Disaster, gender, and space: Spatial vulnerability in post-disaster shelters

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Abstract. Many studies have shown that women and other marginalized groups are extra vulnerable during disasters and in the aftermath. These groups experience discrimination in access to resources and are more exposed to sexual harassment and violence. Accepting the premise that space shapes gender relations, this article examines how post-disaster space plays a part in the occurrence of gender-based violence. It discusses the literature on space and gender issues in the post-disaster phase, particularly the response phase and recovery phase. The study reviews literature broadly from 1990 to the present because of the limited literature on gender and space in a disaster context. This article argues that the disappearance of boundaries and the collapse of territoriality due to disaster contribute to the occurrence of gender-based violence and the construction of fear among marginalized groups. This article incorporates the concept of defensible space and gendered space to propose a gender-sensitive space in post-disaster shelters. It concludes that emergency and rehabilitation shelters must consider privacy and define the territory for each family. Furthermore, these shelters should allow for community surveillance to be arranged in order to enhance the sense of security for all community members.

1. Introduction: taking gender into account in disaster management

1.1. Background

Conventional approaches often ignore gender issues in disaster management [1]. These approaches consider disasters as a problem of humanity. Therefore, they emphasize on saving the lives of the affected community without specifically considering the unique social aspects of the community and its individuals or group. Such approaches may not have considered gender issues in disaster recovery. However, several studies have demonstrated that while natural disasters are indiscriminative, the affected community members experience varied impacts. Different groups experience disasters and their aftermath differently, depending upon the groups’ multiple and intersecting identities. Moreover, each group have various vulnerabilities and face different levels of disaster risks [2, 3]. Furthermore, the loss of women’s workspaces and utilities due to disasters may have a profound impact on the economic situation of the household. However, this aspect is still rarely documented and considered [4].

The need for mainstreaming gender in disaster risk reduction is urgent because gender intersects all aspects of society. As such, it is critical in moving toward social justice and sustainable development. Considering gender means including all social constructs that may not only relate to women’s lives but
also that of other minority groups and men as well in several cases. Due to gender inequality, women and other marginalized groups are exposed to higher degrees of risk to disasters. They have less access to resources such as early warning systems; policy and decision-making in risk reduction and disaster management; knowledge and information; and relief assistance. Women also have higher rates of illiteracy, poverty, and are exposed to a higher risk of sexual and domestic violence and sexual abuse [5, 6].

Women are at risk of falling victim to violence. The International Federation of Red Cross and Red Crescent Societies found that displacement caused by disasters potentially increases gender-based violence in the emergency and rehabilitation phases. Data shows an increase in the level of intimate partner violence in many refugee camps [6]. Displaced women and children who lose their families are at higher risk of sexual violence as they attempt to fulfill their basic needs. For example, there were reported cases of rape when women collected water and firewood. The World Health Organization reported that female and child refugees may be forced into sex in exchange for food or shelter [7]. Nevertheless, there is still social denial and a lack of sexual violence protocols against sexual violence in post-disaster shelters [8].

Most studies and reports, for example, Fothergill [9], Enarson and Chakrabarti [3], and Enarson and Morrow [10] focus on women when discussing gender in disaster management. These studies are critical in bringing attention to the fact that women are still excluded and harmed when a disaster occurs. Yet, studies focusing primarily on women may overlook other marginalized groups in the affected communities. The word ‘gender’ should expand beyond the widely known binary construct of man-woman and consider other minority groups, such as transgender and people with disabilities [11]. As recommended by NGOs and organizations like WHO and UNHCR, the shift from a women-focused to a gender-focused perspectives critical in including all members of the community in disaster management.

Studies on spatial issues in emergency situations mostly concentrate on geospatial aspects [12-14] and still very rarely consider social space as an area worth pondering on in disaster management. Space is traditionally viewed as a physical object and a static geometrical compound that merely serves as a container of human’s activities. On the other hand, social resilience mostly focuses on social aspects, such as social relations [15], community participation, education, and social support [16]. Space is traditionally considered as a physical compound that has nothing to do with the social realm. However, Massey demonstrated that spatiality is a product of intersecting social relations [17]. Space is socially constructed [18] and produced out of social relations and power [17]. Thus, space should also be a way of facilitating and reflecting social relations. The disasters often profoundly change the landscape that people previously inhabited. They may lose their homes, be displaced, and move to an emergency shelter. Therefore, the perspective of social space should be included in disaster management to improve community resilience.

1.2. Objective
This article discusses how the issue of gender is intertwined with space in post-disaster shelters. It addresses the way in which the spatial characteristics of the temporary shelters contribute to the rise of gender-based violence. First, the article discusses gender issues in disasters in general. Then, it discusses what “gendered space” [19] means and how the post-disaster space may facilitate gender-based violence. Lastly, the article discusses how to arrange a gender-sensitive post-disaster space.

1.3. Significance of the study
NGOs and international organizations have produced reports on gender inequality and gender-based violence in post-disaster conditions. Although in academia, many scholars also have discussed the need for including gender issues in disaster management, we know little about issues on gendered space in post-disaster phases. This article employs an interdisciplinary approach, following Spain and Massey’s arguments that space contributes to gender relations in society [17, 19]. Thus, it is urgent to contemplate how spatial arrangements may contribute to the elimination of gender discrimination and
gender violence in post-disaster emergency and rehabilitation shelters. This literature review, therefore, contributes to enrich the body of knowledge and to offers strategies on designing better shelters during the emergency and rehabilitation phases when displacement takes place.

2. Methodology
This article is a literature review. Due to the limited resources on gender and post-disaster space, the article includes extensive literature, spanning from 1990 to the present. This limitation also only allows a conventional, not systematic, literature review. The browsing of literature used keywords as follows (1) gender, space, disaster, (2) gender, space, violence, and (3) gender, space, crime.

3. Literature review
3.1. Gender in disasters
Natural disasters may not discriminate against women, men, and children, but members of the community’s exposure to disaster risks are different when disasters take place. They are connected to their multiple and intersecting identities with the physical, structural, and attitudinal violence that is related to these identities, as embraced by the community [2]. Ariyabandu and Fonseka’s study shows that different groups in India, Sri Lanka, and Pakistan faced different vulnerabilities and disaster risks when they were hit by the December 2004 tsunami [2]. The various impacts are subject to social constructs, such as religion, caste, socioeconomic status, class, ethnicity, and gender [2, 20]. In the Gujarat drought and earthquake, rural women faced difficulties accessing jobs because of the social construct that positions them as second-class citizens [3]. Unfortunately, in most cases, women are silent and accept this as a given situation [21].

The “gendered terrain of disaster” has discriminated against women and other marginalized groups in the aftermath of a disaster. Authors in a book edited by Enarson and Marrow noted that disasters are inherently gendered because pre-existing inequalities are reified during acrisis [10]. Fordham also found that working-class women are even doubled marginalized due to their gender and social class [22]. There are several factors that put women and girls at higher risks in disasters: (1) social restrictions confine women’s mobility and require them to be accompanied by males; (2) women have less access to disaster warning and lack the ability to respond to the emergency; (3) women face higher risk of sexual and domestic violence; (4) women are weaker after childbirth and pregnancy; (5) women have higher levels of illiteracy and lower educational attainment and training, and (6) women have been socially assigned caring roles in the family [23]. These biological, sexual, and socio-cultural factors have contributed to the general view that women are dependent, weak, and inferior during the time of disaster [20, 24].

Women’s access to resources in the post-disaster phases is also impeded because of the pre-existing socio-cultural perspectives. In post-disaster recovery, women often face difficulties accessing resources for a post-disaster livelihood because they are not considered the head of the household, stemming from the social construct that puts men as the leader of the family [2, 20]. Most NGOs who aid the affected communities in building shelters realize that emergency housing should be provided first for vulnerable groups, such as old people, female-headed households, and the disabled. However, in most cases, these groups are landless and, in practice, it is more difficult to provide housing for those who have no land than those who do.

Women are also at higher risk of being victims of gender-based violence during a time of crisis. Gender-based violence is a term used to address the “systemic inequality between males and females” that results in violence against women and girls [6]. The UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), adopted by the UN General Assembly in 1993, defined gender-based violence as all forms of violence to someone because of her being female or a form of violence that affects a woman. Such a form of violence harms women physically, sexually or psychologically, either in public or private spheres [25].

Although in many cases, women are those who are more vulnerable to gender-based violence, it is critical to consider other gender groups. Discussions are often stuck in the Western definition of
gender as a binary concept of woman and man. In so doing, one may fail to recognize the diverse gender minorities in the non-Western world. Conducting research on the disaster in the Philippines and Indonesia, Gaillard et al. show that transgender groups were marginalized and neglected after disasters took place [11].

3.2. Gendered space and post-disaster gender-based violence

The unavailability of decent places contributes to the ubiquitous gender-based violence after disasters. Disaster relief shelters have not provided comfort which responds to environmental, economic, technical, and socio-cultural considerations [26]. Several non-governmental organizations reported various types of sexual violence that take place in the aftermath of disasters. Among the many disclosed cases, ninety-seven cases of gender-based violence were reported in Aceh post-tsunami in 2006; three rapes after the 2009 Padang earthquake; and fifty-seven cases of sexual violence after the Palu earthquake in 2018. Many reports suspected that the increase of stress and the undivided spaces in the shelters contribute to the rise of gender-based violence in the disaster aftermath. Women, children, and people with disabilities are likely to be “double victims” who suffer from depression, terror, hopelessness, and even suicidal thoughts [8].

Some studies on how space is connected to gender-based violence have been conducted. The Women National Committee’s 2016 Yearly Notes showed that 31% (5,002 cases) of violence against women took place in the community sphere. The most common type of violence was sexual violence (61%), including rapes (1,657 cases), molestation (1,064 cases), sexual harassment (268 cases), and other sexual violence (185 cases) [27]. Studies on criminality have demonstrated that women [28], the elderly [29], and children [30] are the groups most vulnerable to criminality, which manifest as violence, rape, and harassment in the post-disaster phases. Beyond the high rate of criminality, these groups also experience fear of crime related to their subordinate social, economic, and political status in society. Such social inequality causes the exclusion of these groups in social life [31].

Space is by no means neutral. Throughout time and in many diverse cultures, space is always imbued with social meanings that reinforce status stratification between women and men [19, 32]. Gender stratification implies the different status of women and men. It is constructed socially and culturally, accompanying biological differences. Gender status typically controls the different access possessed by women and men to resources, property, jobs, and knowledge. When reinforcing the stratified status through the control of access, space becomes gendered. As a feminist geographer, Doreen Massey, said, “It is not just that the spatial is socially constructed; the social is spatially constructed too” [17]. This means that both the social and the spatial are mutually constitutive.

Space is gendered when its arrangement may fortify gender stratification in society. Gendered space can be found in diverse settings. For example, a study conducted by Aryanti found that women experienced discrimination of access to resources in the mosque [33]. It studied the spatial arrangement of men and women’s prayer space in the mosques, the restrictions that apply to both genders, and the consequences, particularly in terms of access to resources, that the segregation brings about. Traditional houses in some communities also tend to divide female space from male space strictly, and such a practice results in the stratification of social statuses [34]. In many cases, this segregation is also accompanied by discrimination. For example, women had no access to the information board that was displayed in the male area [34].

How can space be gendered in the post-disaster phase, particularly in the emergency phase? In most cases, disasters result in displacement, in which people lose their homes. The home embodies the symbolic and literal values of safety, privacy, and family life that those who are in urban conflict and dislocation long for [34]. As an impact of a disaster, displacement is accompanied by the absence of boundaries, which once defined territories inside a home. Space is inevitably a binary of the inside and the outside [35]. As displacement takes place, the “inside” collapses and this has resulted in the absence of territory and privacy. The absence of boundaries has allowed intruders to access the space that was once protected freely. Lennard and Lennard have found that the spatial arrangement of the home environment has contributed to the shaping of family ties and security [36]. This condition
explains why post-disaster shelters do not provide refugees with the psychological comfort they once possessed in their homes.

The importance of space concerning the threat of sexual violence has been studied widely in geography. In Making Space: Women and the Man-made Environment, Matrix categorizes a home as a woman’s place, where she can distance herself from the outside pressure [37]. For men, who typically work outside of the home, the walls of the house set a clear boundary that demarcates the distinction between work from family life. Most women, especially those in a traditional society, connect themselves with the home as a safe place.

Some marginalized groups are reluctant to enter the public space due to the constructed fear of crime that results in social exclusion [38]. It is critical to recognize that women’s fear of crime should be studied separately from men’s because it is different in its nature. This is related to the actual risks and has different effects and potential for structural analysis [39]. However, there is a paradox between fear and sexual violence. Studies conducted by Pain and Mehta show that women tend to fear sexual violence far more when they are in public space, yet, it happens mainly within the domestic space [39-41]. Researching women in Edinburgh, Pain argued that the fear of violence in the public space is part of risk management to keep women at home, a place that is socially constructed as a “safe” place for women [40]. Pushing Pain’s argument further, Mehta argued that the construction of fear is an “embodied discourse” that fortifies the connection of women and the private sphere [41]. Thus, the geography of public space contributes to the fear that women experience. Related to the post-disaster space, marginalized groups mostly embody the fear of crime when they are displaced from their homes and are forced to stay in the place which used to be identified as the public space.

There are several reasons why sexual violence increases in the aftermath of a disaster. First, the vulnerable groups are often left behind while others attempt to survive and seek safety after a disaster. Second, post-disaster shelters are crowded places where vulnerable groups and sex offenders stay together. Third, all members of the affected community are in a state of stress, which drives a desire to control others and to be aggressive. Additionally, the chaotic atmosphere also provides opportunity to commit sexual violence. Lastly, the emergency diminishes the basic resources that are used to protect people from sexual violence.

While there is a dichotomy that considers the public area as a dangerous space and the private space as a safe place, there is no guarantee that the private space is more sheltered from sexual violence [39, 40]. Several scholars in environmental design and planning have discussed how the design of the physical environment may contribute to the reduction of crime. Jane Jacobs, an American planner, has criticized modern city planning for overlooking the diversity of social complexity in the city. She argued for the need for clear segregation of the public and the private spaces, “eyes upon the street” (p. 35) to allow natural surveillance and lively sidewalks [42]. Moreover, Oscar Newman saw that a space permits crime when the territory is not well-defined, and the inhabitants cannot surveil their space. Newman researched the connection between the urban fabric and the rise of the crime level in public spaces. He noticed that contrasting to the public spaces that were vandalized and dirty, private spaces were better maintained. Extending his ideas to urban residential neighborhoods, Newman argued that the design of the public space might affect the behavior of residents as well as potential offenders and thus lead to an increased level of crime in public spaces. He proposed a concept of “defensible space” (p. 9), which contains a theory of crime and it explains how the urban design principles are connected to such a space that allows users to defend themselves from crimes. Defensible space has three key features, i.e., territoriality, surveillance that allows the natural monitoring of the environment, and symbolic barriers that create a perception of the owner’s care of his/her environment [43].

In post-disaster shelters, refugees are usually gathered under one roof. There is no division according to sex, gender, or family ties. In such a space, boundaries disappear, and refugees have no ownership over the space. The disappearance of boundaries results in a blurred territory where inhabitants can defend themselves through natural surveillance. Activities that were previously done privately behind closed doors become visible to strangers. Adopting Newman’s defensible space, an emergency shelter should generate a sense of natural surveillance and allow communal surveillance to
avoid gender-based violence and other crimes [43]. A gender-sensitive emergency space should enable equal access to security and comfort for all members of the community. With a defensible space, the emergency shelter will generate a sense of safety for refugees and allows them to gain their self-confidence when mingling with strangers.

4. Conclusion
The high rate of gender-based violence in the aftermath of disasters is more than a social issue. The loss of homes due to disaster has resulted in displacement and in the disappearance of boundaries and territory that used to provide dwellers with comfort, privacy, and feelings of security. The post-disaster shelter does not allow refugees to define their own territoriality, to set their natural surveillance over the environment they occupy, and to create symbolic barriers that eradicate the image of neglected spaces. This situation explains why gender-based violence often occurs in the aftermath of a disaster.

Architecture plays a vital role in providing an emergency living space that guarantees secure feelings, security, and safety. A gender-sensitive emergency space should allow the affected community members to defend themselves passively. Space should allow natural surveillance and communal surveillance that discourages crimes and violence against marginalized groups. The post-disaster shelter should be a temporary home to replace the one that has been destroyed in the disaster. During the emergency phase, those who assist the community probably do not consider specific groups in building emergency shelters. Therefore, it is urgent to prepare a gender-sensitive shelter standard that applies to emergency situations.

5. References
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