Impact of Climate Change-Induced Flood on Women's Life: A Case Study of 2022 Flood in District Nowshera, Khyber Pakhtunkhwa, Pakistan

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Abstract

This study highlights the difficulties women faced during and after the 2022 climate change-induced floods in district Nowshera, examining their impacts on women's health, social lives, and personal lives. A mixed-methods approach was used, combining qualitative and quantitative data. Quantitative data was collected through 50 close-ended questionnaires using a multi-stage sampling method from women over 18 who experienced the 2022 flood. Qualitative data was gathered through focus group discussions and interviews. The results show that floods severely jeopardize women's personal lives, social lives, and physical and mental health. There was a noticeable rise in waterborne infections, reproductive issues, and mental health disorders such as depression and anxiety. Socially, floods exacerbate existing gender disparities in the workforce, increase burdens, and lead to exploitation in the disaster's aftermath. Personally, women experience loss of livelihoods, long-term displacement, and disruption of daily routines, all hindering personal growth and economic stability. The research emphasizes the necessity of gender-responsive disaster management strategies that cater to women's unique needs. It calls for greater access to mental health services, programs designed to support women's economic recovery, and improved healthcare access. Rebuilding women's social networks and enhancing resilience against future floods require community-based interventions and empowerment initiatives. Integrating gender perspectives into disaster preparedness, response, and recovery efforts is essential to address these impacts holistically. This study underscores the importance of inclusive policies and practices to mitigate the negative effects of flooding on women and to foster their resilience and overall well-being.

Keywords: Women's Life, Climate Change, Flood 2022.

Introduction

According to the United Nations Framework Convention on Climate Change (UNFCCC) climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (Usman et al., 2024). The Intergovernmental Panel on Climate Change (IPCC) defines climate change as "a change in the state of the climate

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that can be identified by changes in the mean or the variability of its properties, and that persists for an extended period, typically decades or longer" (Musa et al., 2024). Flooding is increasingly recognized as a significant and recurring environmental challenge driven by climate change (Mishra et al., 2022). While floods have historically been common in riverine regions worldwide, the recent surge in their frequency and intensity is closely linked to climate change (Tabari, 2020). These floods can arise from various factors, including heavy rainfall leading to rivers overflowing, snowmelt, obstructions in waterways, storm surges, and tidal waves, often resulting from a combination of natural and human-induced causes.

Floods can have a number of profound impacts on both individuals and communities. From a human perspective, the most obvious effect is the loss of life (Merz et al., 2021). According to the World Health Organization (WHO), over the last ten years, more than 500,000 people worldwide have lost their lives as a result of flood events (Liu et al., 2023). Floods also have a significant economic impact, including damage to property, crops, infrastructure, health conditions like waterborne diseases, and loss of livestock; all of these have considerable costs. The environmental effects of floods can also be quite substantial, including the potential to kill off plants and destroy animal habitats, erosion of riverbanks and beds, change in the course of river channels, and sediment deposition on road and agricultural land, rendering them useless.

Pakistan ranks among the top countries vulnerable to climate change-induced extreme weather events, including floods, which have recently wreaked havoc on infrastructure, agriculture, and public health (German Watch, 2021; Rana et al., 2023; Otto et al., 2023). In Pakistan, summer monsoons cause devastating rainfall, leading to floods and landslides from July to September that damage the whole country economically and socially (Aslam et al., 2020). According to the Federal Flood Commission (FFC) report, Pakistan has faced 20 major floods from 1950-2011 (Shah et al., 2020). The flood which hit the country in 1950 was the most devastating in terms of human loss (Manzoor et al., 2022).

Recently, Pakistan has experienced frequent and devastating floods, causing enormous damage to the lives, infrastructure and economy of the country. The flood in 2010 was the second most devastating, taking 1,985 lives and damaging 17,553 villages, affecting 21 million people (Shah et al., 2020). The situation of the 2022 flood was even worse than the devastating flood of 2010 (Khan et al., 2024). In 2022, all four provinces of Pakistan were affected by extreme floods in which millions of people lost their lives and properties, and 15% of Pakistan's population was affected (Khan et al., 2024). The most affected provinces in Pakistan were Sindh and KP. The catastrophic floods of 2010 and 2022 highlight the severe impacts of climate-induced extreme weather on millions of people, with significant consequences for women (Ahmad et al., 2022; Sarfaraz & Faisal, 2023; Zia et al., 2023).

According to the National Disaster Management Authority (NDMA, 2024), more than 33 million people were affected, and 1 million houses were damaged in the 2022 flood. Among these, women and children were the most vulnerable to floods. Women experienced challenges during floods like access to health care, social problems, cultural restrictions, physical and mental health issues, post-traumatic disorder (PTSD), gender-based violence and disruption of their daily routine (Yousuf et al., 2023). During the 2022 flood disaster, pregnant women faced high risks during their pregnancy, lactating mothers faced malnutrition and food shortages, sexual assaults at relief camps and unhygienic conditions (Yousuf et al., 2023). According to the United Nations, 130,000 pregnant women needed urgent care in Pakistan during the 2022 flood (UNICEF, 2023).

Women are more exposed than males to disastrous situations (Gul & McGee, 2021). Evidence indicates that climate change exacerbates existing gender disparities, with women experiencing

more severe impacts compared to men and the wealthier populations (Ngcamu, 2023). Historical data shows that women are disproportionately affected during disasters, as demonstrated by higher female mortality rates in events such as the 2004 tsunami and the 2010 Pakistan mega floods (Haider & Sultana, 2022). The increasing severity of natural disasters due to climate change magnifies these vulnerabilities, with women's limited access to resources, education, and disaster preparedness contributing to their heightened risk (Haider & Sultana, 2022). Gender norms in countries like Pakistan further restrict women's mobility and access to aid, exposing them to additional risks and violence (Ngcamu, 2023).

The underrepresentation of women in climate change research is a significant issue, as highlighted by Mcleod et al. (2018), who emphasize that gender-specific experiences and impacts are often overlooked. Studies have been conducted all over the world on the effect of flood disasters on women. Nahar et al. (2024) investigate the barriers that hinder women's adaptation and capacity-building in flood-affected regions of Bangladesh. Using a qualitative approach, including focus group discussions with six distinct groups and in-depth interviews with thirty participants, the study reveals that both rural community dynamics and flood disasters exacerbate women's vulnerability women. The primary impediment is the patriarchal culture in rural Bangladesh, which limits women's access to essential knowledge, skills, resources, and adaptive capacity. Rahman et al. (2023) investigated the mental health impacts of the 2022 flash floods on women in Ajmiriganj and Dharmapasha Upazila, Bangladesh. Surveying 393 women, the research employed the DASS-21 tool to evaluate depression, anxiety, and stress levels. Descriptive statistics and multiple linear regression analyses revealed that 67%, 65%, and 37% of participants experienced severe or extremely severe depression, anxiety, and stress, respectively.

Additionally, exposure to family violence during the floods exacerbated these conditions, with 89%, 88%, and 58% of women reporting severe or extremely severe depression, anxiety, and stress, respectively. Chowdhury et al. (2022) investigated the long-term effects of floods on rural employment in India, focusing on gender differences. Analyzing data from 1983 to 2011 across 15 major states, the study finds that floods disproportionately harm female agricultural workers compared to their male counterparts and hinder women's opportunities in the non-agricultural sector. Naz and Saqib (2021) used qualitative and quantitative data from surveys, key informant interviews, focus group discussions, and in-depth interviews to analyze gender-based flood vulnerabilities among char farming households in Zanjira, Bangladesh, highlighting differences in how men and women adapt to climate change impacts. Findings indicate that men are less vulnerable than women, with men scoring 0.430 units higher in the vulnerability index. The hierarchical regression model confirms the significant role of gender in explaining these vulnerabilities.

Chowdhury et al. (2021) explored how inequality-adjusted human development (IHD) affects flood fatalities across 19 Indian states from 1983 to 2013, with a focus on gender disparities. Their analysis reveals that higher IHDI scores are associated with reduced flood deaths overall, with a 10% increase in IHDI linked to 38 fewer deaths. However, the benefits of IHDI are distributed unevenly between genders; a 10% rise in IHDI results in 26 fewer male deaths and 12 fewer female deaths. Ayeb-Karlsson (2020) investigated gendered dynamics of disaster mobility and well-being in coastal Bangladesh, highlighting that social and gender norms significantly influence evacuation decisions during cyclones. The study used storytelling and discourse analysis to explore why some individuals, particularly women, failed to evacuate and experience greater disaster-related hardships. It identifies three key themes: gendered safe and unsafe spaces, differences in

knowledge between men and women, and varying experiences of trauma and mental health impacts.

Leya et al. (2020) evaluated gender-specific vulnerabilities during the 2017 flood in northern Bangladesh, focusing on the most at-risk groups, such as women, children, adolescent girls, older people, people with disabilities, and other disadvantaged individuals. The study covers the districts of Kurigram, Nilphamari, and Netrokona, using Participatory Rural Appraisal tools, including 12 focus group discussions and several key informant interviews. The findings highlight that floods severely disrupt daily life, damage infrastructure, and destroy assets and crops, with particularly harsh impacts on these vulnerable gender groups. Othman et al. (2017) conducted a study to analyze the effect of flood disasters on daily activities and quality of life among women flood disaster survivors in Malaysia. They selected the purposive sampling method and found that the social construct built around women made them responsible for domestic duties, which enabled the women to balance their occupational lives. This imbalance in the pattern of women's occupation during a disaster impacts their health, wellness, well-being, and quality of life.

Only a few studies have been conducted in Pakistan to examine the impacts of floods on women's lives. In one of these studies, Akter (2021) investigates the effects of catastrophic floods on the gender division of labour in rural Pakistan. Using data from the Pakistan Rural Household Panel Survey (2012-2014) and satellite imagery for flood inundation depth, the study analyzes time allocation for over 8,000 adults in 76 villages post-2011, 2012, and 2013 floods. The results indicate significant shifts in gender roles for both paid and unpaid labour. For every 1-meter increase in flood depth, men's and women's hired labour time increased by approximately 2 and 1 hour per week, respectively. Women's time spent on child and elderly care decreased by 1.5 hours, while men's time on reproductive work and fuel collection increased by 2 hours. Overall, men's weekly activity time increased by 6 hours, and women's by 2 hours, with the most pronounced changes observed among landless and marginal landowners.

In another study, Memon (2020) explores the link between climate change and gender-based violence in flood-affected areas of rural Sindh, Pakistan. Using qualitative research, 20 women in flood settlement camps were interviewed. The study reveals that women experience increased physical and emotional violence, often perpetrated by partners and strangers, particularly when displaced in temporary shelters. Similarly, Bukhari and Rizvi (2015) conducted a study to analyze the impact of the 2010 flood on women in Pakistan. They randomly selected 13 districts out of the total 29 flood-affected districts, and 50 household samples were randomly selected from each district. They found that under the cultural traditions of the country, females had to stay at camps all the time where they faced sexual assaults. Most of the camps are unhygienic and overcrowded, where pregnant women and feeding mothers face the problem of malnutrition.

Despite the critical need for gender-focused research, there is a notable lack of studies on the impact of climate-induced floods on women's lives, particularly how the 2022 flood affected women's lives in Pakistan. This research aims to address this gap by examining the specific impacts of climate change-induced floods on women's lives in Mohib Banda, Nowshera District, KP, Pakistan. This study is crucial for informing gender-sensitive disaster response and planning, as supported by international frameworks such as the Rio Conference (1992) and the Sendai Framework (2015-2030), which advocate for inclusive and gender-sensitive approaches to disaster risk reduction and climate change adaptation (CEDAW, 2018).

This research presents an innovative exploration of the impact of floods on women. Diverging from traditional studies that emphasize economic and infrastructural damages, this study uniquely examines the gender-specific repercussions of flooding. Through a comprehensive mixed-methods

approach that combines quantitative data with qualitative narratives, the research reveals the profound effects of floods on women's social lives, personal lives, and health outcomes. No studies have been carried out to examine the impact of the 2022 flood on women's lives in this region before.

Materials and Methods

The specific objectives of this study are to investigate the gendered impacts of the 2022 flood in district Nowshera, Pakistan, particularly in social, health, and economic spheres, and to analyze the coping mechanisms and resilience strategies employed by women to mitigate the impacts of flood disaster in the study area.

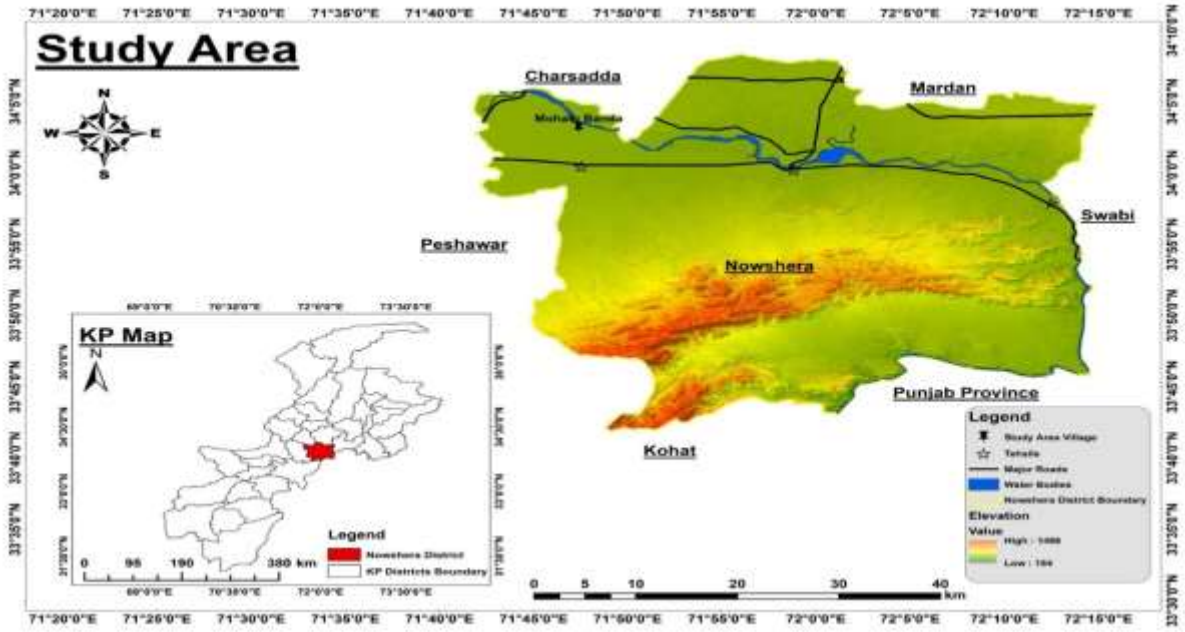
The Study Area

Nowshera is located between 33° 41' 36" to 34° 08' 28" north latitude and 71° 41' 31" to 72° 14' 53" east longitude. The district is bordered to the north by the Charsadda and Mardan districts, to the east by Swabi district, to the south by Kohat district and Punjab province, and to the west by Peshawar district (Figure 1). Covering an area of 1,748 km², Nowshera had a population of 874,373 according to the 1998 census, which increased to 1,520,995 by the 2017 census, comprising 51% males and 49% females. The rural population stands at 1,179,890, while the urban population is 338,650.

Located in the Khyber Pakhtunkhwa province of Pakistan, Nowshera lies along the Kabul River and is prone to flooding. The district has a significant population, including many women who face health, social, and personal challenges due to floods. The 2022 flood exacerbated these challenges, highlighting the need to understand its impact on women and to develop coping and mitigation strategies.

Two major rivers, the Kabul and Indus, flow through Nowshera. The Kabul River enters from the west, traverses the plains, and joins the Indus River at Kund Khairabad. Although the district's streams are numerous but small, they are crucial. The Chipla Khwar is particularly important for the low-lying land around Pabbi. In the district's extreme east, streams such as Chuna Bund in Khairabad and Malla Tor in Naudeh are significant. These streams are used for irrigation and drinking water but can cause destruction during floods.

Figure1: Location Map of the study area



Data Collection

Both primary and secondary data was collected and analyzed for this study. Primary data was collected through mixed methods approaches i.e. both quantitative and qualitative methods. During data collection 50 questionnaires were filled which were close-ended, through multi-stage sampling method from the females who experienced the 2022 flood. Stratified random sampling and purposive sampling methods were used to recruit participants for the study. Participants were selected from the female population of Mohib Banda locality whose age was from 18 years or above. The questionnaire included questions related to the physical, social, psychological and economic impacts of 2022 floods on women's lives in Mohib Banda. Qualitative data was collected through focus groups discussions and semi-structured, in-depth interview; two focus group discussions were conducted for this study. The first focus group discussion was conducted with 8 local women in a community center in Mohib Banda. The second focus group discussion was conducted with 5 participants including two community leaders, and three NGO officials who participated in rescue and recovery efforts during and after the 2022 floods. Focus groups were conducted with focus group guides consisting of questions related to the social, physical, economic and psychological impacts of flood on women's lives. One semi-structured, in-depth interview was conducted from the BHU doctor who participated in the relief process after the 2022 flood. The interview was conducted with the help of an interview guide. The duration of the focus group ranged from 1.5 to 2 hours while the interview last for one hour. Focus groups and interview were recorded with the help of a voice recorder.

The coordinate system was employed in mapping. The majority of GPS devices were utilized as WGS84 or WGS72 variations of the global geodetic system (WGS). There were image files, shape files, and supporting data available. The layer was saved as a KML or KMZ file for export. KML or KMZ are converted into features to use in ArcGIS. Google Earth was used to export the chosen KML or KMZ files. The coordinate system data was used to import lines, points, and polygons. Subsequently, we queried and changed the data using symbols based on our requirements.

Data Analysis

The data collected through questionnaires were analyzed in MS Excel and represented in the form of graphs, tables and diagrams. The qualitative data collected through focus group discussions and interview were transcribed and analyzed using coding. Themes were identified after coding the data and the results were presented in the form of text and models.

Results

Table 1 show that the people of District Nowshera (Mohib banda) from whom we collected the data were all present at the time of the flood. Figure 2 A show the frequency of the flood in the last five years. 26% people experienced flood once, 54% experienced flood twice and 20% experienced flood more than twice in the study area, Mohib banda, Nowshera. When asked about the impact of flood on the daily routine of the local people, particularly women, one female respondent replied:

> *Flood disrupts the overall daily routine of the women. It affects the livelihood, the infrastructure which compels them to live in the overcrowded shelters. It affects the education system of the girls especially in areas which are prone to flood. Women are trying during the flood to fulfill the basic needs of their families which is not possible because of the flood (participant 3).*

The table 2 shows that during the flood all the people had to evacuate their homes in the study area. When asked about the problems faced by women in temporary shelters, one woman reported:

> *There were specific challenges related to female during evacuation or in temporary shelters. Women were struggling to find private spaces for their personal hygiene. They were unable to receive relief items as they were not allowed to stand in line with males. Pregnant women did not have proper care and facilities in the temporary shelters (participant 05).*

Table 4 shows that the flood impacted all the respondents and their access to essential resources like hygienic food, clean water and medical care facilities in the study area. Table 5 shows that the girls and women's face challenges in accessing education for girls and women during and after the flood. Figure 2 B show the responses about the health challenges during and after the 2022 flood. 80% women faced health challenges and 20% did not face these challenges in the study area. As explained by one woman in Mohib Banda "as women we faced the challenges to access the hygiene facilities like clean water, hygienic food and clean environment. We faced the scarcity of medical facilities which affect the health of the women" (participant 02).

Figure 2 C show challenges women faced in Mohib Banda to access reproductive health services during 2022 flood. 90% of women faced difficulties in accessing the reproductive health services and 10% did not face any significant challenges. One female participant explained these challenges in these words:

> *Pregnant women faced challenges to access the medical facilities. Lake of clean water is one of the major issues which are essential for maintaining good menstrual hygiene. Contaminated water and sanitation infrastructure are making issues for women to access clean water for washing the menstrual hygiene products. Lady doctors were not available in most of the temporary shelters and it's still a problem to find a lady doctor for deliveries and for pregnant women (participant 09).*

Table 3 shows that all the respondents experienced mental health issues during and after the flood. All the women respondents reported that they faced mental health problems such as depression,

anxiety, trauma, sleeping disorders and fear of flood during and after the flood. One female participant said:

> *I felt depressed for several days after the flood. I had to take medicines because our house was completely flooded and all our luggage was under water. It was so depressing for me. Even my neighbors experienced anxiety. They faced separation from their families for the long time which disrupt their lives and their daily routine. Separation from the families also affected them mentally (Participant 07).*

Figure 2 D shows that 42% women got the support services related to health during and after the flood and 58% did not received any support services. Figure 2 E shows how women managed to cope with health challenges due to flood. 30% women cope the challenges with family support, 35% with community support, 13% with government support and 22% coped with challenges with the help of NGO's during and after 2022 flood. Figure 2 F show that 18% women got the counseling for the emotional well-being after the flood and 82% women did not get the counseling after the flood. When women were inquired about the effectiveness of the support received as a woman, one woman replied:

> *The support we received as a woman was not that much effective because only the basic healthcare was provided which was not enough for us. Women were giving birth to the children in the relief camps where they needed special care. So the support was not that much effective (participant 4).*

Cultural norms and practices that affected women's ability to access help or resources during the flood is the restriction to the home boundary or to the shelters. This factor limits the women to access the resources in these shelters which hinder women's ability to voice their needs and preferences. Figure 3 G show that the culture factors influenced the way women were affected during the flood. Most of the respondents (82%) confirmed that culture factors played an important role in how women were affected during the flood. 18% were not affected by the culture factors impact the way women during the flood.

The cultural considerations also affect women's participation in decision making processes during evacuation and in temporary shelters during the flood. Women face the cultural problems that limit their involvement in decision making. The cultural considerations restrict the movement of women in public space. They restricted to stay in home all the time which limit their involvement. Figure 3 H shows the role of traditional cultural practices in women's coping with challenges of flood. Most of the participants respond (80%) that traditional cultural practices play a role in women's coping with challenges of the flood while 20% shows that it did not play a role.

Figure 3 I shows the barriers to receiving support from community organizations or relief efforts. 80% shows that there were barriers while 20%shows that there were not any barriers during receiving support from community organization or relief efforts. Figure 3 J shows that 80%women feel that women face unique social challenges compared to men while 20% did not feel that women face unique social challenges compared to men during flood in the study area.

One NGO representative said "the women affected by the flood faced the challenges related to social life like disruption of their daily routine and their gatherings all were disrupted because of the flood" (participant 10).

The participants were also asked about any security concerns and issues of gender-based violence during and after the flood. According to the locale women they did not faced safety concerns while staying in temporary shelters neither did they experience gender-based violence because of the proper Parda system (covering their bodies with clothes) which is implemented by the religion and also their culture. Therefore, culture played a positive role in the safety of women in Mohib Banda

and also protected them from gender-based violence. When asked about the effectiveness of the existing support systems in addressing women's needs, all of the participants expressed dissatisfaction. As explained by one female participants:

> *The existing support system (government, NGO's, community organization) are not effective in addressing the needs of women during the flood because these organizations sometimes do not equally help the people. Some people are getting the relief and some of them are not so these organizations needs improvement and attention (participant 01).*

Table 1: Presence of women during flood 2022

Have you personally experienced a flood in your area?	Yes	No
Frequency	50	0

Table 2: Evacuations of homes during flood 2022

Do you have to evacuate your home during the flood?	Yes	No
Frequency	50	0

Table 3: Mental health challenges of flood 2022

Did you face any mental health challenges during and after the flood?	Yes	No
Frequency	50	0

Table 4: Emotional or mental health impacts of flood on women's

Did the flood have emotional or mental health impact on you?	Yes	No
Frequency	50	0

Table 5: Impact of flood to access the essential resources

Did the flood impact your access to essential resources such as food, water and medical care?	Yes	No
Frequency	50	0

Figure 2: A: Frequency of flood experienced by the people, B: Health challenges during and after 2022 flood, C: Challenges accessing reproductive health services during 2022 flood, D: Support services for women during and after flood 2022, E: Factors helping women to cope with health challenges during and after flood 2022, F: Support for emotional well-being of women

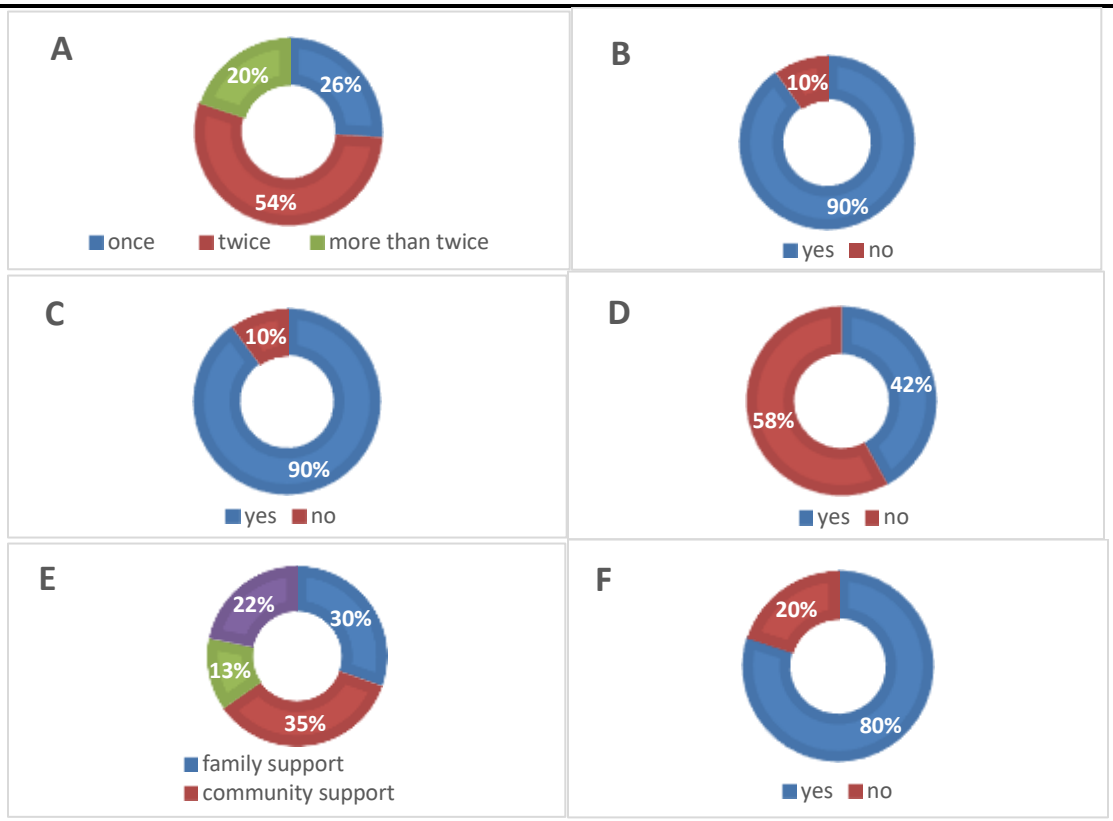
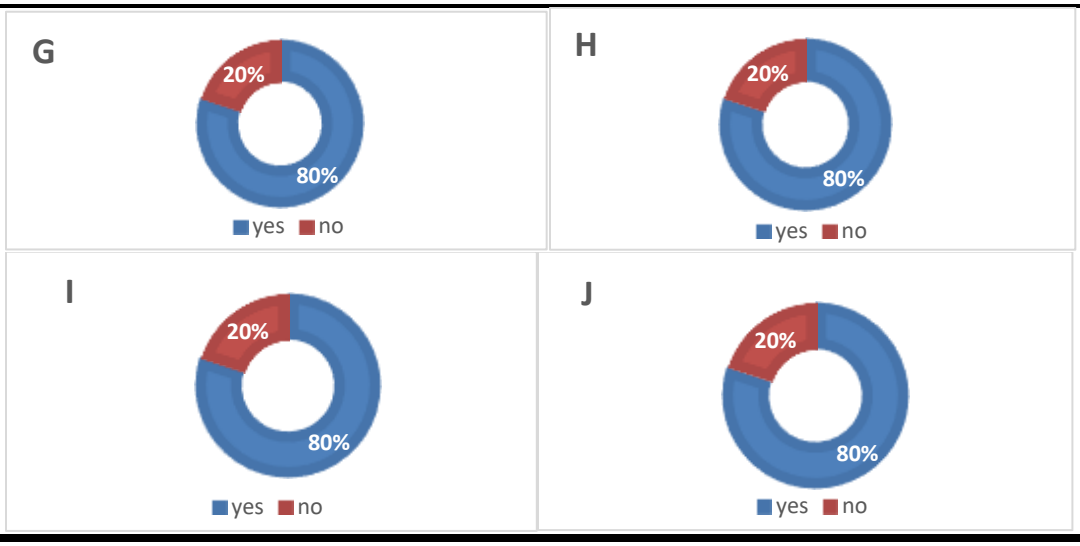


Table 6: Challenges for girls and women's accessing to education

Are there challenges in accessing education for girls and women during and after floods?	Yes	No
Frequency	50	0

Figure 3: G: The role of culture in flood's impact on women's lives during flood, H: The role of cultural practices in women's coping with flood impacts, I: Barriers to receiving support faced by women, J: Women's social challenges in comparison to men



Discussion

This study revealed that the 2022 flood had significant impact on women of district Nowshera Mohib Banda (Figure 4). They experienced lots of complications during and after the flood for example Hygienic issues related to their menstrual hygiene, Environmental and food hygiene. Communication and transportation services were damaged by the flood which disrupts their access to different service like medical services, reproductive health services food and water availability. Women faced the problems related to malnutrition and clean water which caused certain types diseases for example diarrhea, typhoid, hepatitis A, skin diseases and eye diseases. Women of the Mohib Banda faced cultural challenges in the relief camps and during receiving the relief resources because their men are not allowing them to go the places where other men are present. Women were staying in the relief camps and temporary shelters are overcrowded which disturb their privacy and cause health issues. These findings confirm the findings of Leya et al. (2020) who assessed gender vulnerabilities and highlighted increased challenges for vulnerable groups during floods, with calls for gender-focused disaster planning.

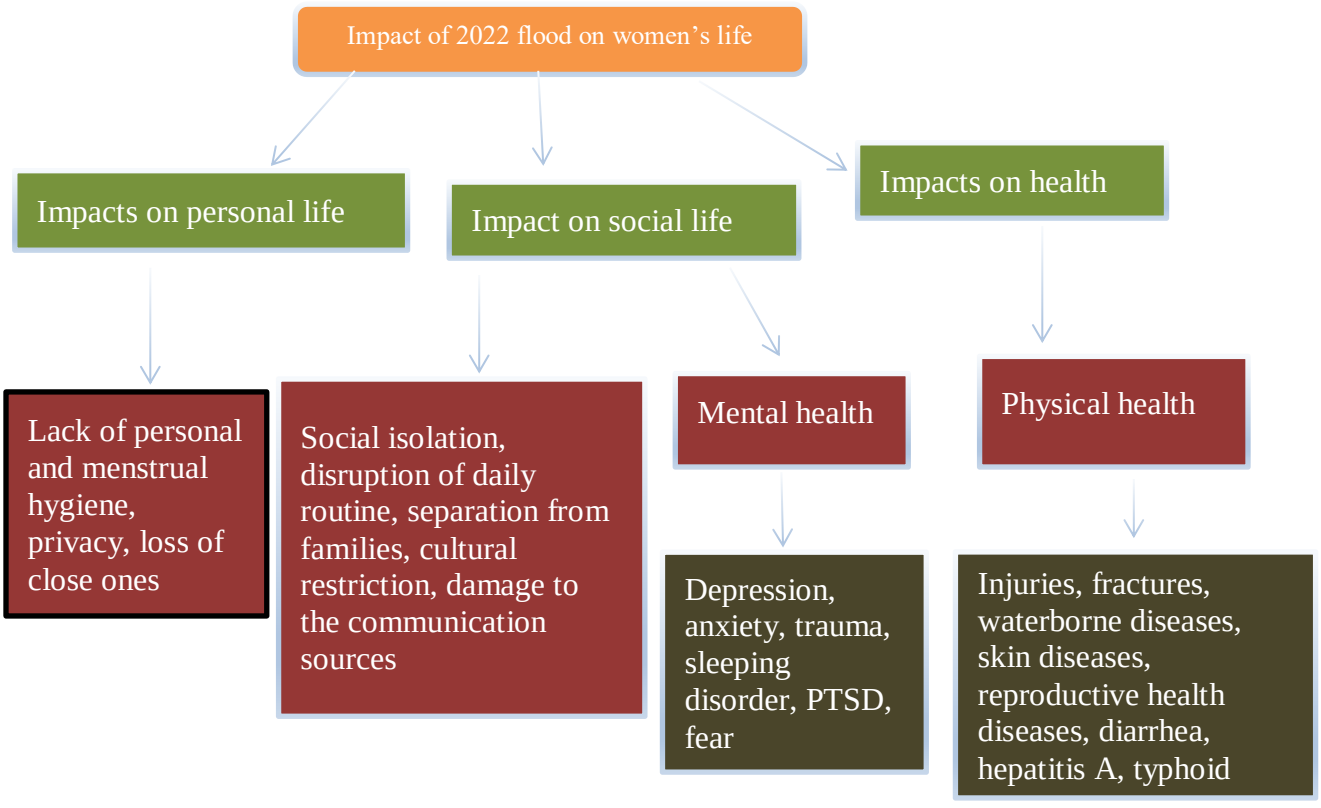
During and after the 2022 flood, women of Mohib Banda experienced social problems like separation from their families and flood also negatively affected women's employment. People in the study area are mostly dependent on the agricultural activities which were affected by the flood. This aligns with the study of Chowdhury et al. (2022) found that floods disproportionately impact female agricultural employment and exacerbate gender-based differences in employment opportunities. However, unlike the reported increase in gender-based violence in Chowdhury et al., (2022), Rahman et al., (2023) and Nahar, Tajuddin, and Sulaiman (2024) the Mohib Banda study noted no violence due to cultural and religious practices. Our study highlighted significant health issues and malnutrition among women, contrasting with the gendered fatality impact observed by Chowdhury et al. Chowdhury et al. (2021) demonstrated that higher inequality-adjusted human development (IHD) reduces flood fatalities but shows a gender disparity, with women experiencing more fatalities than men. The results of this study revealed that women in

Mohib Banda experienced mental health issues such as depression, anxiety and fear which confirm the findings of Rahman et al. (2023) who also reported these mental health issues faced by women in 2022 floods in Bangladesh. The findings from Mohib Banda indicate that strict social and cultural norms in relief settings prevented women from accessing aid and resources, which resonates with Ayeb-Karlsson's (2020) observation of socially imposed mobility constraints. However, these findings do not agree with the findings of Nahar, Tajuddin, and Sulaiman (2024) who found that the cultural constraints in Bangladesh increased the susceptibility of women to gender-based violence after the flood.

Akter (2021) analyzed shifts in gender labor divisions post-floods, finding significant changes in labor allocations. The Mohib Banda study did not specifically address shifts in labor but highlighted employment and agricultural disruptions, aligning with Akter's broader observations of disaster-induced changes. Naz and Saqib (2021) found that women were more vulnerable than men due to socio-cultural norms and limited access to resources. This is consistent with the Mohib Banda study, where women faced significant health and cultural challenges, although no direct gender-based violence was reported.

A new finding of this study was that Non-Governmental Organizations and government didn't help the women during the flood. Women belonging to the upper class received the relief and the poor ones didn't receive any support.

Figure 4: Model on the Impact of Flood on Women's Life



Conclusion

The 2022 floods in district Nowshera had a considerable impact on women's health, social, and personal lives. The study area is prone to flooding, and climate change has exacerbated these flood disasters, significantly affecting human livelihoods. Despite these challenges, women have shown remarkable resilience during floods. They experience social disruption, personal problems, and health issues, with cultural factors sometimes further bolstering their resilience. Community support played a crucial role in aiding women, often more than government and NGO assistance. However, collaboration between the government, NGOs, and communities can mitigate these impacts, raise living standards, and improve the lives of women affected by floods.

By implementing these measures and prioritizing women's health needs during and after floods in Pakistan, it is possible to mitigate the impact of disasters on women's well-being and ensure access to essential healthcare services in challenging circumstances. The suggested actions in this report may enhance the resilience of women during and after flood disasters. Collective action and cooperation between the government, NGOs, and the community will bring positive changes to the lives of women. Education, training, and awareness programs will empower women to respond to and cope with the challenges of floods, benefiting their families and the broader community.

The government should collaborate with NGOs and health organizations to support flood-affected people. Awareness campaigns, training, and education should be provided through female health workers and volunteers to promote hygiene practices, disease precautions, and essential education for pregnant women. During floods, diseases like diarrhea, typhoid, and cholera are common due to contaminated water; therefore, access to clean water should be a government priority. The government should provide private, facilitated spaces for pregnant women, who require additional attention and medical care. Menstrual hygiene products and essential healthcare management should be available to women during floods. Women should be involved in decision-making processes and not be confined to their homes. Community engagement should be encouraged by the government through funding and financial support.

By prioritizing women's health needs and implementing these recommendations, the impact of floods on women's well-being can be mitigated, ensuring access to essential healthcare services and enhancing their resilience during and after flood disasters.

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