerability in comparison to men due to their greater challenges in accessing and managing resources, commanding, and obtaining paid employment, possessing the ability and approach to diversify their income, and playing a part in community and household decision-making (Denton, 2002).

According to the [United Nations Development Programme \(2010\)](#), women experience vulnerability not because of inherent weakness caused by their biological sex, but rather because of socially and culturally imposed gender roles. Climate change is expected to exacerbate pre-existing gender disparities, particularly in developing regions, because of various factors. These factors include restricted resource availability, reliance on natural resources, gender-based divisions of labor, inadequate education and information access, restricted mobility, skills, and limited participation in decision-making processes (UNDP, 2010; Sultana, 2014; Krishnan, 2022).

The gendered consequences of disaster in South Asia are significant due to the influence of patriarchal norms, inequities, and disparities. These factors often result in women and men being placed in distinct positions in terms of their capacity to address and adapt to significant shifts in socioecological dynamics. Additionally, they highlight the intricate dynamics of social power within communal responses to strategies for adaptation (Sultana, 2014). The prevailing focus in policy discussions and academic literature regarding disasters has been predominantly unaddressed. However, it is important to acknowledge that the consequences of disasters are significantly influenced by gender, and the process of adapting to the impact of disasters is inherently gendered (Sultana, 2014).

Women typically exhibit weaker adaptability to climate change compared to men, and they constitute the majority of those with low incomes and typically possess a lower degree of education than men (Lambrou & Piana, 2006). If mitigation efforts are insufficient, adaptation is considered a secondary and long-term alternative (UNDP, 2009). Adaptation can be defined in multiple ways. The definition of adaptation, as provided by the [Intergovernmental Panel on Climate Change \(2001\)](#), encompasses the modifications made to ecological, social, or economic systems to address the effects or consequences of real or anticipated climatic stimuli. The phrases pertain to modifications in procedures, methodologies, and frameworks aimed at mitigating possible harm or capitalizing on opportunities linked to climate change.

Bangladesh's primary issues revolve around vulnerability and adaptability to the detrimental effects of climate change. According to [UNDP \(2009\)](#), the utilization of the

decision-making process is a suitable approach for implementing adaptation measures in response to climate change. Decision makers must consider several factors while formulating adaptation methods. Several of these concerns underscore the significance of taking gender equality into account when it comes to adaptation. However, not all women are incapable of addressing the effects of climate change. In rural areas of Bangladesh that are prone to flooding, women have significant challenges in effectively responding, coping, and adapting to disasters such as floods. These challenges are mostly attributed to enduring socio-cultural barriers that impede their capacity development. This study aims to enhance the adaptive capacity of women residing in flood-prone rural regions by addressing the obstacles associated with the development of women's capabilities.

The subsequent sections of the paper are structured as follows. The following section provides a literature overview on the adaptation situation of women during disasters. It also outlines the methodologies employed, including the research site and the procedures for collecting data. The findings and analysis are thereafter provided, followed by a concluding section.

2. Literature Review

While the risks linked to climate change and disaster affect societies globally, it is crucial to acknowledge that they have distinct impacts on males and females ([Carvajal-Escobar et al., 2008](#)). Nevertheless, the impact of disasters disproportionately affects women, yet the prevailing structures and patriarchal mindset underlying development initiatives have resulted in the marginalization of women. Women are often the most susceptible population to disasters in many regions across the globe, mostly due to certain inequitable circumstances and settings that expose them to risk ([Enarson, 2000](#); [Lambrou & Piana, 2006](#); [Rohr, 2007](#)). Empirical data indicates that economically vulnerable women experience a more significant impact during a disaster or emergency, and economic losses have a disproportionate effect on them ([Enarson, 2000](#)). Women's abilities are frequently limited because of their responsibilities within their household and society, as well as obstacles imposed by institutions and societal expectations. The limitations imposed by these restraints reduce the ability of women to adapt, making them more susceptible to dangers. With an increasing number of men pursuing job opportunities outside their homes, women are compelled to develop new skills to effectively handle emerging difficulties, such as the threats posed by climate change ([Banerjee et al., 2019](#)).

Women face a higher level of vulnerability due to culturally specific gender norms that exist prior to a crisis. The protection of female honor through seclusion is influenced by cultural conventions, which might result in women delaying their departure from the family to seek sanctuary, until it becomes too late. The existence of societal norms pertaining to the appropriateness of activities for women and men results in a disparity in women's ability to acquire swimming skills. An escalation in the frequency and intensity of floods could potentially lead to a rise in female fatality rates. In Indonesia, culture, history, and social constructions play an important role in shaping gender inequality. Gender stereotypes and traditional views of women's roles disadvantage women and make women difficult to equally participate in social, economic, and political life ([Pratiwi et al., 2017](#)). The process of a person's involvement in adaptation is influenced by gender, as stated by [Brink and Wamsler \(2019\)](#) in 2019. Disasters have distinct impacts on men and women due to their gender roles and identities, which

influence their abilities to respond to such occurrences. Women's ability to make decisions about adaptation may be limited by their household and societal roles, social and cultural norms (Jones & Boyd, 2011), lack of access to information (Ahmed & Fajber 2009).

In a significant proportion of rural societies in South Asia, the amount to which women can participate in planning or seeking refuge is sometimes determined by concerns related to purdah, which refers to the customs of seclusion. Women's mobility is impeded by sociocultural conventions that require male chaperones when seeking shelter, obtaining medical care, or leaving the farmstead in public settings. Women's increased reliance on men can lead to the reinforcement of disempowerment among women (Sultana, 2014). Given their increased vulnerability, women should enhance their adaptive capability to effectively manage the consequences of disasters. The power to execute adaptation, also known as adaptive capacity, is contingent upon the unique situation and exhibits variation across different social groupings and throughout time (Smit & Wandel, 2006). However, women are falling behind in increasing their ability to respond to disasters due to socio-cultural loopholes. Thus, the analysis of how gender is comprehended, conceived, and implemented in adaptation policies and programs is of utmost importance.

To mitigate the vulnerability of women, it is imperative to prioritize the development of adaptive capability. The UNDG defines capacity as *"the ability of people, organizations, and society to manage their affairs successfully and capacity development as the process whereby people, organizations and society as a whole unleash, strengthen, create, adapt, and maintain capacity over time, in order to achieve development results"* (United Nations Sustainable Development Group, 2017, p.5). Capabilities can be categorized into three levels: person, organizational, and enabling environment. These levels are interconnected and provide reciprocal support. Individual—enhancing personal abilities, expertise, and productivity through education, practical encounters, drive, and rewards. The goal is to enhance the policy framework to effectively address various factors such as economic growth, financing, labor markets, political context, policy and legislative environment, class structures, and cultural aspects. This approach aims to create an enabling environment that is coherent and mutually reinforcing (United Nations Sustainable Development Group, 2017). In both case women are hindered by the societal environment in achieving required capacity and cannot adapt. The ability of individuals, to adapt to environmental degradation is contingent upon their capacity to effectively respond to and manage change. This adaptability is influenced by factors such as wealth, technology, education, information, skills, infrastructure, access to resources, and management capabilities, which are contingent upon the specific contexts in which they operate (Pelling, 2011). Women's capabilities are frequently limited because of their responsibilities within the domestic and societal spheres, institutional obstacles, and prevailing social conventions. These limitations lead to a diminished ability of women to adapt, rendering them more susceptible to risks (Banerjee et al., 2019).

The knowledge has the potential to boost the skills of women, leading to behavioral modifications that can contribute to an improved adaptive capacity. A study conducted in rural Kenya reveals a significant gender discrepancy in the provision of climate information services, resulting in a reduced ability to adapt (Ngigi et al., 2017). Acquiring knowledge on the characteristics and development of the climate risks encountered by a community, including past climate data and data from projected climate change scenarios, is crucial for improving the ability to adapt (Brooks & Adger, 2004). According to Partey et al. (2020), there exists a disparity in the availability of cell

phones among women. Men have most financial means to purchase mobile phones, resulting in women relying solely on their husbands' mobile phones for accessing information and communication. The ability of women is influenced by societal norms and their social status within society, including factors such as their marital status.

Women, like other marginalized populations, possess a lower potential to adapt to climate change. This is mostly due to their physical weakness and economic disadvantage compared to men, which hinders their ability to financially support climate change adaptation efforts. Women's susceptibility is influenced by societal norms, whereas disasters can impact women's social position (Azong & Kelso, 2021). In Bangladesh, the interplay of patrilineal descent systems and patrilocal residency practices like purdah, mobility restriction, and constraints in outdoor work, leads to the social and economic subordination of women, perpetuating their social and economic dependency on men (Hashemi et al., 1996).

It is noteworthy that the issue of climate change adaptation has not yet garnered significant policy attention in the majority of developing nations. This is mostly because policymakers are primarily focused on other pressing concerns, like poverty reduction, sanitation, education, and promoting fair social development. Similarly, most donors and development agencies are currently in the first phases of comprehending methods to tackle adaptation (Adger et al., 2003). The current circumstances necessitate a focus on enhancing the adaptive capability of vulnerable populations to mitigate their recurring susceptibility and foster their overall development.

3. Methods

The study is conducted in Sariakandi Upazila (an administrative division in Bangladesh, functioning as a sub-unit of a district). It is a northern riverine flood prone area Bangladesh under Bogura district (the divisions of Bangladesh are divided into 64 districts or zila) in Rajshahi division (the administrative structure of Bangladesh currently comprises eight divisions). Sariakandi is a flood prone riverine area. Every year devastated by flood and river erosion. In Bangladesh coastal region is most disaster-prone area, thus several studies conducted on coastal area related with vulnerability, coping strategies, mitigation, and adaptation (Mustari, 2015; Garai, 2016; Hasan et al., 2020), thus this study carried in another non-coastal region as limited studies have been conducted in this area. The livelihood pattern, option of coastal area is quite different than the riverine and plain land.

The research endeavours were undertaken employing a qualitative methodology to acquire a more thorough and nuanced understanding of social phenomena. According to Fothergill (1999), conducting qualitative research that delves deeper into the subject is crucial to gain a more comprehensive understanding of women's experiences in disaster situations. Fothergill (1999) emphasizes the significance of listening to women's stories from their own perspective to fully comprehend their experiences. To address their study concerns, qualitative researchers aim to acquire insights and comprehension from real-world occurrences. Qualitative inquiry employs many philosophical presuppositions, research tactics, and procedures to collect, analyze, and interpret evidence. Sariakandi Upazilla consisted of 12 Unions. Among them Narchi, Kutubpur, and Chondonbaisha were selected as the optimal data sources to achieve the research objective. The data collection units were selected purposively. The study area employed

two data collecting procedures, namely in-depth interviews and focus group discussions, to gather qualitative data.

The comprehension of the obstacles hindering the development of women's adaptation capacity in a flood-prone rural area necessitates the utilization of qualitative research methods. The study employed a qualitative methodology, gathering data through the analysis of narratives and textual sources. Qualitative methodologies are employed in specific instances to investigate inquiries on the experience, relevance, and understanding of possible informants (Hammarberg et al., 2016). Eco-feminism serves as a theoretical framework to direct the study towards examining how the subjugation of women can hinder their ability to adapt to flood situations.

For conducting in-depth interviews, a sample of thirty women affected by floods from three Unions was selected using purposive sampling procedures. The primary data was obtained via comprehensive interviews conducted using an open-ended interview protocol. This study involved a total of six Focus Group Discussions (FGDs). The selection criteria for this study were like in-depth interviews, with the exception that both genders were included. Each Union had two Focus Group Discussions (FGDs), consisting of one female and one male group exclusively. Every FGD consists of at least six informants. Table 1 is showing the summary of informants.

Table 1: Summary table of informants of in-depth interview and focus group discussion.

Data collection tools	Informant's criteria for inclusion	Total number
In-depth interviews	1) Must be a female living in any selected Union of this study 2) aged between 15 to 50 years old, (as this demographic was deemed suitable for providing accurate and relevant information); and 3) must have been affected by the flood incidences in Sariakandi Upazila.	1) 10 informants from Kutubpur Union 2) 10 informants from Narchi Union and 3) 10 informants from the Chondonbaisha Union.
Focus group discussion	1) Must be a woman/man living in any selected Union of this study. 2) aged between 15 to 50 years old, (as this demographic was deemed suitable for providing accurate and relevant information); and 3) must have been affected by the flood incidences in Sariakandi Upazila.	Six groups of 1) three women groups and 2) three-man groups from three Union

In addition, focus group discussions were carried out with the women affected by the flood and their male counterparts. Given that patriarchy plays a substantial role in impeding women's capacity development and is intricately linked to societal and

cultural beliefs, it was imperative to organize these focus group deliberations to obtain the perspectives of males on the matter and gain insight into their stance towards women as they are responsible to nurture the culture of patriarchy in the society. The utilization of focus groups was employed as a means of acquiring knowledge pertaining to collective viewpoints and the underlying significance of specific perspectives. This approach proved to be efficacious in cultivating a profound comprehension of informant's experiences and values (Mishra, 2016).

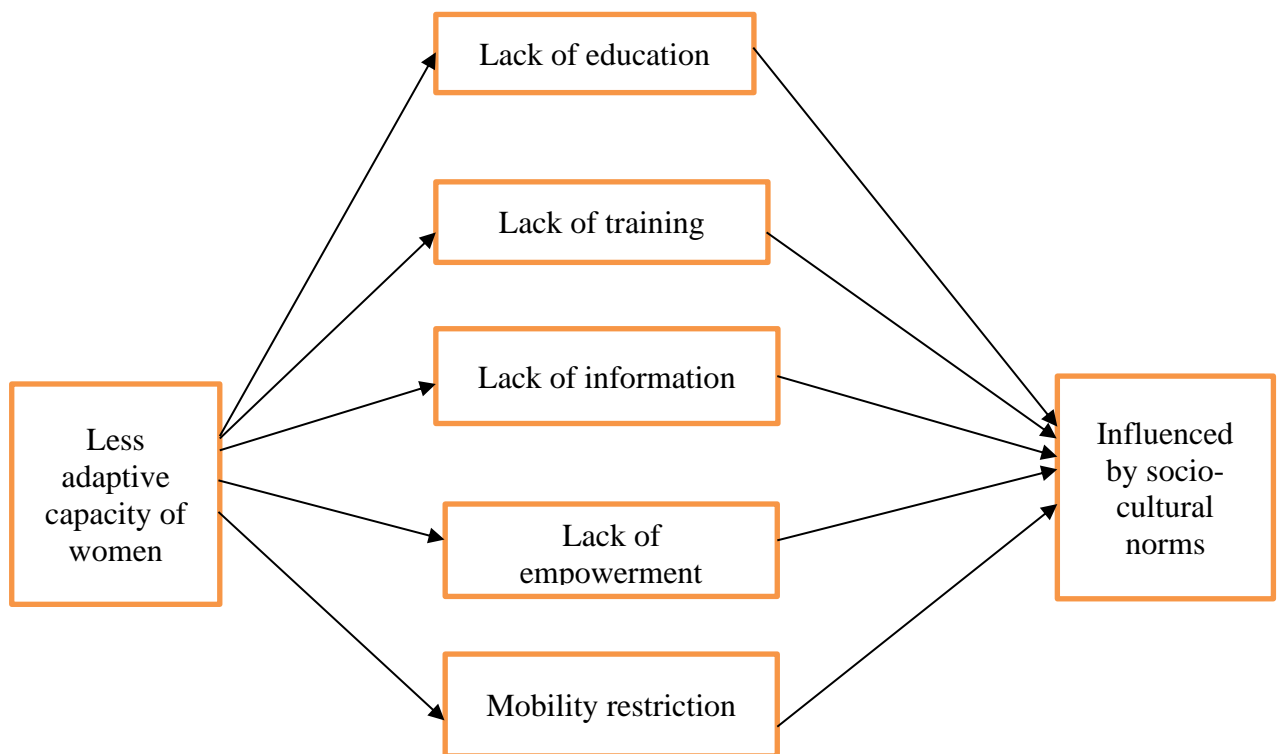
Thematic analysis was employed to analyze the data. Creswell's (2007) data analysis spiral was employed as a framework. Following a systematic approach to data collection, the gathered field data was meticulously organized and subsequently translated with the assistance of a proficient translator. This process commenced with the meticulous preparation of relevant documents and field notes. In-depth interviews and focus group discussions were utilized to complement the field notes. To acquire a comprehensive comprehension of women's experiences and their strategies for overcoming challenges in their pursuit of capacity development, the transcribed data were meticulously examined and reviewed multiple times. The raw data was manually coded using in vivo codes, in accordance with the research question. These codes are directly aligned with the terminology employed by informants, enabling researchers to prevent the imposition of their preexisting frameworks and viewpoints on the data. The codes underwent a process of organization, classification, and subsequent generation of themes. The data were displayed using the themes that were produced.

4. Results

Bangladesh's distinctive geographical location on the South Asian subcontinent, along with its tropical-monsoon climate, makes it prone to flood dangers. Given that a large proportion of the population resides in rural areas, their means of subsistence are directly or indirectly reliant on the land (Bangladesh Bureau of Statistics, 2003). Thus, flooding poses a threat to the lives and means of subsistence of individuals. Bangladesh has made significant progress over the years in developing the ability to adapt and be resilient to climate change. This has been achieved via the creation and implementation of necessary policies and regulatory frameworks that support sustainable development that can withstand the impacts of climate change (Ministry of Environment, Forest, and Climate Change, 2022). Given that women are the most susceptible group, it is imperative to guarantee their involvement in decision-making processes to influence policies, planning, and the prioritization of local adaptation requirements. Additionally, efforts should be made to enhance their capabilities. The socio-cultural milieu, characterized by patriarchal domination, creates barriers for women in their capacity development and renders them less adaptable and more vulnerable during floods.

Every informant was asked about the challenges they faced while attempting to develop their capacity to adapt in a flood-prone location. The collected data has been used to develop many themes, which are displayed in the Figure 1.

Figure 1: Barriers of women's adaptive capacity development



4.1. Lack of Education

Education is a crucial tool for empowering women by equipping them with the essential knowledge, skills, and self-confidence to actively engage in the process of development. Consequently, it is imperative that females are consistently provided with every chance to acquire a comprehensive education. Therefore, by educating a woman, she is equipped with a powerful tool to combat problems and instigate good transformation in both her own life and society (Islam, 2012). Education significantly influences the decision-making capacity of women. Therefore, it is anticipated that as the educational attainment of women increases, their capacity for decision-making will also grow, granting them greater influence in decision-making processes at the governmental, institutional, and domestic levels. To adapt with flood vulnerability decision making authority is very crucial.

Several informants informed that the conventional societal norms about women, such as limitations on their mobility, have impeded their ability to venture beyond their houses. This has resulted in difficulties and imposed restrictions on their opportunities to pursue education. However, individuals who do have the chance to acquire an education are unable to persist owing to recurrent floods, which lead to schools being utilized as refuge centres in the impacted regions. The researcher noted a prevailing inclination among parents to prioritize the education of their sons above their daughters, when faced with the choice between the two. A significant number of parents view women's education as a frivolous expenditure. They believe that investing money on a girl's education is futile, as she will eventually marry into her husband's family, leaving only boys in their own family to support their parents. Thus, when families are confronted with the choice of prioritizing either their sons' or girls' education, it is invariably the

daughters who suffer the consequences. Echoed with the view one of the in-depth interviewees shared that:

Due to financial constraints, my father was unable to afford my education. I was unable to finish my primary education. Subsequently, I was unable to attend school. At the age of five, my father chose to send my brother to school in my place. He assumed that once we were married, I would move to my husband's residence, while my brother would be responsible for taking care of him in his later years. While I may not be able to apply my degree in the future, my brother is likely to secure employment based on his educational qualifications (In-depth interview).

Due to a lack of educational understanding, women in the research region are unable to enhance their ability to adapt to the adverse situations caused by annual flood occurrences. Additionally, they are unable to voice their opinions regarding the inclusion of women in local adaptation measures.

The study found that parents' socio-economic origins, including their level of education and social status, can have an impact on their children's goals. Affluent individuals desired to provide education for their daughters, and if the parents themselves were educated, they were particularly attentive to their daughters' education. During the focus group discussion, it was found that individuals tended to depend on their sons for social support. It resembles a relentless cycle. If the parents possess education, they have a desire to provide education to their daughter. However, if they lack education, they do not have the inclination to do so.

The man in the FGD was questioned about their reluctance to enrol girls in educational institutions. One of the informants voluntarily expressed the following perspective:

In all aspects, it is advantageous for both the family and society to marry girls at a young age. What are the benefits of providing education to daughters? She alone requires the ability to transcribe her own name. It would be advantageous if she had proficiency in domestic tasks. Despite our limited finances for my daughter's education, if we support her in acquiring knowledge and fostering self-reliance, she will thrive for the benefit of her future spouse rather than for our own sake, as it will be my son who will assume the responsibility of caring for us. An educated daughter disregarded her parents' guidance and assumed an authoritative manner (Focus group discussion).

Due to conventional gender roles, women of Sariakandi are not allowed to engage in employment outside of their homes. Despite the evolving circumstances, individuals in a rural community adhere to this cultural convention. According to the patriarchal figures of society, it is believed that girls should focus on learning domestic activities instead of academic courses, as they will eventually have to live with their in-laws. Due to the flood, the parents decided to remove their daughter from school to assist with the increased household duties. Women were unable to read and write since they were not given the opportunity to attend school during their childhood, primarily owing to societal and familial obstacles. Furthermore, the frequent incidence of floods disrupts the educational condition in Sariakandi. Consequently, individuals were more susceptible and had a diminished ability to adjust to challenging situations.

The government of Bangladesh has implemented several measures such as providing stipends, adult education programs, free education, and food assistance to promote and ensure women's education to empower them and enhance their capabilities. However, these attempts are hindered by traditional socio-cultural norms in terms of evaluating women's capacity.

4.2. Lack of Training

Training is an effective method for fostering the cognitive and career development of individuals, as well as facilitating behavioural transformation. The government of Bangladesh offers many forms of skill development training, such as sewing, fabric design, and technical skills, to empower women and ensure their livelihood.

Ma Fatema Training Institute is a training centre in Sariakandi that operates under the supervision of the Ministry of Women and Children Affairs and is managed by the Women Affairs Office of the Upazila. It offers women the chance to acquire technical expertise and understanding through training programs in consumer electronics manufacturing and assembly, motorcycle service mechanics, and electric instrument assembly. The primary goals of this training program are to enhance the capabilities of women, enabling them to secure employment or establish their own enterprises. They provide complimentary training, as well as secure accommodation and a monthly allowance. Preference is given to individuals who are impoverished, destitute, divorced, or have experienced child marriage. Attending the training programs just requires the successful completion of eighth grade. Occasionally, the training centre establishes communication with individuals from the industry, and then recruits its personnel from this training centre. However, usually, women decline employment opportunities due to familial constraints. These types of skill development training programs create opportunities for alternative livelihood options during floods. Alternative livelihood is considered one of the most prominent adaptive measures worldwide.

According to the informant in the study region, women are prohibited from participating in skill development training due to their husband's opposition. The informants were queried about their rationale for not enrolling in skill development training, despite the government of Bangladesh providing the opportunity for free training. Varied perspectives were expressed by the interviewees during the in-depth interviews. One of the informants expressed her lack of knowledge of the training facilities due to her constant presence at home.

I am aware that there is a training centre located in our Upazila. Previously, I wanted to take training to establish a small business. My husband suggested that, according to my gender, my place should be within the confines of the household, where I should diligently attend to the needs of my family. If I choose to pursue employment outside of my home after completing my training, I will be unable to effectively fulfil my domestic obligations, and society will view this unfavourably (In-depth interview).

Women's inadequate access to adequate training and education hindered their capacity to attain financial autonomy and adapt to changing situations. Training programs offer

several alternative livelihood options for adaptation by improving skills and actively contributing to the empowerment of women and the decrease of vulnerability.

Women in the study region were unable to explore alternate livelihood options to mitigate the adverse impacts of flooding due to their limited knowledge and insufficient training. Male informants of focus group discussion expressed a lack of responsibility for family activities and held the belief that women should only be assigned domestic responsibilities. They believed that allowing their female counterparts to receive employment training would negatively impact their societal standing as men. In Sariakandi, men prefer their wives to remain indoors, even if they are unable to fulfil their daily needs. Thus, women remain the burden of the family, husband, society without any capacity to adapt.

4.3. Lack of Information

The most vulnerable individuals are disproportionately affected by disasters. Natural disasters exhibit discrimination like how societies discriminate against individuals. In conservative societies such as Bangladesh, women face heightened vulnerability to the effects of climatic variability and change due to their limited participation in public life. As a result, they are less likely to obtain crucial information necessary for emergency preparedness.

The absence of social connections, insufficient community support networks, and unequal access to resources and information, along with illiteracy and lack of knowledge, are the factors that contribute to the limited dissemination of information to women. Women are more susceptible to flooding and other disasters due to pre-existing gender inequality and societal standards. Timely and accurate information can decrease susceptibility and enable informed decision-making for adaptation. Implementing a policy that guarantees citizens access to pertinent information enhances public trust by promoting transparency and accountability in decision-making processes. Additionally, it aids in safeguarding the implementation of other fundamental human rights. The researcher discovered an exceptional situation in the field. Women were completely excluded from accessing any type of information. They were unaware of how to obtain information. They were unwilling to get any knowledge because they relied on their counterpart. Amidst the flooding, they were uncertain about accessing emergency services, finding shelter, identifying service providers, and other related concerns. Insufficient knowledge poses a significant challenge for making informed decisions on potential harm and adaptation. Adaptation decision making among women can be constrained due to inadequate access to information.

The field research findings revealed that various factors, including illiteracy, excessive family responsibilities, limited mobility, patriarchal perspectives, and social stereotypes, have contributed to the gender disparities in accessing information. During periods of floods, women faced difficulties in making informed judgments due to a lack of information. This resulted in delays in the evacuation process and hindered their ability to make suitable adaptation decisions. Consequently, women became financially reliant on men and were unable to adapt.

Women in the investigated region lacked access to several sources of information, including television, radio, mobile phones, non-governmental organizations, male family members, tea shops, community members, and educational institutions. Conversely, not

a single individual in the research area possessed a television in their residence. Unable to establish connectivity with a radio or mobile device. Individuals with limited mobile devices that lack internet access were unable to leave their homes or engage with others in the community due to mobility restrictions, the practice of purdah, and the significant responsibilities of managing a household. However, without access to education and training, individuals would lack the ability to feel empowered and would be unable to choose other methods of supporting themselves or acquire any adaptive tactics. Ultimately, this would reduce their capacity for adaptation.

FGD informants shared their husband's perspectives on accessing the information:

During this period of floods, our ability to act or make decisions is hindered due to our lack of knowledge. We are currently confined to our residence, and our male partner fails to communicate any details regarding the catastrophe, its underlying causes, the resources accessible to us, or any other matters concerning our family. If we attempted to express our viewpoint on any matter, they would scold us and assert that as women, we must bear the load of familial obligations while we were confined to our homes. It is asserted that mohilla manus (females) lack the cognitive ability to express their opinions and make decisions. We lack knowledge regarding the sources of training and the specific types of accessible training (Focus group discussion).

One of the in-depth interviewees depicted that:

Our existing workload for household tasks has significantly increased due to the arrival of the flood. There is nobody available for communication. Furthermore, due to limitations on our ability to move, we are unable to venture beyond our current location, and we lack alternative means of obtaining information. Our husband is the sole individual capable of imparting information to us. We can only acquire any news when they possess something they like to communicate with us. Our partners are sceptical about our ability to aid in the event of an emergency. They are constantly responsible for carrying the burden of our needs and demands (In-depth interview).

It was discovered through field research that the capacity for adaptation cannot be fully developed without information. They simply strive to endure the circumstances.

4.4. Lack of Empowerment

Promoting the empowerment of women on a global scale is a slow endeavour, as it involves addressing difficult circumstances in both low-income and industrialized countries. Women continually encounter inequalities in terms of their positions and social standing across different communities (Christiansen et al., 2016). Women's empowerment is the process of increasing women's ability to make intentional choices in their lives, considering the historical inequalities between genders (Kabeer, 1999). Empowered women can make effective decisions in any situation. They have the potential to play a crucial role in adapting to flood disasters. Women empowerment strengthens the talents of women and helps to decrease their vulnerability, not only in relation to floods but in all areas of life. Empowering women entails raising their status

to a position of greater authority, enabling them to actively engage with males in shaping society, and endowing them with the capacity to exercise influence over all aspects of societal advancement. Acquiring wealth and exercising agency are crucial elements for the empowerment of women. Informants reported encountering difficulties in generating income and making decisions due to the refusal of men to accept women's decisions and their unwillingness to grant women economic autonomy. The employment conditions for women in the study area were not conducive to promoting women's empowerment. One of the interviewees shared her experience in detail:

I had to learn how to do everything by myself after my husband died. My husband owned some land, and I had to do all the work to grow crops on it. But because I am a woman, it was hard for me to find workers, raw products, and other things I needed. The men did not want to accept me as a farmer woman. The workers did not do their jobs right on my land like they did on the land of the man farmer. It was not easy for them to hear my order (In- depth interview).

In the Sariakandi area, which was affected by flooding, people from lower socioeconomic backgrounds had a hard time getting food. Many of the people who lived there believed in superstition things, and the society was very male-centred. The people in question are ready to see their partner as less important than them, but they also want to keep their power as a man in all situations. The men in this area also thought they had complete control over the family money, whether it came from their own earnings or those of their wives.

They can't work because we don't want to lose our wives. Because of the culture in cities, where women can work, rules and ideals are not widely followed. I won't be able to trust or follow my wife if I let her work. She'll have more power than I do. She might change her mind about going with me. I'll also hurt my reputation as a guy in the neighbourhood. If I can't handle my wife, everyone will think I'm not smart enough. Why am I breaking the law when my dad and granddad never let my mom or grandma work outside? (Focus group discussion).

Education is the primary factor in empowering women. Women belonging to the lower economic stratum in Sariakandi face barriers in accessing education and skill development programs. Women in Sariakandi are not granted the freedom to make choices due to cultural norms. Women are in a position of lower status, and this has established a cultural norm that is passed down through generations. Due to the dominant influence of patriarchy and the existence of discriminatory norms, women are denied access to the resources and opportunities that would enable them to gain empowerment, enhance their capabilities, reduce their susceptibility, and adapt to flood situations. On top of that women become accustomed to think themselves as powerless and subordinate, voiceless community. Women's higher reliance on men in general can contribute to the perpetuation of women's disempowerment.

4.5. Mobility Restriction

The research area revealed that women faced cultural constraints on their ability to move freely. Imposing limitations on the freedom of girls or women to travel unrestrictedly in public areas leads to heightened susceptibility during floods and

hampers their ability to adapt. Informants believed that adhering to religious standards and practices allows them to preserve their Muslim identity. When the researcher inquired about the basis for their belief that mobility restrictions for women were religious mandates, they responded that their family and community had instilled in them the notion that it was a religious obligation for women to be confined to their homes. Women should not have the freedom to move around, and if they break the regulations, it would be considered a moral transgression for them. Through in-depth interviews, it was discovered that female participants were limited by cultural norms and traditions that assigned them to domestic duties and responsibilities, regardless of their capabilities. The researcher inquired the informants about the reasons behind their limited mobility in comparison to the unrestricted movement of men. One of them answered:

My husband won't let my daughter and I go outside. My husband and I must go everywhere together. People in my area don't think it's okay for a woman to be outside of the house without her husband. Even if there is a flood, I can't go somewhere safer if my husband doesn't let me or take me there (in-depth interview).

Informants reported that because of mobility constraints, women were unable to get adequate education, were unable to seek employment outside their homes, and were consequently unable to achieve economic independence. This led to their dependence on their husbands and placed them in vulnerable circumstances. One of the informants in the focus group discussion also mentioned:

Girls can't just go outside after they turn nine or ten years old in our society. From then on, her family taught her how to do housework instead of sending her to school. Because she must work with her in-laws on this. She won't have to work after she gets married because her husband will pay all her bills (Focus group discussion).

Women are unable to migrate for work due to limited mobility circumstances (Abbasi et al., 2019). The amount to which women can participate in planning or seek shelter is generally determined by the restrictions imposed by purdah, a practice of seclusion. The sociocultural norms surrounding women's mobility act as obstacles for women who need to find shelter, access medical care, or leave their houses. These norms dictate that women must be accompanied by male adults when they move around in public settings. The capacity to adapt differs based on individuals' socioeconomic circumstances, including their level of education, income, and occupation. In the study area women were deprived of having access to education, employment, and occupation. Restriction on mobility makes this situation worse which is nurtured by patriarchal dominating norms.

The researcher believes that limiting the independence and mobility of women will not successfully deter crimes committed against them. It will worsen the marginalization of women, tilt the power dynamics in favor of men, heighten their vulnerability, and weaken societal resilience. Women's limited mobility prevents them from independently accessing relief assistance and seeking shelter in safe regions during floods without the consent of their spouses. This ultimately heightens their susceptibility and limits their capacity to adapt. They cannot participate in any adaptive initiatives.

5. Discussions

Research suggests that socio-cultural norms have a substantial impact and are essential in increasing women's vulnerability and reducing their capacity to adapt to flood occurrences by imposing various restrictions on them. The examined area is characterized by a pervasive patriarchal cultural framework that enforces stringent regulations for women to follow. The cultural paradigm of patriarchy, characterized by male control and responsibility for the subjection of women, is the primary structure accountable for these issues. The study reveals that a significant number of informants ascribed their susceptibility to the flood to the challenges imposed by a patriarchal culture. As individuals become more vulnerable, their ability to adapt to floods decreases.

Adaptation should not be limited to only dealing with vulnerabilities and unknown dangers. It should involve a transition towards livelihoods that are more resilient and adaptable. This concept is discussed by [Ahmed and Fajber \(2009\)](#) in 2009. While coping may be tolerable in the immediate term, the frequent need to cope with risks and ecological crises might erode one's long-term capacity to adapt or endure ([Sultana, 2014](#)).

Education is a crucial aspect in developing the ability to adapt to flood situations. In addition to acquiring knowledge, education empowers women to make informed decisions, which is crucial for adaptability. Women in Sariakandi exhibit hesitancy in making decisions, attributing it to their perceived lack of knowledge and a belief that they are not as capable as males. This sort of thinking is imposed on women by conventional patriarchal societies. Women in the study area are experiencing unequal access to education compared to men. Education is also altering the dynamics between girls, their families, and their elders. Education has a positive impact on numerous other outcomes. Bangladesh distinguishes itself from other South Asian countries, such as India and Pakistan, by exhibiting significant and favourable outcomes in terms of the benefits of education for women ([The World Bank, 2008](#)). However, the situation varies for individuals in different locations. Evidence indicates that despite the Bangladeshi government's efforts to implement several initiatives aimed at improving the literacy rate, women continue to be excluded from accessing school due to socio-cultural barriers. Over time, they gradually lose their ability to function as a community.

The importance of women's formal and informal education and skills as valuable communal assets was recognized by [Azad and Pritchard \(2023\)](#) in 2023 for developing adaptive capacity of women in flood occurrences. Governments worldwide are progressively acknowledging the significance of including all individuals within communities in disaster risk reduction at both national and local levels. The Africa Hydromet Program requires the participation of women in technical disciplines such as meteorology and hydrology, as well as in decision-making processes. The program additionally enhances the knowledge and skills of government personnel in comprehending the gender aspect in catastrophe risk reduction ([Vidili, 2018](#)). Within the research region, a government training institute existed to enhance women's capabilities through various skill development training. Individuals who engage in training activities receive compensation as well. However, the women residing in this region lacked adequate awareness regarding the training program. Furthermore, those who were aware of it were unable to join due to their husbands' prohibition. Additionally, society viewed the inclusion of women in these training sessions in a

negative light. Women are unable to pursue alternate livelihood options such as electronic assembly, motorcycle maintenance, and fabric design which are available training in the study area for women due to obstacles, despite these being potential adaptation initiatives during floods.

The right to access information, sometimes referred to as the right to information and freedom of information, is a fundamental human right acknowledged in the Universal Declaration of Human Rights. Presently, this right is exercised by over 4 billion individuals in more than 100 nations worldwide. Women face greater challenges than men in accessing information, including factors such as frequency, convenience, and success rate (Manusher Jonno, 2016). Accurate information enables individuals to be well-informed about potential threats. Women in Sariakandi lack access to information, which impairs their decision-making abilities. Making proper decision is must for taking adaptive initiative as it is more sustainable than coping. The primary objective of capacity development and adaptation techniques is to ultimately mitigate risk, or to prevent the escalation of risk in response to growing risks (Brooks & Adger, 2004). Increasing access to information develop bargaining power of women to take a fruitful initiative and bring behavioural changes through awareness. But men in the study region do not allow women to get access of the sources of information by putting restrictions on them.

There is a growing consensus that gender plays a significant role in determining one's capacity for adaption. The motivation for socio-economically empowering women is compelling as it enhances their abilities, privileges, options, and total impact. Contrary to the earlier emphasis on women's susceptibility, women are now recognized as crucial catalysts for change in the context of adaptation (Ashrafuzzaman et al., 2022). Women have obstacles in accessing shelter, medical care, or leaving their houses due to sociocultural conventions that require them to be accompanied by male guardians when they move around in public areas (Sultana, 2014). Due to mobility restrictions, women are unable to participate in capacity development initiatives and adaptation processes. Women may have a lower capacity for adapting to the labor market. Women are unable to migrate for employment due to limitations on their ability to move (Abbasi et al., 2019). Additionally, they have limited mobility because of rigid gender norms dictating social conduct, which reduces their opportunities to adapt.

Recognizing the roles, responsibilities, limits, and opportunities of women's knowledge and engagement in climate change mitigation or adaptation programs empowerment is crucial. Empowerment should involve the inclusion of individuals who are now excluded from the decision-making process (Rowlands, 1995). Because decision making ability increase the capacity to adapt. The higher reliance of women on men in general can lead to further strengthening of disempowerment among women. For instance, the issue of maintaining appropriate feminine behaviour is widespread to the extent that older males may not necessarily endorse women who are seeking protection in flood shelters, where they would have to live together with unfamiliar men. Women also internalize these patriarchal sensitivities and experience feelings of insecurity and anxiety in such environments. As a result, they are frequently hesitant to seek refuge during floods. Although there are measures in place to include women in local governance processes, the existing gender bias towards males prevents women from actively participating in decision-making forums. Additionally, deficiencies in good governance practices further marginalize women, leaving them with little opportunity to contribute meaningfully to reducing their vulnerability. The presence of patriarchal components exacerbates the

vulnerability of women, hence hindering their ability to adapt (Climate Change Cell, 2008).

To mitigate vulnerability, it is imperative to enhance the adaptive capability of women. To do this, governments, non-governmental organizations (NGOs), and other entities must focus on improving the ability of women to adapt and react independently. This can be done by providing favourable conditions that facilitate adaptation. Ensuring the inclusion of women, in decision-making processes to influence policies, planning, and the prioritization of local adaptation needs shall be guaranteed. Hence, national governments must recognize weaknesses and establish criteria for measuring improved ability to adapt, which can ultimately strengthen adaptability. These observations highlight the significance of applying a gender perspective to disaster research, particularly in a nation like Bangladesh where there are deeply ingrained patriarchal cultural norms.

6. Conclusions

Flooding is a frequent occurrence in Bangladesh. Within the vulnerable population, women are the most susceptible segment. Given their fragility, women should prioritize adaptability to minimize their vulnerability and enhance their capacity for development. However, women are unable to develop their capacity and engage in adaptive initiatives due to socio-cultural barriers imposed by a patriarchal society. Despite the Bangladesh government's efforts to enhance women's involvement in disaster management and their capacity development to reintegrate them into regular life, these initiatives have been rendered ineffective due to many barriers. This investigation was conducted in a riparian area that had been impacted by flooding. Research has predominantly concentrated on coastal communities, as indicated by the existing literature. If both areas are included in a study, it would be more advantageous to examine the comparative scenario of women's vulnerability and adaptation. To enhance women's adaptability and advanced capabilities, it is imperative for the government and NGOs to prioritize addressing the social barriers that impede their access to opportunities. As adaptability increases, women's vulnerability decreases.

Ethics Approval and Consent to Participate

Prior to the initiation of data collection, there was no requirement or focus placed on obtaining approval from the Research Ethics Committee. Nevertheless, all participants were adequately provided with the necessary details about the research prior to receiving their voluntary agreement to participate. Informants' privacy was safeguarded by maintaining confidentiality and anonymity.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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