



Challenges and Opportunities for Women in Disaster Risk Management

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Received: 20/10/2023 / Accepted: 19/08/2024 / Published online: 24/09/2024

Abstract This study focuses on understanding the challenges faced by women and the opportunities for their inclusion in Disaster Risk Management (DRM) by highlighting the valuable expertise of women in disaster situations and suggesting ways to incorporate this expertise into the strategies. We found a growing recognition of women in disaster-related research, suggesting a potential for incorporating their perspectives into policy frameworks. However, there exists a disconnect between gender-focused research and disaster management practices. The study identifies six interconnected challenges faced by women in DRM, including sociocultural factors, limited access to resources, gender inequality, and inadequate planning. We also identified promising opportunities for including women through active participation, resilience-building, and gender-sensitive strategies. There is a need to focus on their potential for contributing to DRM, along with considering women's vulnerability. Involving women in all phases of disaster management can enhance community resilience, as well as empower women in various aspects of development. While there's growing discussion on women in disaster management, future research should explore effective strategies for their inclusion in diverse socio-economic contexts.

Keywords: women, challenges, opportunities, disaster risk management, gender

1. INTRODUCTION

In the context of disasters, women experience a disproportionate impact, characterized by increased vulnerability and risk of mortality relative to men (Hamidazada et al., 2019; Yadav et al., 2021; Zaidi & Fordham, 2021). Recognizing this disparity, exploring the multifaceted

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landscape of women's inclusion in Disaster Risk Management is crucial to addressing their unique needs and challenges.

The study aims to explore women's inclusion in Disaster Risk Management by addressing key questions and examining the evolving state of research. By drawing upon prior knowledge and research, the aim is to gain a deeper understanding of the specific and persistent challenges faced by women and highlight potential emerging opportunities for women's inclusion in disaster management.

2. METHODOLOGY

A combined approach of bibliometric assessment and literature review is employed to comprehensively understand the current state of research. The objective of the bibliometric assessment is to identify key influential publications and research trends in the field of women's inclusion and empowerment in Disaster Risk Management. The bibliometric assessment utilizes the Biblioshiny application in the R-Studio environment and analyzes data from the Scopus database (Aria & Cuccurullo, 2017). The search was conducted using specific keywords related to women's inclusion and disaster management, and covered 892 publications from 1975 to June 2023. This timeframe was chosen to capture the evolution of research trends over an extensive period. Data preprocessing involved cleaning and standardizing the dataset to remove duplicates and irrelevant entries. The bibliometric data was then analyzed using the bibliometrix package in R, facilitated by the RStudio interface, to identify key trends and evolving areas of research. The literature review complemented the bibliometric analysis by exploring relevant articles that discuss challenges and opportunities for women's inclusion in Disaster Management. Articles were selected based on relevance, impact, and contribution to the field. The evolving areas of research are examined and key trends are identified, highlighting both challenges for women's inclusion and empowerment, followed by reviewing relevant articles to explore challenges related to women and their opportunities for inclusion in Disaster Risk Management. Findings from the bibliometric assessment were integrated with the literature review to provide a comprehensive understanding of the research landscape. This integration helped highlight both the challenges and opportunities for women's inclusion and empowerment in Disaster Management. Figure 1 gives the schematic representation of the methodology for the study.

3. OBSERVATIONS

3.1 Contribution by Subject Area

The bibliometric analysis provides a comprehensive overview of the distribution of scholarly contributions in the field of women and disaster risk management. It is evident that research

efforts are diverse and multidimensional. The contributions are categorized into subject areas, providing a clear representation of the relative emphasis placed on each of the disciplines.

It can be observed from Figure 2 that social science emerges as the major subject area, constituting 31.7% of the total contributions. This highlights the importance assigned to social systems and sociological perspectives in understanding the intersection of gender dynamics in disaster risk management. Environmental Science (14.6%) follows as a significant contributor, reflecting the substantial attention devoted to examining the environmental aspects of disaster management in relation to women. Earth and Planetary Science (10.3%), Medicine (8.9%), and Engineering (6.9%) also make substantial contributions, showing the necessary multidisciplinary approach for a comprehensive understanding of women's position in disaster-related research. Arts and Humanities, Economics, Agriculture and Allied Science, Energy, and Computer Science, while representing smaller proportions, still play significant roles. The 'Other' category, encompassing various specialized fields, collectively constitutes the remaining percentage. These findings highlight the multidisciplinary nature of research in this domain, with scholars engaging with a range of subject areas to comprehensively address the complexities of disaster management in relation to gender dynamics.

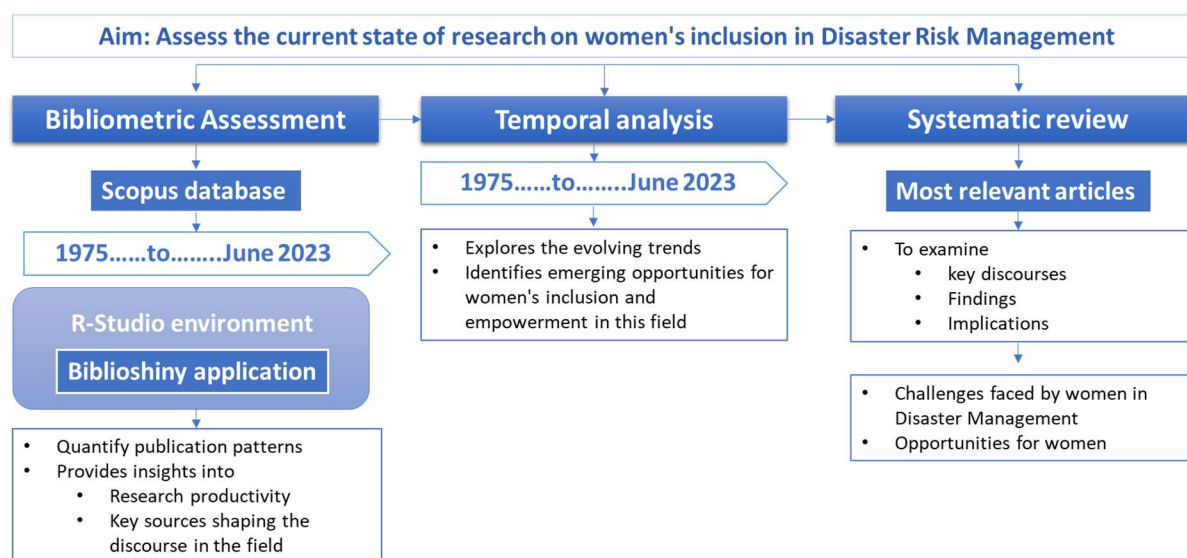


Figure 1. Methodology for the study

It is observed that there has been a growth in gender and women-related literature over the years. This upward trend is illustrated in the line graph (Figure 3), which charts the annual publication output from 1974 to June 2023. The volume of scholarly work and the progressive and sustained interest, especially since 2005, the formulation of Hyogo Framework, and it has been increasing rapidly after the formulation of the Sendai Framework in 2015. This shows that there is an interest in understanding the complexities of gender dynamics across diverse academic fields. This trend in Figure 3 reaffirms the expanding scope and significance of

research in this domain. Moreover, advocacy efforts of dedicated researchers and the inclusive policies of academic journals may have also played a role in promoting and supporting this area of study.

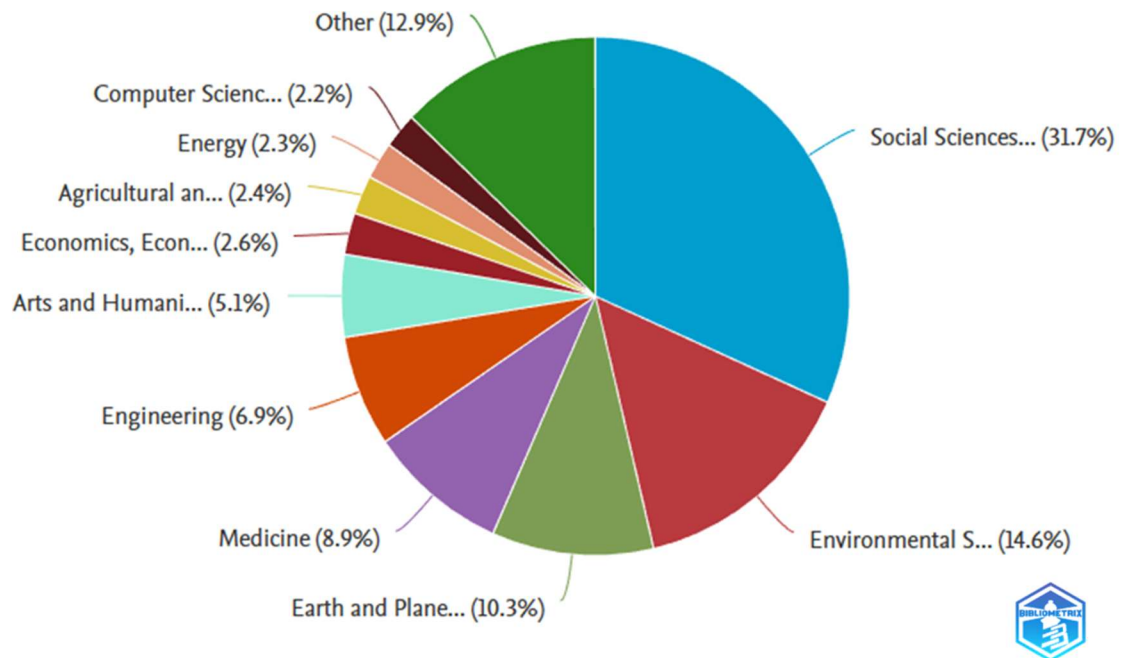


Figure 2. Documents by subject area

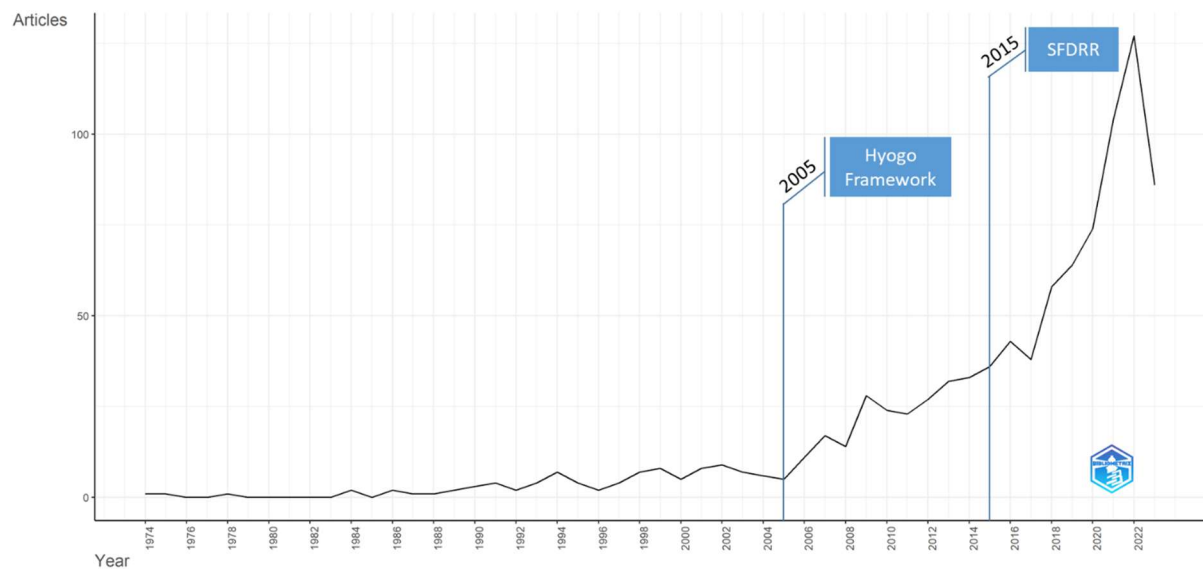


Figure 3. Annual scientific production

3.2 Trend in the Discourse

From Figure 4, we can observe the evolution of scholarly contributions within this domain. The *International Journal of Disaster Risk Reduction* exhibits an upward trend in recent times, more specifically since the formulation of the Sendai Framework. The *International Journal of Environmental Research and Public Health* and *PLOS One* follow a similar trend, confirming their significance in shaping discourse surrounding women and disaster management. The trend for *Disasters* indicates a sustained scholarly interest and a progressive contribution to the subject matter. *Social Science and Medicine* displays a steady yet comparatively moderate growth pattern, indicative of a stable and established presence in the field.

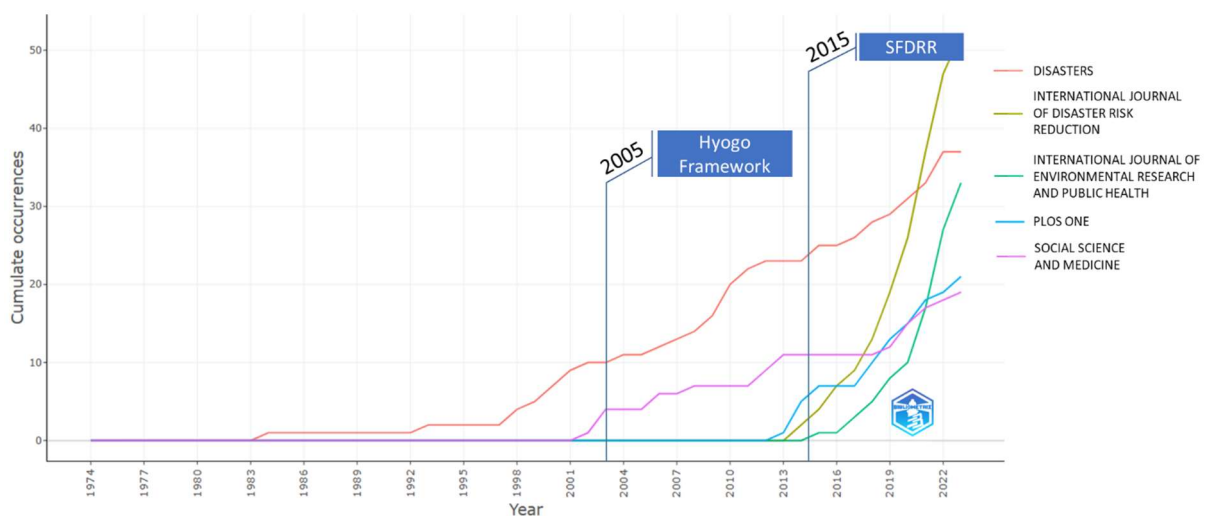


Figure 4. Leading journals in the discourse

3.3 Country-wise Contribution

The bibliometric analysis of Country-wise contributions in the field of women and disaster management provides insights into the geographic distribution of research and highlights the collaborative nature as well. Notably, the United States of America (USA) emerges as the foremost contributor, signifying a prominent interest in the intersection of gender dynamics and disaster response, followed by United Kingdom, India and Australia showing their engagement in this field. This observation highlighting the countries involved in advancing research on women and disaster risk management reveals that academic interest in this topic is concentrated in these countries and contributing most to the knowledge base. The researchers and institutions in USA are more invested than others in exploring how disasters affect women differently and what strategies can be implemented to address these issues.

3.4 Challenges for Women

In the field of DRM, women face challenges that are interconnected and influenced by multiple factors (Saad, 2021). Through our literature review we have identified the well-established persistent challenges and we have grouped them into six categories (Figure 5):

(a) ***Sociocultural Factors***: These include the deeply set societal and cultural norms that seclude women based on stereotyping and within the society, impacting their ability to participate in disaster risk management effectively. This perspective is reinforced by evidence showing that certain categories of people, including women-headed households, are at greater risk throughout the disaster response process due to their social and economic circumstances (Morrow, 1999). The societal norms often limit women's access to resources, information, and decision-making roles, thereby increasing their vulnerability (Neumayer & Plümper, 2007). Gender stereotyping and the double burden on women increased their workload and hindered their economic empowerment during post-disaster recovery (Dania & Inpin, 2021). The higher mortality rates for women during natural disasters, compared to men, can be attributed to the socially constructed vulnerabilities built into everyday socioeconomic patterns (Neumayer & Plümper, 2007).

(b) ***Limited Access and Resources***: Although some recent policy documents include gender discussions, the integration of gender considerations into policy development and implementation remains limited (Hervías Parejo & Radulović, 2023). Although resource scarcity during a disaster affects all genders, women often face barriers in accessing critical resources such as education, healthcare, and economic opportunities, which hampers their capacity to adequately prepare for and respond to disasters (Enarson et al., 2018; The World Bank, 2019). Also, during and post-disaster, non-availability of Water, sanitation and hygiene (WASH) services is a major concern among the affected women (Krishnan & Twigg, 2016).

(c) ***Gender Inequality and Power Dynamics***: Unequal power structures and gender-based disparities go beyond societal norms, as in some of the countries, the women do not have legal support to make decisions. This limits women to voice their needs and to influence decision-making processes related to disaster management. Gender inequalities can worsen vulnerabilities to hazards due to women's overall lack of access to resources and decision-making in areas such as information, healthcare, education, finances, transportation, and legal rights, compounding their poverty and vulnerability (Sultana, 2010).

(d) ***Inadequate Disaster Planning and Preparedness***: There is a lack in prioritizing the education of women and girls regarding disaster plans. This lack can lead to a gap in their understanding and ability to respond effectively in times of crisis. The integration of gender considerations into policy development and implementation remains limited (Sultana, 2010). There disaster management plans are not always prepared with a consideration of gender-specific perspectives. This neglects to incorporate the unique needs and challenges that women may face during disasters. Local government policies lacked thorough gender-based assessments, and affected women lived in unsafe conditions with poorly constructed housing.

Additionally, the training provided to disaster managers is often insufficient, limiting their capacity to address the concerns of women.

(e) **Security and Health Concerns:** During disasters, there is an increase in challenges of women related to their security, health, and overall well-being (Alam & Rahman, 2014; Gokhale, 2008; Rahman, 2013). Ensuring access to safe and secure accommodations, adequate nutrition, and proper hygiene becomes particularly critical. It is seen that disasters can often lead to an increase in violence and exposes them to higher risks of abuse (Septanaya & Fortuna, 2023) (APWLD, 2005). The incidents of sexual abuse and violence tend to increase, reveals the inability to safeguard the health and safety of women in disaster-affected areas. Additionally, women are at risk of experiencing secondary disasters post-disaster, making them vulnerable to various health risks, including physical, mental, and emotional stress; reproductive and sexual health issues; and difficulties in obtaining adequate aid, water, food, medicine, and access to health facilities (Gokhale, 2008; Septanaya & Fortuna, 2023; Yunus et al., 2022). Post-disaster, the lack of sanitation facilities and bathing spaces hinder women's ability to manage menstruation comfortably (Krishnan & Twigg, 2016).

(f) **Institutional and Participatory Issues:** Disasters affect women, men, girls, and boys differently for a variety of reasons, including social, economic, ethnic, cultural, and physiological disparities. These differences influence coping techniques, engagement in prevention, alleviation, rehabilitation, and reconstruction (The World Bank, 2019). There is an absence of public engagement or "bottom-up" practice, which may lead to non-alignment of the strategies with the actual needs of communities. The dominance of male-centric structures and procedures within institutions can hinder their active participation and decision-making. Furthermore, the absence of legal identity limit women's access to essential resources and support systems in times of crisis.

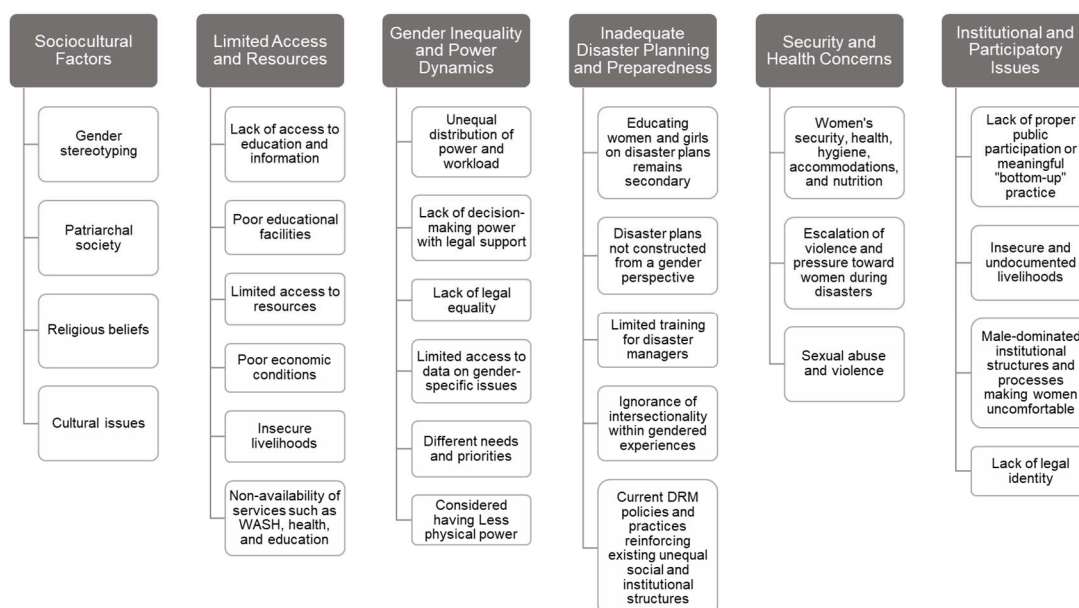


Figure 5. Challenges for women

3.5 Opportunities for Inclusion of Women

Through our analysis, we have identified six crucial areas (Figure 6) that offer significant opportunities for the inclusion of women in DRM efforts. By focusing on the opportunities, we can move towards a more inclusive approach to disaster risk management. Working towards these opportunities will enhance the role and impact of women in DRM, making sure their contributions are recognized and used effectively.

(a) *Active Participation and Leadership*: Women play a vital role in mainstreaming gender considerations within disaster risk reduction policies. Women exhibit a natural ability for group therapy, and also can be resourceful in search and rescue operations. Ensuring equal participation for women is critical and should be institutionalized. Women can serve as influential role models, particularly in outreach activities, inspiring other women to engage actively in disaster preparedness and response efforts (Işık et al., 2015). Empowering women to actively participate in DRM initiatives and assume leadership roles can bring diverse perspectives and expertise to the forefront, leading to more effective and inclusive disaster management strategies. (Gokhale, 2008) observed that in post-disaster activities, forming women groups to restore their lives through traditional crafts and new livelihood opportunities and empowerment reduced harassment, increased confidence, and led to active roles in rehabilitation and community issues.

(b) *Communication and Networking*: Women often play a crucial role as information disseminators and community mobilizers during disasters, bridging gaps and ensuring vital information reaches those in need. Creating platforms for women to communicate and network within DRM communities can facilitate knowledge sharing and collaboration, strengthening their capacity to respond to disasters. Connecting with women who have successfully handled disaster-related challenges can help affected women save valuable time and avoid common mistakes (Gokhale, 2008). To reduce the amplified physical and mental health burdens on women during natural disasters, self-care should be emphasized in disaster awareness campaigns, and seeking help should be promoted as a strength, not a weakness (Khatri et al., 2023).

(c) *Women's Knowledge*: Women have an understanding of local resources and traditional indigenous practices relevant to disaster response and mitigation. This intrinsic knowledge is derived from lived experiences within their communities are invaluable in effectively addressing the challenges during disasters. They can provide valuable insights into the availability and utilization of locally available resources, which can be helpful in formulating timely responses. Including the strategies based on traditional indigenous knowledge for disaster preparedness and response can be easily adapted within the local communities. The community as a whole gets benefitted when women's abilities, expertise, and knowledge are utilised in disaster risk reduction (UNDRR, 2022).

(d) *Resilience and Adaptation*: Women's active involvement in local disaster response can lead to enhancing community resilience (Drolet et al., 2015). Their ability to withstand

psychological strain is another crucial aspect of their resilience. Women empowerment is linked with reduced socio-economic and physical vulnerabilities, enabling women to enhance their ability to withstand psychological strain, thereby contributing to greater community resilience and adaptation in the face of disasters (Dhungel & Ojha, 2012).

(e) *Gender-Responsive Approaches*: The Sendai Framework emphasizes engaging relevant stakeholders, including women, in policy design and implementation (Patel, 2019). Incorporating gender-responsive approaches into all phases of disaster risk management and planning can help to address the needs and vulnerabilities of all women and enhance their capacity for effective disaster risk reduction, thereby strengthening sustainability and resilience (Dania & Inpin, 2021; Shanthi et al., 2017). This implies a more inclusive and effective disaster management measures which will take into account the diverse roles and experiences of both men and women.

(f) *Collaboration and Partnerships*: Facilitating cooperation between government bodies, non-governmental organizations (NGOs), and women's advocacy groups is integral for robust and inclusive Disaster Risk Management (Smyth & Sweetman, 2015). Involving local women leaders and community organizations can help in bringing the local knowledge and experiences to enhance the overall effectiveness of DRM (Haque et al., 2022).

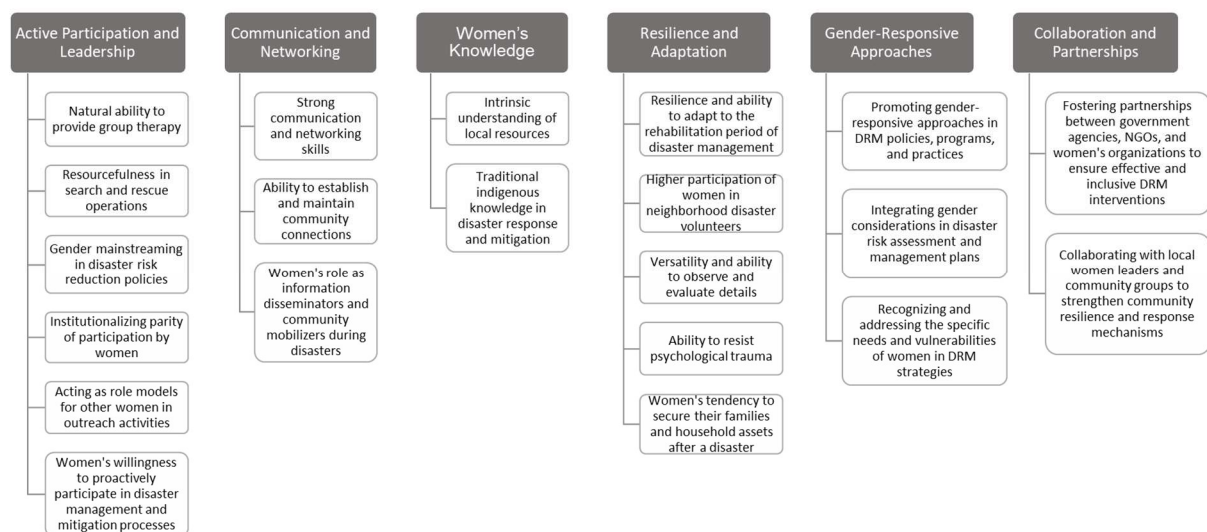


Figure 6. Opportunities for inclusion of women

4. DISCUSSION

Over time, there has been a growing recognition of the value of women's knowledge, expertise, and leadership in disaster contexts (Bajracharya et al., 2022; Khalid et al., 2021; Yadav et al., 2021). The growing recognition allows increased efforts to incorporate women's perspectives and experiences in policy frameworks and program interventions. However, in-depth gender-focused research does not extensively coexist with disaster management practices,

and disaster management plans are generally not constructed from gendered perspectives but in silos (Zaidi & Fordham, 2021).

Women have been acknowledged as both vulnerable groups and valuable resources for effective disaster management (Haque et al., 2022; Işık et al., 2015). However, the focus on women's vulnerability is more than the exploration of their potential abilities and roles in disaster risk management. The countries or regions with limited or no legal rights for women often experience higher vulnerability due to their disadvantaged social status (Hamidazada et al., 2019; Işık et al., 2015; Saad, 2021). Such women are at increased risk during disasters and face barriers to utilizing their potential in disaster management. To address this, it is crucial to involve women in all phases of disaster management (Bajracharya et al., 2022; Işık et al., 2015; Jha & Bajwa, 2021; Yadav et al., 2021; Zaidi & Fordham, 2021).

The opportunities can be utilized through programs aimed at developing women's skills, knowledge, and leadership capacities, challenging social norms that exclude women from participation (Tanaka et al., 2019). By recognizing and leveraging women's local knowledge, experiences, and expertise, disaster risk reduction initiatives can be more effective in promoting community resilience (Khalid et al., 2021). However, addressing these challenges necessitates targeted efforts to dismantle societal barriers, promote gender equality, and enhance women's representation in decision-making processes. However, the lack of gender-sensitive data impedes the research and development of effective strategies tailored to women's needs and vulnerabilities (Işık et al., 2015).

While this study attempted to provide a comprehensive overview of the challenges and opportunities for women's inclusion in DRM, the findings are primarily drawn from a broad literature review without distinguishing between different economic contexts. Our study primarily focused on the challenges and opportunities for women's inclusion in DRM within the broader context of disaster-prone regions. However, an in-depth comparative analysis of the role of women in developed versus developing countries was not within the scope of our study. Gender dynamics and sensitivity in DRM can vary significantly between developed and developing countries due to differing levels of economic development, cultural norms, policy frameworks, and institutional capacities.

5. CONCLUSION

This study contributes to the existing literature by offering an analysis of the challenges and opportunities for women in Disaster Management. The findings highlight the importance of gender mainstreaming in disaster policies and practices, emphasizing the need to reduce the barriers, promote women's leadership, and ensure their meaningful inclusion in decision-making processes (Khalid et al., 2021; Tanaka et al., 2019). By engaging women, their participation can not only contribute to reducing disaster risk but also strengthen their position within society. Furthermore, the positive outcome of their inclusion can serve as a role model

for promoting women's involvement in all sectors of development. Although there is an increase in discourse related to women in disaster management (Yadav et al., 2021), future research is needed to explore effective strategies for promoting the meaningful inclusion of women across different socio-economic contexts.

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