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Gender-based vulnerabilities for women during natural disasters in Bangladesh

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Introduction: Factors that negatively impact women's disaster experiences include poor disaster preparedness, lack of access to a safe place, displacement worries, distance from shelters, risk of abuse in shelters, poverty, and low cultural position of women in rural Bangladesh. This study aimed to give voice to women who experienced gender-based vulnerabilities during natural disasters.

Methods: The research was conducted with women in the two disaster-prone areas utilizing a qualitative approach. Women, aged 18 years or above, who were permanent residents of the selected disaster-prone areas and have experienced one or more disasters, were invited to participate in the study. Twenty-four women volunteered to participate. Data were collected through semi-structured in-depth interview recordings containing questions on sociodemographic characteristics and open-ended questions to assess gender-based vulnerabilities during disasters; data were analyzed using thematic analysis techniques.

Results: One main theme and six sub-themes emerged from the analysis. Women were often in the middle of making life choices between the risk of being abused and death in disasters. Shelters lacked privacy, heightened the risk of abuse, and women faced social stigma if displaced from their homes during a disaster. The women also experienced health risks because of inadequate hygiene and poor living arrangements such as a lack of adequate shelters, toilet facilities, and secure gender-segregated living arrangements if relocation was essential during a disaster.

Discussion: Findings from this study provide guidance to policymakers and disaster aid organizations on disaster preparedness and post-disaster facilities to address the socio-cultural needs of rural women in disaster-prone areas of Bangladesh.

KEYWORDS

women, gender, natural disasters, Bangladesh, vulnerabilities

Introduction

Gendered disaster vulnerabilities exist globally in both high and low-income countries (Juran and Trivedi, 2015; Kabir et al., 2019; Fatouros and Capetola, 2021). Global scholars have demonstrated that women are at multifaceted risk of negative sequelae after disasters which occur along a continuum, ranging from high to low risk (Kabir et al., 2018; Fatema, 2020). While gender vulnerabilities are global, expanding evidence identifies the key factors by country and indicates how vulnerabilities manifest during disasters (Fatouros and Capetola, 2021). High-income countries mostly overcome disaster impacts due to their available social systems whereas women's vulnerability in resource-poor countries continues to be extremely challenged (Kabir et al., 2018; Yoosefi Lebni et al., 2020). To understand the vulnerability of women, Adger (2006, p. 268) asserts that "states of susceptibility to harm, powerlessness and marginality of both physical and social systems" are at play in

disasters. Natural disasters, including adverse environmental events such as earthquakes, floods, cyclones, droughts, wildfires and volcanic eruptions, result in injury, loss, and dislocation (Altmaier, 2019; Fatema et al., 2021). Gender vulnerability related to natural disasters arises from interrelated biophysical and social determinants of health and wellbeing (Juran and Trivedi, 2015; Brunson, 2017). These pre-existing social elements affect disaster preparedness and planning for women, which in turn are further impacted by the economic status and education level of the women. Susceptibility to the adverse impacts of natural disasters is much greater in low-income countries where gender and social inequalities are exacerbated by natural disasters (Neumayer and Plümper, 2007; Robles, 2020).

Bangladesh is recognized as one of the most disaster-prone countries in the world due to its low-lying deltaic and coastal landscape (Sultana, 2010; Akhter et al., 2015). In addition, it ranks 133 out of the 162 countries in the United Nations Gender Inequality Index (United Nation, 2020). Coupled with the country's constant poverty and the rural-urban divide, the gender disparity among rural women leads to heightened levels of risk during and after a disaster period (Kabir et al., 2018; Rezwana and Pain, 2021). In Bangladesh, rural women are the most disadvantaged and vulnerable group because of the traditional socio-cultural contexts that govern their societal norms (Alam and Rahman, 2014; Brunson, 2017).

Research has shown that disastrous hazards, particularly cyclones and floods, affect vulnerable groups such as women and children more than men, which is exacerbated by less access for women to resources and opportunities (Guha-Sapir et al., 2004; Fatema et al., 2019). The prevailing death and injury of women from natural disasters in Bangladesh are consistent with other low-income countries and global statistics (Fothergill, 1998; Alam and Rahman, 2014; Fatema, 2020). In addition, a meta-analysis of 4,605 disasters found that women's life expectancy is lowered by disasters in comparison to men (Neumayer and Plümper, 2007; Fatouros and Capetola, 2021).

Although some researchers have studied the gender aspects of vulnerabilities, they are largely ignored in regard to disaster preparedness which emphasizes the need for further research in this area. Considering the extreme gender-based vulnerabilities in natural disasters, we employed qualitative interviews to explore and better understand the various factors that comprise the vulnerability of women in the socio-cultural context of rural Bangladesh. Hence, the qualitative study of rural women's experiences of gender-based challenges during disasters can provide knowledge to assist policymakers, health workers, and international organizations to develop appropriate responses to disasters. Furthermore, the voices of rural Bangladeshi women can help improve disaster preparedness and enhance future outcomes for rural women affected by natural disasters in that country and others.

Materials and methods

Design

This study, utilized a qualitative research design to determine vulnerabilities experienced by women during natural disasters.

Elsewhere we have published xxx papers from this study; this paper is focused on the vulnerabilities experienced by women within the context of gender. The study was reported in accordance with the consolidated criteria for reporting qualitative studies (COREQ) and approved by the relevant Human Research Ethics Committee (University of New England).

Participants

Participants were recruited using targeted sampling (convenience) based on the following inclusion criteria: (1) women aged 18 years and above, (2) a permanent resident of either *Sarankhola* or *Sagata* (two natural disaster-affected sub-districts of Bangladesh), (3) previously experienced a disaster, and (4) agreed to participate in the research. Potential participants with sensory loss preventing communication and who reported mental health issues to the researcher were not included.

Data collection

Data were collected using a questionnaire containing socio-demographic characteristics (Table 1), and open-ended questions to assess gender-based vulnerabilities during disasters (Table 2). Prior to recruitment and final interviews, the first author piloted the interview guide to ensure questions were understood by participants and considered relevant to the purpose of the study. One participant did not report any fixed monthly income and she was unsure about her current age.

The first author (female) conducted the interviews between October 2019 and January 2020 with 24 disaster-affected women who resided in the two-notable disaster-affected areas of Bangladesh. The researcher explained the study in detail to the participants and obtained their written and recorded consent where applicable informing them that interviews would be tape-recorded. Once participation was confirmed, face-to-face interviews were scheduled at a time and place convenient to both parties. The majority of interviews lasted between 15 and 60 min, and two interviews were between 7 and 8 min.

Data analysis

Braun and Clarke's (2012) seven step thematic analysis techniques were used to analyze the interviews. Data were transcribed by the first author and then read and re-read noting down initial codes. Research data were separated into categories through coding by two individual researchers and collated under potential themes. For validity, themes and subthemes were checked in relation to the extracts of the entire data set. Finally, removing unnecessary codes the main thoughts were identified and the themes and subthemes were given their final form. To ensure credibility, investigator triangulation was used and research themes were confirmed with the remaining research team. To

TABLE 1 Demographic characteristics of study participants.

Variables	Participants
Age	Mean age 34
18–20	3
20–30	8
30–40	6
40–50	4
50–58	2
Education	
No formal education	19
Primary level (year 1–5)	3
Secondary level (year 6–10)	2
Marital status	
Married	17
Widow	5
Separated	2
Occupation	
Housewife	18
Housemaid	5
Beggar	1
Monthly income (in Taka)	
Below 5,000	9
Between 5,000–10,000	10
Between 11,000–13,000	2

TABLE 2 The questions below are included in the semi-structured interview form.

Questions
<ul style="list-style-type: none"> • Have you experienced any type of harassment for being a female following disaster? • How was your experience of relocation as a result of the disaster (either open space, temporary resident, shelter home, or relatives' house)? • Did you face any unexpected incidents while staying there? • Do you think it is preferable for women not to be relocated to a shelter? If yes, can you tell me why? • If you were relocated to a shelter, did you experience any problems specifically related to being a woman? • Did you face any unwanted circumstances by your husband, sons, father, and other male members of the family following the disaster? • Was there any women-friendly relief? • Do you have anything you would like to add?

minimize researcher bias, participant excerpts have been included in this manuscript.

Results

The ages of participants were between 18 and 58 years and of the 24 women, all had experienced more than four natural disasters, nineteen had no formal education, and twenty had poor levels of

TABLE 3 Themes emerging from the interview.

Main themes	Sub-themes
Gender vulnerability during disasters	Poor infrastructure and vulnerability to single women
	Risk of abuse
	Displacement worries/ Refusal to relocate
	Abuse and social shame
	Sanitation/hygiene and toilet crisis
	Unheeded sacrifices

income (monthly below \$60). The research revealed six sub-themes of the main theme “Gender vulnerability during disasters” which are presented in Table 3.

Poor infrastructure and vulnerability to single women

The study participants were at risk not only from disasters but also from their poor and precarious housing conditions. They primarily resided close to an unprotected river and lived in insubstantial houses made of fences or mud. The women explained that when a disaster occurs there is a lack of emergency accommodations or shelters. Shelters are often located far away, lacking basic amenities, sufficient lighting, and offering only shared facilities for men and women. Both study areas had inadequate capacities in existing shelters, particularly in *Sagata*, therefore other places were mostly used as shelters if residents had to evacuate. Alternative shelters included strong buildings such as schools, and religious institutes (*Madrassa, Mosques*). The narratives from participants described poor infrastructural conditions and wet internal environments in the shelters. Many claimed that people who go to shelters suffered from diarrhea and illness as a result of the poor environmental conditions. Several women described that it was safer to stay at home as a shelter could fall down in the cyclone or become flooded resulting in people being trapped inside. Even if women stayed at home, post-disaster vulnerabilities like loss of income, lack of food, non-availability of cooking fuel, toilet facilities, etc. may affect them disproportionately.

Going to a shelter does not mean moving to a safe place. Shelters are not safe, no women want to live there because of various hazards. (Participant 1)

There is no point in going to shelters, most of them were flooded. If we have to stay in the water, it is better to stay in the water at home. That would be less risky for women at least! (Participant 4)

Participants explained that the shelters were often at a distance from the participants’ homes meaning

residents ran from one shelter to another in the hope to obtain safety as some of the temporary or make-do shelters also flooded. However, most men reach shelters first.

Everyone wants to go to a better shelter but without my husband, I and the children couldn't reach earlier so hardly get a place! When shelters became overfull sometimes we stayed on stairs or returned home. (Participant 16)

Occasionally participants ended up living in tents post-disaster. Many participants in *Southkhali* stayed in tents for more than 1 year after cyclone *Sidr*. The tents were fragile, insecure, and small, but two to three families had to share a tent. Participants expressed that the women slept by sitting whereas children and men get priority over being able to lie down.

While staying in a tent I could not sleep at night for feeling insecure. I was restless thinking about unseen dangers. (Participant 22)

After Sidr, we stayed in a tent for a few months. Then my mother was very worried about my security and quickly married me just after one month of Sidr, I was only 14! (Participant 24)

Risk of abuse

Women's risk of abuse starts with disaster warnings and continues in several ways whether they choose to stay at home or decide to move elsewhere. Participants expressed concern that even though they managed to find a place to stay, their tension around young female members' security endured whilst staying in unacquainted housing. They explained how they must be alert to avoid any kind of harassment while staying away from their home.

Last time I and my daughter were moved to my relatives' house with other people. I didn't let my daughter sleep at night in front of unknown men. If I slept and any kharap gotona (participant is referring to harassment) happened to her that's why I didn't sleep too. (Participant 20)

Shelters were usually overcrowded. The overcrowding resulted in fear of harassment when there was no separation of males and females in the shelters which is a usual customary expectation in Bangladesh. The participants expressed their helplessness when staying in a crowded shelter without any boundaries between people. The women's risk of abuse was evident in the following narratives:

The place is frightening for younger women like me. Many women experienced sexual harassment, I saw with my own eyes. (Participant 12)

This year, I stayed at a school for 18 days. My experience was awful. We, many people stayed in a small room. There were odors, fights over space, and no privacy for women. (Participant 11)

Moreover, the electricity is disconnected to avoid death caused by electrical faults during floods and cyclones. Participants described how they rarely had access to light; in most cases, they were left in the dark at night. The darkness of shelters increased risk for the women. For example, some of the young participants shared their experiences of being touched and harassed, and experiencing unwanted assault in the shelters:

Once someone embrace me tightly using the opportunity of darkness, I was startled. After that incident, if I had to go to a shelter, I try my best to sit far from any men. (Participant 12)

I often experienced annoying touches on my body while staying in the school (shelter), this happens mostly at night. (Participant 5)

Overall, the condition of the shelters was not female-friendly. Some of the participants shared how young girls felt uncomfortable staying in the shelters without male family members and relied on safety in numbers rather than being alone.

Recently in the shelter at night when I went to the toilet I heard a male voice calling me in a bad gesture and also knocked on the door! I was so scared that I stayed in the toilet until my sister came to call me. (Participant 5)

It is more frightening for girls to be in a shelter than floodwater. You cannot be safe if you have strangers around, and some men always walk around the girls. (Participant 4)

According to the participants, robbers, usually in *Sagata*, attacked in large groups with sharp weapons during floods. They robbed domestic animals, and money, in addition to abusing and kidnapping young girls. Participants' narratives identified the presence of the robbers as a serious threat to those who have domestic animals and young girls in the family.

At day time, I kept my daughter-in-law with me in the school but before night I sent her to someone's house, far from the riverside, in fear of robbers! Robbers used to abuse beautiful women, and sometimes kidnap them for 1 or 2 days. (Participant 6)

Displacement worries/refusal to relocate

Many participants expressed not wanting to relocate to a shelter due to displacement-related vulnerabilities and discomfort as well as the lack of privacy in shelters. Some participants described that they were at risk from

rising flood waters, but stayed at home to avoid further hazards associated with relocation, even if it meant risking death.

I prefer to stay on the house roof rather than go to school (shelter). Many people stay in shelters, they could be good or bad. Women fear leaving home more than a disaster. (Participant 14)

Moreover, some participants refused to relocate to avoid the extra burden of work when moved. They expressed that it is hard to move with children and essentials due to poor communication systems. Besides, before leaving they used to bind households, and furniture so that they don't float away. Additionally, there is rarely any arrangement of food in shelters so women have to arrange places to cook for the family.

This year after going to shelters, in two days I returned home 3 times for food, light, and warm clothes which were very tiring for me! (Participant 23)

Some participants who had young unmarried daughters also mostly stayed at home during disasters due to concern for their daughter's safety and security. They also described difficulties finding a safe place to move in disasters. Therefore, marriage had been considered an option to increase the safety of adolescent girls.

People or relatives don't allow me to stay in their house as I have unmarried young girls. (Participant 8)

I am a widow with a young daughter. I couldn't decide where to go during disasters. We stayed at home at risk of dying but don't feel secure going to shelters. (Participant 15)

Although most of the participants preferred not to be relocated, often they had no choice in the end. It highlights the difficult decisions women have to make in times of disaster; it is often a matter of life or death and the safety of the children.

A woman needs to go to an emergency shelters to save the lives of her children, but no woman wants to go there. It is better to die an honorable death at home than to be abused by a man! (Participant 4)

Abuse and social shame

Participants reported that women who relocate to shelters or other people's homes often fear experiencing shame. When a woman moves to someone else's house in Bangladesh, this is not considered a societal or cultural norm and is perceived negatively. This is the reason why women, particularly young and unmarried women, avoid moving during disasters.

If I go to the shelter with a girl suitable for marriage, people will say kharap kotha (participant means the girl will be socially stigmatized) about her. Then, I will not be able to marry her well. (Participant 20)

While staying other than at home, sometimes unexpected incidents happen to women... If we talk about this or inform our family that will create more problems in our life. (Participant 11)

Moreover, some participants were restricted by their families from going to emergency shelters or leaving their homes for fear of social stigma.

My husband doesn't allow me to leave home due to his experience of seeing other women having unacceptable experiences. (Participant 5)

My husband said to me shelters are not for respected women. If you die, die at home, but you don't have to go among so many people. (Participant 7)

Although many participants had negative experiences while staying in shelters or someone's house, women could not share their discomfort and harassment with anyone. Young women usually hid these incidents for fear of social shame and disrespect by family and community members. It is difficult for the family to marry disrespectful girls and the women reported worrying they may become a burden to their families.

Women experience harassment in the darkness and crowd but no one will share those incidents certainly. No one wants to disclose these occurrences for fear of being insulted in society. (Participant 20)

Many women experienced kharap gotona (participant is referring to harassment) but they hide! Otherwise, people will blame them for the occurrences. My mother also told me not to share any incident with anyone. She always says we are poor but our ijgot (participant means social respect) is our pride. (Participant 4)

Sanitation/hygiene and toilet crises

Almost all the study participants were from low socioeconomic circumstances and their living conditions pre-disaster were less than desirable. During disasters when toilets were flooded, participants faced great difficulties because they had no access to alternative toileting facilities. They handled those situations in two ways; either they were forced to use open spaces where they were in the sight of community members or they had to wait until dark so they could not be seen. Women discussed their distress and discomfort with that situation and

usually consumed less food and water to reduce the need to use toilets.

During floods, our biggest problem is the unavailable toilet facilities. Men and children do toilets anywhere in water but I felt shame to do that. Therefore, I took less food to avoid going to the toilet. (Participant 1)

For toilets, I went to another house which is the 6th or 7th house from my house. It was not always possible to go far to use someone's toilet. (Participant 6)

Hygiene was another issue reported by the participants which resulted in further vulnerability to their health. Because of the lack of access to bathrooms and privacy, they were unable to shower or change their clothes for many days during the flood. Participants emphasized the issues around women's sanitary needs which are rarely considered in disasters and not considered by aid providers.

I can't explain the suffering of those days while staying in a tent. I used to stink, not only me, but most of us who had young kids smelled...! We got clothes after months and then we took a bath. (Participant 20)

The women also face difficulty with menstruation during floods. Many get sores in that area due to remaining dirty and wet clothes. (Participant 11)

Women's unheeded sacrifices

Many participants ignored their health conditions and put their lives in danger for family members. Examples of women's sacrifices revealed foregoing food to enable their husbands and children ate, and ignoring health issues to save money considering the family's poor economic condition.

I have many health complications. But I don't tell my brother to see me a doctor, I am already a kind of burden to them. They have limited income, I could not ask for further. (Participant 21)

In addition, participants with disabled family members and domestic animals to care for often endangered themselves for their families and livelihood during disasters. The participants' narratives revealed that by doing so they were often placing their own health at risk.

I have a disabled son of 5 years. I had to carry him with me wherever I go especially in floods. Sometimes in one arm, I carried water, on the other I carried him. Those days are hard carrying heavy things and moving through the water. I often fell down and hurt. But no other option was left for me, I couldn't leave him alone inside the house in the water. (Participant 10)

Last two years, I didn't go to shelters leaving my disabled husband at home. I don't have the energy to carry him to the shelter so stayed at home during the disaster. I could not think of my safety leaving him in the water. (Participant 2)

Some of the participants described how they stayed at home during disasters because it was hard to arrange a place to move with livestock or a disabled family member due to their extra needs. Therefore, they put their life in danger by remaining in their home.

It is hard for me to get a space in a shelter with my cows, so mostly I stay at home in floods. (Participant 16)

It is always difficult for me to manage a place to stay during floods as my son is disabled and he does toilets in bed. (Participant 10)

Discussion

This study explored the complex realities of gender-based vulnerabilities experienced by disaster-affected women from the coastal and northern areas of Bangladesh. Based on the qualitative data derived from the in-depth interviews, the findings highlight six underlying and interrelated issues of gender-based vulnerabilities during disasters. These vulnerabilities are associated with negative experiences of disasters, shelters, and poverty. Each of these concerns renders women vulnerable and requires them to adapt to survive in the reality of their existence. The vulnerability of women presented in this study is consistent with findings from previous studies in other countries (Irshad et al., 2012; Yoosefi Lebni et al., 2020), indicating the ongoing nature of gender-based vulnerabilities in disaster settings and indicating the tardiness of governments and other groups to take action to improve the situation.

The current study highlighted how women are particularly vulnerable in terms of their personal security because of their poor setup and lack of access to a safe place during disasters. The data relating to emergency accommodation arrangements in disasters indicates the lack of suitable shelters in the recurrent disaster-prone rural areas of Bangladesh especially in *Sagata*. In addition, distance from shelters, facilities and infrastructural structures of the shelters increased the rural Bangladeshi women's vulnerability which echoes the research findings of others (Azad et al., 2013; Ayebe-Karlsson, 2020). The absence of husbands or male family members during disasters was also found to be a risk for single women. In the context of rural Bangladesh, women are discouraged to leave their houses without the accompaniment of male family members, even in disasters. Previous research reported that the absence of gender-segregated (men-women separated) space limited women's mobility in disasters which contributed to a higher rate of female death (Juran and Trivedi, 2015). Research has also postulated women were found stressed in the absence of husbands and men were reluctant to take women into shelters during disasters (Azad et al., 2013; Brunson, 2017). Of concern is the fact that women reported the need to marry their daughters off at a very young age

due to the issues related to moving young unmarried girls to the homes of other community members or shelters. Similar concerns and strategies have been previously reported (Ahmed et al., 2019). The inequality of women in Bangladesh and the extent of their vulnerability during disasters is reflected in this situation.

Displacement during disasters leads to potential abuse of women, and this too influences their decisions to relocate during a disaster. Previous studies, the media, and advocacy organizations drew attention to the risks of sexual violence following the 2004 Indian Ocean tsunami, and cyclone *Sidr* in Bangladesh in 2007 (Akhter et al., 2015). It should be noted that there was no direct report of sexual assault in this study which may be due to societal sensitivities and cultural context. However, previous research (Ayeb-Karlsson, 2020) asserts that there is a tendency to hide sexual abuse to avoid social shame and difficulties in marrying unmarried daughters. This fear of social shame instigates early marriage, sexual assault, and female mortality in disasters which is consistent with previous studies (Ahmed et al., 2019; Rezwana and Pain, 2021).

The women where this study was conducted usually resided in poverty. Poverty generates an unhygienic environment and sacrifices which increased women's higher health risk in the long-term disaster-affected areas. The lack of hygiene facilities and women's sanitation needs during a disaster put these women at further risk of developing short- and long-term health problems including genital sores and vulvar ulcers, mainly in *Sagata*. Similar concerns were raised by prior studies in Bangladesh regarding women and children (Akter and Ali, 2014; Akhter et al., 2015). Whilst this issue has been recognized previously, the needs of these rural women during disasters remain unaddressed (Brunson, 2017; Fatema, 2020). In addition to the existing literature, the inequality of women in Bangladesh and the extent of their vulnerability during disasters is reflected in this study. The present study recognized the inadequate disaster preparation in riverine areas such as *Sagata* compared to coastal zones. It also identified that disaster victims experienced gender-based violence, particularly in recurrent and lengthy disasters. The study highlights the extant inequalities even more and the government's inadequacy in providing provisions for women in vulnerable areas. There is minimum infrastructural development for the mainland disaster victims for example the lack of shelters and protection from rivers that flood. While the disaster victims of coastal areas are mainly exposed to death and trauma, females are the main disaster victims in the riverine areas. Although women were found to be vulnerable in both study areas, women in the riverine area were highly vulnerable to abuse, sexual harassment, early marriage, sicknesses, and displacement due to the prolonged flood in the riverine areas. In addition, poverty-generated migration of men in that area increased single women's social vulnerability. Therefore, poor infrastructure, socio-economic conditions and regular disasters increase the risk of women's vulnerability in everyday life.

There are international guidelines on disaster management and like other countries, Bangladesh is also committed to reducing disaster risk in accordance with the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015–2030 (Chisty et al., 2022). Moreover, the Sustainable Development Goals (SDGs) have targets to minimize gender disparity by 2030 and prevent Sexual and Gender-Based Violence (SGBV) in disasters (Robles, 2020; UN

2020). However, while Bangladesh has succeeded in reducing the number of deaths during disasters in recent years, SGBV post-disaster remains a serious issue that requires urgent attention.

Following the international guidance of relevant agencies, disaster management policies can address the disaster-induced vulnerability issues of women. Disaster management policies can act to identify and prioritize gender-specific needs and empower women for sustainable and resilient recovery in Bangladesh. The effectiveness of disaster policies is essential to take advantage of these recommendations. The study has some limitations. The study participants were self-selected; therefore, this may have resulted in selection bias. Moreover, the study exclusively focused on women's perspectives; we did not collect responses from men. Researchers need to explore how gender-based vulnerabilities can be reduced following the intervention and strategies from the countries that become successful in mitigating gender-based risk in disasters.

Conclusion

The women in this study highlighted their experiences of gender-based struggles which require urgent change; unfortunately, the issue has received little attention. The results of this study will be helpful for policymakers, and international organizations such as the Red Cross and UNHCR, to understand women's vulnerabilities during disasters. It is important for researchers to highlight stories of disaster-affected Bangladeshi women so that their voices can affect disaster preparedness in order to provide better strategies and policies based on their needs in order to reduce their future vulnerability. These findings also provide recommendations for implementing gender-sensitive arrangements, especially when considering women's experiences and socio-cultural context. The findings of this study have the potential to contribute to informing gender-based vulnerability mitigation agencies, policies and programs.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by Human Research Ethics Committee of the University of New England. The patients/participants provided their written informed consent to participate in this study.

Author contributions

SR, LE, SI, and KU: study design. SR: data collection. SR and LE: data analysis. SR, LE, and KU: manuscript writing. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships

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that could be construed as a potential conflict of interest.

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