SOCIAL RESILIENCE AND VULNERABLE GROUPS IN DISASTERS

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Introduction

In recent decades, the frequency and intensity of significant disasters have increased (Khalili et al., 2018; Burger et al., 2019). Natural and artificial disasters such as earthquakes, hurricanes, tornadoes, floods, and volcanic eruptions have become an inevitable part of life and a complex global problem. Disasters cause damage, hardship, or loss of life and affect the well-being of individuals and societies (Bonanno et al., 2010; Osofsky & Osofsky, 2018; Makwana, 2019). Disasters often cause severe damage to nature, living things, structures, community infrastructure, resources, and support systems. These events can cause physical, psychological, social, and economic disruptions in individuals and society, making daily life unpredictable (Osofsky & Osofsky, 2018). It can be said that disasters have psychological, physical, social, environmental, economic, and cultural multiple traumatic effects on individuals and societies.

For this reason, issues such as disaster, disaster preparedness, effects, and management are studied not only through natural sciences but also in different disciplines such as geography, sociology, anthropology, psychology, political science, economics, and management sciences. In addition, it is observed that all these disciplines focus on the individual effects of disasters, and their social effects are not adequately addressed. However, social structure is an integral part of disaster preparedness, intervention, and struggle processes (Cannon, 2008). From this perspective, the effects of disasters on individuals and societies are shaped in the context of the concepts of vulnerability and resilience. Disasters significantly affect vulnerable groups.

Moreover, it is known that individuals' and communities vulnerability and resilience levels differ during disasters. The response of a society experiencing a disaster to a disaster, its ability to recover from and cope with the disaster, or its capacity to respond positively to crises also differs. This situation is called social resilience. Societies with elevated levels of social resilience foresee possible disasters, prepare for them, quickly recover from the shock caused by the disaster, and

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adapt to the situation by providing improvised responses to the disaster afterward. Therefore, social resilience is believed to be essential in disaster preparation and response. This study aims to evaluate the fundamental dynamics of social resilience during disasters. The first part of this study explains the concept of disaster, its nature, and current approaches to the concept. The next section will discuss the concepts of fragility, vulnerability, vulnerable groups, resilience, and social resilience. In addition, the relationship between disaster management and social resilience will be evaluated.

1. Disaster Concept and Classification

Approximately two hundred million people worldwide are affected by disasters annually (Amiri et al., 2022). Nevertheless, this number is thought to increase when people are indirectly affected by natural and artificial disasters. Historically, people have perceived disasters as unpredictable, so they must define, know, and explain them. While disasters were previously seen as the wrath of God, with the development of scientific knowledge, they were conceptualized as events created by the natural environment and began to be defined synonymously with the event that caused the disaster (McEntire, 2001; Reid, 2013). Today, disaster definitions are made according to the relevant discipline, but they generally differ in four areas: technical, sociological, political, and medical (Ginige et al., 2009). It is also known that despite different definitions of disaster, none have been universally agreed upon (Shaluf et al., 2003). The concept of disaster covers a wide range, from natural events such as floods, earthquakes, and volcanic eruptions to events resulting from human activities such as traffic accidents, armed conflicts, and terrorist acts (Morgado, 2020). Disaster is not the danger itself; it is accepted as a concept related to the negative consequences of danger. According to the United Nations International Disaster Reduction Strategy (UN-IDSR), a disaster is defined as a situation that causes severe disruption of the functioning of the affected society and human, material, economic, or environmental losses that are very difficult for society to cope with using its resources (Makwana, 2019). Turoğlu (2023) defines a disaster as any danger that negatively affects society's existing functioning and conditions or the environment in which society lives regarding physical, economic, and human aspects. In short, disaster refers to all natural or human-induced events that cause severe disruptions and loss of life in the functioning of society, causing environmental, human, economic, and biological damage (Bonanno et al., 2010; Amiri & Jahanitabesh, 2022). No matter how a disaster is defined, it has been revealed that disasters have psychosocial effects and consequences in addition to their objective destructive effects (Amiri & Jahanitabesh, 2022). In general, disasters exceed the ability of individuals and societies to cope with situations; they cause human, material, economic, or environmental losses and seriously disrupt the functioning of society (Ginige et al.,

2009). Disasters are experienced collectively, causing the death or injury of many people simultaneously. At the same time, disasters are chaotic and traumatic events that have an acute onset, have a time limit, and affect a wide geographical area. The event usually starts suddenly, without any warning, and lasts for a short time but has a severe course (Bonanno et al., 2010; McFarlane & Norris, 2006; Math et al., 2015; Norris & Wind, 2010; Morgado, 2020). This reveals that a disaster can potentially kill or injure many people simultaneously (Jurgens & Helsloot, 2018). Disasters occur due to natural, technological, and human causes. Therefore, social and artificial factors also contribute to disasters. There is a consensus that disasters are social constructs that result from historical and contemporary socioeconomic factors (Reid, 2013; Amiri & Jahanitabesh, 2022). The high level of uncertainty and severe threat perception inherent in disasters undermines people's sense of normalcy. Thus, individuals attempt to rebuild a sense of normality (Jurgens & Helsloot, 2018; Lachlan et al., 2009). It is seen that disasters, no matter how they are defined, have objective destructive and psychosocial effects and consequences (Amiri & Jahanitabesh, 2022; McFarlane & Norris, 2006, p. 4).

Disasters are divided into two main categories. These are natural and artificial disasters. Natural disasters occur due to natural events such as hurricanes, earthquakes, floods, avalanches, tsunamis, and volcanic eruptions, over which people have no control (Marsella et al., 2008). The consequences of such disasters can be distressing due to the lack of control and uncertainty (Shing et al., 2016). Natural disasters also negatively affect the social structure and functions of societies. Society strives to regain collective control; thus, individuals have an increased sense of belonging to the group (Pérez-Sales et al., 2005; Morgado, 2020). Artificial disasters can be attributed to human actions such as violence, conflicts, wars, terrorism, and industrial accidents. Artificial disasters can harm victims' mental health more than natural disasters (Bromet et al., 2017). Human-induced disasters reflect loss of control and behavioral flaws, affect the functionality of society, and cause security-related problems (Shing et al., 2016). Although it is currently helpful to separate disasters into natural and human-induced disasters, it is also argued that this distinction is superficial due to the impact of humans on the environment (Morgado, 2020; Martin, 2010; Makwana, 2019).

Moreover, some researchers have suggested that there may be a third category of disasters called hybrid disasters, which are a combination of natural and human-induced disasters, and that natural or human-induced disasters can trigger subsequent disasters (Shaluf et al., 2003; Shaluf & Ahmadun, 2006). Thus, it has become widely accepted that natural disasters are human-induced social phenomena. In natural disasters, it is accepted that a natural event is the "trigger." However, the loss and damage experienced result from interaction with social factors (Ginige et al., 2009). In other words, the impact of natural disasters

cannot be determined by nature alone. Therefore, natural disasters can cause widespread disruptions to individuals and societies (Shing et al., 2016). Rather than categorizing disasters strictly as natural or human-made, it may be more effective to view them through the lens of their traits and their impact on various segments of society (Morgado, 2020).

2. Psychological and Social Consequences of Disasters

There are more types of disasters in today's world. Disasters are external, semi-random, and unexpected disasters with psychological, social, and economic consequences (Morgado, 2020). The complex nature, effects, and consequences of disasters may vary depending on the type, magnitude, and socioeconomic structure of the region where the disaster occurs (Bonanno et al., 2010). Disasters are usually measured by the cost of social and economic damages, but this cannot be compared to the emotional pain experienced by victims after the disaster. Therefore, psychological distress is common in victims in addition to socio-economic distress (Makwana, 2019). The possible consequences of a disaster can be grouped into four main categories: Traumatic stressors, losses, ongoing adversities, and social impacts (Morgado, 2020). Because disasters disrupt social and economic life, they damage community infrastructure and resources and negatively affect individuals' and societies' physical and psychological health. This condition makes daily life unpredictable (Osofsky & Osofsky, 2018; Makwana, 2019). This shocks the victims. Thus, victims may deny the loss and escape from reality. These tendencies make victims more vulnerable to stress, anxiety, and other maladaptive reactions. In fact, during disasters, the death of a loved one, socioeconomic and environmental losses, lack of mental preparation for disasters, disruption or severance of family ties, and inadequate social support and coping skills may cause victims to be psychologically vulnerable (Makwana, 2019).

Thus, damage to homes, property, and other valuable assets due to the disaster may lead to insecurity among victims. It can be said that disasters negatively affect individuals and communities, increase the incidence of mental health disorders, and reduce quality of life (Norris et al., 2002). The continuing negative effects of the disaster and the lack of effective and timely intervention from the government, health services, rescue organizations, NGOs, and other institutions may increase the severity of the consequences of the disaster. In addition, postdisaster sheltering or reconstruction problems experienced after a disaster can further increase the stress of individuals and communities. Such situations can create an additional burden on the person and aggravate the effects of the disaster (Morgado, 2020). Disasters can cause great suffering by destroying people's physical, biological, and social environments and can have short-term and long-term consequences in terms of their health and well-being (Raccanello et al., 2023; Morgado, 2020). The psychological effects of disasters are especially severe in children, women, and

the elderly. In developing countries, poverty can lead to more severe individual and social consequences due to a lack of educational opportunities, resources, infrastructure, an educated workforce, and awareness. In short, regardless of the devastating effects of disasters, their psychosocial effects and consequences on people are straightforward. Therefore, the psychological effects of disasters are discussed first. The effects of disasters on society are then explained.

Because disasters are sudden, survivors often experience symptoms of severe distress and psychosocial impairment (Norris et al., 2002; Makwana, 2019). In disasters where life is lost, the person's psychological state is even more negatively affected as they must cope with the losses on the one hand and continue their life on the other (Norris & Wind, 2010). It has been revealed that after such unexpected large-scale disasters, disturbing thoughts, hyperarousal, post-traumatic stress disorder (PTSD), acute stress disorder, depression, anxiety disorders, suicide, grief response, sleep disorders, somatic disorders, avoidance, abnormal mourning, drug use, and excessive alcohol use are common (Yayak, 2021; Neria et al., 2008; Pfefferbaum et al., 2019; Comtesse et al., 2021; Wang et al., 2020; Stratta et al., 2015). In addition, it is observed that people's perceived uncertainty, insecurity, anger, panic, and phobias increase after disasters (Park, 2016; Wolsko & Marino, 2016; Makwana, 2019; Amiri & Jahanitabesh, 2022). Moreover, these disorders often coexist with disaster victims. The adverse effects of disasters on mental health continue for a sizable portion of victims for a long time (Bakic & Ajdukovic, 2021). Although psychological problems decrease in the second year after the disaster, in some cases, complications may remain chronic (Amiri & Jahanitabesh, 2022). For example, it was observed that the prevalence of PTSD, anxiety, and depression was higher than the average among survivors of flood disasters in the United Kingdom, even two years later (Bakic & Ajdukovic, 2021). Disasters can also cause damage to or loss of property, including material and/or personal valuable items. This situation negatively affects the individual and creates stress. However, property loss's effect is less than witnessing loss of life (Morgado, 2020). In addition, a person may experience helplessness due to the loss of social resources after a disaster, which may cause an increase in psychopathology due to a lack of support systems (Hoffman & Kruczek, 2011). However, it has been observed that the mental health of victims tends to deteriorate seriously after a disaster but gradually improves over time. It has been determined that individuals are not only negatively affected after disasters but also have positive reactions, such as resilience and post-traumatic growth (Amiri & Jahanitabesh, 2022). The effects of disasters are not limited to the psychological states of victims but also affect their behavior. For example, preschool children react similarly to their parents' reactions to a disaster after a disaster. It has been revealed that school-age children experience difficulties in school, and their performance is negatively affected. In adolescents, behavioral changes are observed, impulse control

decreases, and there are increases in substance abuse and risky behaviors. It has been observed that adults tend to be more severely affected by disasters because the support they provide is significantly higher than the amount of support they receive (Morgado, 2020). Disasters have various physical, economic, social, and psychological effects. These effects are often intertwined and cannot be resolved quickly. In fact, it should be acknowledged that most disaster-related reactions are natural reactions to an extraordinary event. In this process, the focus should be on strengthening and normalizing victims by developing adaptation mechanisms (Amiri & Jahanitabesh, 2022; Hettige, 2022).

Societies can be victims of disasters as much as individuals (Morgado, 2020). One of the most essential characteristics of disasters is their collective nature (Kaniasty & Norris, 1999; Cadamuro et al., 2021). Disasters disrupt and interrupt social order and cultural practices. A significant disaster affects living spaces and social infrastructure (Hettige, 2022). In psychology, in particular, the focus is on the negative psychosocial consequences of disasters on individuals. However, disasters also create distress and problems in society, and these situations differ from the distress experienced at the individual level. At the community level, reactions and consequences can vary from one society to another. This situation arises from existing social relations, social connections, and formal or informal collective structures that society uses to manage the effects of trauma. A disaster's social, political, and economic consequences can be much more damaging than the disaster itself (Stewart et al., 2012). Some problems experienced after a disaster may be related to the groups to which the individual feels he/she belongs. Groups form an essential source of support during and after disasters. They also provide a collective environment for mutual recognition and solidarity (Bowe et al., 2022). However, the groups to which one belongs may also experience problems during and after the disaster. For example, threats to one's social identity may cause discrimination against different groups.

Moreover, disasters may increase negative and inequalities experienced, and the possible effects may be intensified. Thus, even observing others' distress may create a sense of helplessness (Cadamuro et al., 2021). For example, communication and/or transportation problems experienced after a disaster can critically affect individuals' short- and long-term behavior (Miller & Pescaroli, 2018; Cadamuro et al., 2021). Alternatively, the forced displacement of victims after a disaster may cause both spatial and social ties to be severed and their relationships to deteriorate (Morgado, 2020). Because people are directly or indirectly affected by a disaster, it may not always be easy to assess its effects. Disasters can cause problems in support systems, such as families, peer groups, and communities, and cause a break in social commitment and relationships. At the same time, exposure to a disaster can cause differences and changes in individuals' social roles and responsibilities

(Norris & Wind, 2010; Morgado, 2020). In short, disasters provide important clues about societies' internal functioning, competencies, and social relationships. The impact of a disaster extends beyond the individual level; thus, since formal and informal groups in society interact with each other at different levels, disasters can be said to negatively affect the welfare of society. Understanding the causes and consequences of disaster effects is essential for preventing, managing, and reducing disaster risks (Hettige, 2022).

3. Vulnerability and Social Vulnerability

Although everyone in the area where the disaster occurs is exposed to disasters, it is seen that some are affected more and experience adaptation problems after the disaster. Therefore, vulnerability can be considered a key concept when evaluating disaster effects. First, vulnerability is an important concept that must be considered in disaster preparation, intervention, and disaster management. Because some people are more sensitive and fragile than others to damage, loss of life and property, and pain after a disaster (Maurya, 2019).) The first disaster researchers focused on the consequences of natural events such as earthquakes, floods, and hurricanes on society. As this field has developed, researchers in the last 30 years have shown that social conditions shape disasters rather than the physical environment (Reid, 2013). Thus, the relationship between social conditions and disasters was systematically examined from a vulnerability perspective. Later, it was realized that disasters did not affect different social groups similarly. This has shifted from a perpetrator-centered approach focused on an event or hazard to a broader approach to social vulnerability (Phillips et al., 2010; Reid, 2013). However, although we have extensive knowledge about the biophysical components of vulnerability and the vulnerability of the built environment, our knowledge of its social aspects is still limited. Disasters negatively affect social structures beyond the loss of life and property (Budirahayu et al., 2019). Disasters are social events, and processes such as preparation for natural disasters, initial responses, and long-term recovery and reconstruction are often interrelated (Sawada & Takasaki, 2017). Although the adverse effects experienced in these processes reflect absolute inequalities, they can disproportionately affect vulnerable individuals or groups by increasing social inequalities during disasters (Scogin, 2024). Although we can prepare for and predict natural and human disasters that occur every day worldwide, nothing can completely prevent them from happening. Therefore, although the loss of life is considered the most harmful result of disasters and the main variable related to their impact, these statistics, unfortunately, fall short of reflecting the entire story of those affected by the disaster. The disasters of the last few years have forced the necessity to focus on the unique needs of especially vulnerable or marginalized groups (Maurya, 2019). Disasters affect millions simultaneously, resulting in traumatic consequences that require individuals, communities, and collective

efforts to overcome this situation (Masten & Osofsky, 2010). The consequences of a disaster depend on the interaction of the hazard that defines a community's vulnerability and its social, economic, and political processes (Cadamuro et al., 2021). Disasters are hazards that negatively affect individuals, societies, or the environment. Disasters threaten life, health, property, and the environment. Especially because of natural disasters, thousands die every year, many become homeless, and the cost of disasters reaches billions. Disasters leave behind deaths, destroyed homes, fragmented societies and economies, and sudden declines in public well-being (Maurya, 2019).

However, the idea that disasters occur when a particularly vulnerable group is "in the way" of a hazard is much more widely accepted. It can be said that disasters are constructed through a process triggered by natural disasters, but they involve society's economic, political, and social factors (Cannon, 2008). Social vulnerability is a person or group's capacity to anticipate, cope with, resist, and recover from a disaster. It is widely accepted that social vulnerability is affected by many characteristics, most commonly age, gender, race, socioeconomic status, medical condition, disability, and language proficiency (Cutter et al., 2003). Various studies have found that socially vulnerable groups, also called at-risk groups, are more likely to be negatively affected in emergencies (Cutter et al., 2003; Wolkin et al., 2015; Reid, 2013). It is seen that the poorest, sickest, most dependent, and most isolated citizens in a country are exposed to the physical, psychological, social, economic, and political consequences of disasters (Wolkin et al., 2015; Reid, 2013). This situation is experienced much more severely in developing countries.

Therefore, the concept of vulnerability is considered more important than ever. Vulnerability is the vulnerability of people to different types of disasters and the various social characteristics that cause them to be approximately harmed by a particular hazard (Cannon, 2008). We know that social vulnerability affects all stages of disasters. As a result of the current socio-economic system, people are not in equal positions to access opportunities and are exposed to risks (Yoosefi Lebni et al., 2020; Budirahayu et al., 2019). In other words, the socio-economic system, which includes employment, income, and education levels, shapes social vulnerability. Thus, social vulnerability includes conditions and social factors that limit a person's ability to cope with daily life and, at the same time, make them vulnerable to the effects of disasters (Wolkin et al., 2015). Therefore, the effects of disasters on different groups in society can be short-term or long-term. For example, in disaster response studies, because a person's vulnerability (e.g., gender, age, physical abilities, ethnicity, economic level, disability, ...) can lead to a higher risk of death or injury, longer recovery times, or greater risk of mental or physical trauma, pre-disaster preparation can reduce adverse effects and provide resilience.

In this case, increasing public awareness of a potential disaster can provide a better understanding of risks and appropriate responses. Such a perspective must be considered in vulnerable groups. It has been determined that women, children, the elderly, disabled people, rural and urban poor, racial and ethnic minorities, and citizens of developing countries carry greater psychosocial risk. These groups are disadvantaged by specific individual or community characteristics before the disaster (Weshinskey-Price, 2015; Lam & Kuipers, 2019). The hierarchies that exist in society and the inequalities that they cause become more apparent, especially in the event of a disaster. Because these marginalized groups had much more significant social and economic vulnerabilities before the disaster, post-disaster aid and support can often be distributed unfairly in society. These groups are observed to be more disadvantaged in accessing resources and information and acquiring skills and opportunities (Panday et al., 2021). Therefore, the inability of members of vulnerable groups to recover materially and spiritually after a disaster often highlights and increases their vulnerability. These groups have trouble rebuilding their livelihoods after a disaster, which can increase their vulnerability to subsequent disasters (Maurya, 2019). The same applies to the psychological effects of disasters. For example, one study (Norris et al., 2002) found that post-disaster mental and physical health problems are more severe among women, ethnic minorities, citizens of developing countries, and vulnerable groups with weak social support networks. As a result, awareness of vulnerability and vulnerable groups is necessary to mitigate disaster risk and its effects (Maurya, 2019).

The concept of vulnerability was used to conduct an analytical assessment to determine the risk status of vulnerable groups (Cannon, 2008). Disaster risk depends not only on the severity of the hazard or the number of people or assets exposed; it also reflects the susceptibility of people and economic assets to loss and damage (Maurya, 2019). Therefore, it is essential to examine how social inequality structures that lead to social vulnerability affect certain groups (Reid, 2013). In vulnerability analysis, it is possible to determine how vulnerable people in a group are when they are exposed to known hazards by analyzing their sensitivities. Therefore, the impact of social, economic, and political processes that create vulnerability can be reduced. Although it is accepted that the concept of vulnerability is socially constructed, assuming that its social construction is based on the power relations in question obscures the concept and puts it at risk of losing its analytical value. Another form of use of the vulnerability concept is seen as political. Here, the human is at the focal point. It is accepted that it is a product of power relations in economic and political systems that create human vulnerability (Cannon, 2008). Vulnerability often connotes "marginalization" and "poverty."

In a society, marginalized groups are determined by the dominant society; as a result, groups labeled as such are excluded and inevitably face economic and social discrimination. As a result, disadvantaged groups experience poverty. Therefore, marginalization of human dignity, security, and economic and psychological well-being is highly undesirable. The most vulnerable groups considered marginalized include women (gender), children, the elderly, people with disabilities, immigrants, ethnic minorities, and Indigenous peoples. Because these groups are multilayered, intersectional, and uncertain, the most devastating effects are experienced by vulnerable groups when they are exposed to disasters. These groups have less control over their lives and the resources available. They also lack positive and supportive relationships. Due to their characteristics, these groups have become increasingly isolated, and their participation in social life is limited. Thus, they live in a vicious cycle (Maurya, 2019). Vulnerability has often been expanded to include social vulnerability to emphasize causal processes related to economic, political, and social factors (Cannon, 2008).

Some variables become more evident in the context of social inequality and vulnerability during disasters (Reid, 2013). The first one is gender. Disasters affect women more than men. For example, in the tsunami that occurred in Southeast Asia in 2004, more women were disproportionately affected and lost their lives than men in Indonesia, India, and Sri Lanka (Maguire & Hagan, 2007). Gender roles and responsibilities are shaped by social structure, economic inadequacy, and education level, thus shaping gender-based vulnerability (Niaz, 2009). These gender-based inequalities restrict women's access to necessities, thus increasing their vulnerability and weakening their capacity to cope with disasters (Maurya, 2019). The adverse effects experienced increase when the gender-based nature of social vulnerability intersects with class and ethnicity. In other words, women become more vulnerable to the adverse effects of disasters when limited access to material resources caused by gender-specific roles and expectations intersect with class and ethnicity. In addition, women's vulnerability may increase because their domestic responsibilities often increase in disaster situations, their caregiving roles expand during the post-disaster recovery process, and they provide support to others. Moreover, because single mothers have limited financial resources, their vulnerability may be intensified during disasters. This phenomenon, observed in various disaster studies, has been observed to strengthen women's roles in the private sphere during disasters while men's roles in the public sphere (Reid, 2013). For example, during the Grand Forks flood disaster in the United States, women's participation in disaster preparation activities, such as filling sandbags while trying to fulfill their domestic, paid work, and social roles, caused role tension in women (Fothergill, 1999). Another variable is age. Children and young people, especially those living in developing countries, often have responsibilities such as working and caring for their family members. This situation negatively affects their health

and educational performance. It makes it difficult for these people to cope with the situation during a disaster and increases their vulnerability (Bartlett, 2012). In addition, babies and children face the risk of malnutrition and poor hygiene during disasters. However, because the elderly are also at serious risk during disasters and depend on aid, they are more likely to be vulnerable to disasters. It is known that in the event of a disaster, older adults' mobility and strength are reduced, and their ability to escape and cope with harm is low (Maurya, 2019). Another variable that draws attention to in the context of vulnerability is disability. People with disabilities may be at greater risk of injury or death during disasters due to their disabilities. In addition, disabled people are more dependent on others to meet their daily basic needs, which increases their vulnerability (Smith et al., 2012). Ethnicity and cultural factors are other variables that have drawn attention to the study. People of ethnic origin often experience limitations in accessing education, employment, health, or public services. Consequently, certain groups may be impacted by hazards without access to warning systems or preventive strategies (Gaillard & le Masson, 2007). A person or group's vulnerability and ability to handle a disaster can be influenced by differences in language, cultural practices, or religious beliefs from the dominant group. For instance, due to cultural expectations, women may be unable to seek help outside of their homes without the presence of a male family member or spouse, even if they have received a warning about an imminent disaster (Maurya, 2019). In addition, ethnic and cultural groups may be affected by disaster exposure in different ways. Belonging to a specific ethnic group can increase vulnerability before and after a disaster (Norris et al., 2002; Hoffman & Kruczek, 2011). This is often due to the challenges that come with being part of a group in a society with varying cultural values and practices. These cultural norms and attitudes toward difficulties can either support or impede collective recovery efforts (Norris et al., 2002). A person may also become vulnerable to cultural factors, such as language. Messages about hazards or disaster preparedness may not reach the entire population due to, for example, language barriers. In addition, cultural perceptions, myths, and messages can inadvertently discourage behaviors that could reduce vulnerability.

Moreover, even when disaster messages are culturally appropriate, vulnerable groups may not comply because they do not trust public officials' messages. Economic class is also an essential variable in the context of vulnerability. Economic deficiency can affect one's ability to survive even in regular hours. Economic disadvantages at the individual and community levels can make some groups more vulnerable to disaster effects. As a result, various researchers who have examined social vulnerability (Cutter et al., 2003; Phillips & Morrow, 2007; Reid, 2013) have considered economic class as a central variable in disaster losses. Socioeconomic disadvantage creates vulnerability. For example, African American victims have been observed staying in shelters because they have lower incomes

after a disaster.

Furthermore, female victims are often found to face more challenges because they have fewer resources and lack authority over post-disaster evacuation decisions. However, it has been observed that middle-class families have transformed post-disaster evacuations into a kind of vacation for their children, allowing them to protect themselves from the devastating aspects of the disaster (Reid, 2013). Poor living conditions, insufficient infrastructure, economic shortcomings, and limited access to vital services—particularly education and information—lead to the most vulnerable and marginalized populations suffering the most during disasters. These events tend to impact the weakest members of society the hardest. Social variables such as urbanization, education, employment, and economic level determine the likelihood of different groups in society being harmed and their ability to respond. Because these individuals and groups have limited opportunities, they are more vulnerable to the effects of disasters and have fewer resources, social support, and even social safety nets to prevent, intervene, and combat disasters. We can say that this vulnerability is a product of social inequalities. Therefore, the concepts of social inequality and social vulnerability are interrelated (Reid, 2013; Maurya, 2019). It is believed that increasing awareness of the weaknesses of these individuals and groups and strengthening them will help reduce the potential damage caused by disasters. Although disasters carry a higher risk for vulnerable groups, it should not be overlooked that these groups may have unique knowledge, skills, competencies, and resources to reduce risk and overcome post-disaster consequences (Maurya, 2019).

4. Resilience

As mentioned before, many factors, such as the type of disaster experienced, its duration, level of destruction, timing (time of day, day of week, season), as well as individual indicators such as age, gender, marital status, education, pre-disaster mental health, and social and economic status affect disaster outcomes. However, post-disaster effects are not always entirely adverse. Individuals and groups can develop positive reactions to disasters. For example, through post-traumatic growth, a person derives new meaning from the trauma they have experienced and can continue to live their life in a completely different way from before the trauma. In addition, a person can exhibit extraordinary resilience after a disaster (Amiri & Jahanitabesh, 2022). Considering resilience as a dynamic process aimed at maintaining and improving psychological health after adversity or disasters is one of the most important requirements for preparing for future disasters (Bakic & Ajdukovic, 2021; Ni et al., 2015; Amiri & Jahanitabesh, 2022; Wang & Liu, 2024). The concept of resilience is not new. The concept has a complex, rich, and long history, and the term is currently used in many fields with different meanings and is heavily debated (Rodriguez-Llanes et al., 2013; Jurgens & Helsloot, 2018).

Etymologically, resilience is derived from the Latin word resilin, meaning "to jump back" or "to bounce back" (Klein et al., 2003). Most definitions of resilience refer to rebounding or bouncing back after difficulty or adversity (Maurya, 2019). Whether the concept is based on physics or ecology is still debated. However, the concept can be process- or outcome-based (Manyena, 2006). In the past, the term "resilience" was the ability of an object or entity to return to its original shape after a certain period of stress or discomfort (Alexander, 2013). Since the 1970s, this concept has been used metaphorically to describe the ability of systems to return to their original states (Jurgens & Helsloot, 2018). The concept of resilience has been conceptualized through four dimensions: social, economic, technical, and organizational, and parameters related to its dimensions have begun to be determined (Bruneau et al., 2003). Today, the concept is widely used and adapted to various disciplines, especially engineering, ecology, biology, social-ecological systems, psychology, sociology, and economics (Norris et al., 2008; Saja et al., 2021). For example, while resilience in engineering is explained with the analogy of "bounce back," the concept of resilience in social-ecological systems expresses the concept of "robustness" (Rodriguez-Llanes et al., 2013; Jurgens & Helsloot, 2018). Different definitions can be made regarding the concept of resilience. In one of these definitions, resilience is expressed as the ability of a system and its constituent parts to anticipate, absorb, adapt to, or recover from the effects of an adverse event (Rodriguez-Llanes et al., 2013). The American Psychological Association (2014) defined resilience as adapting to difficulties, traumas, threats, and significant stressors. Difficulties in life can arise from personal or collective stressful events. However, it is essential for a person or society to adapt well to the existing situation (Cadamuro et al., 2021). Resilience describes the reactions of a dynamic system to situations that threaten its function or development, as well as the biological, psychological, social, and cultural factors in interactions that determine the viability of the system and its successful adaptation (Masten, 2014).

Due to the large number of significant disasters experienced worldwide and the increasingly destructive effects of disasters on society, the concepts of resilience and social resilience are being focused on (Saja et al., 2021). Moreover, resilience has become a frequently used concept in disaster management policies implemented in developed countries since the beginning of this century (Manyena, 2006; Rodriguez-Llanes et al., 2013; Jurgens & Helsloot, 2018). Disasters are external, random, and unpredictable events that usually occur in a narrow geographical area. They create stress and fear in individuals and societies and have psychological, social, and economic effects (Berrebi et al., 2021). To apply the concept of resilience in the disaster process, it is a prerequisite that the system's state is negative when a disaster occurs; otherwise, there is no possibility of returning to its original state. In a disaster, resilience can be defined as the capacity of a system, community, or society to adapt to a shock or stress, change

its unnecessary attributes, and survive by rebuilding itself. This capacity is also assumed to be internally predetermined (Manyena, 2006). Resilience emphasizes the effects of complex relationships among built, natural, and social environments on resilience against disasters (Norris et al., 2008; Saja et al., 2021). After disasters, individuals, communities, local administrations, governments, and public institutions face severe losses (Berrebi et al., 2021). Therefore, all these actors have specific duties to ensure and increase resilience. The first step is awareness and empowerment efforts regarding vulnerable groups. For example, because Australia is considered vulnerable to natural disasters such as floods, droughts, and cyclones, government and civil society organizations prioritize the resilience of individuals and communities and make appropriate arrangements (Maguire & Hagan, 2007). Resilience is an essential protective factor for physical, social, and emotional well-being. Therefore, resilience can be understood in terms of individual contexts (building resilience in people) and community contexts (building resilient communities) (Makwana, 2019).

5. Individual Resilience

Disasters have been traumatic events that have affected human life throughout history. However, it has been observed that some people are not as affected by disasters as others. The resilience factor protects people against the adverse effects of disasters (Meng et al., 2018). Individual resilience refers to adapting and thriving despite challenges, which helps us understand why some people cope effectively and achieve positive results when confronted with adversity (Castleden et al., 2011). This concept is commonly explored in psychology, behavioral studies, and health sciences. Resilience involves a combination of protective factors and a constructive adaptation process after experiencing difficult situations (Dutton & Greene, 2010). Therefore, individual resilience is evaluated as a person's ability to cope with adverse situations, solve problems, or overcome adversities (Maurya, 2019). It can be said that resilience, a protective factor against adverse conditions, contributes to disaster victims' mental health and well-being because it regulates the person's emotions despite traumatic experiences (Bonanno et al., 2010; Rajkumar et al., 2008). After a disaster, victims usually use different coping strategies. Social support, spirituality, and religion are positively related factors that contribute to disaster victims' resilience. Thus, it can be concluded that individuals' resilience levels increase in the face of the traumatic event they experience. Moreover, individuals can adapt by coping with difficulties more easily and quickly (Vis & Boynton, 2008; Ikizer et al., 2016; İme, 2024).

6. Social Resilience

As a result of the increasing frequency of disasters worldwide, there is a growing emphasis on the resilience of communities against disasters (Saja et

al., 2021). Weak development plans, underdevelopment, rapid urbanization, and environmental degradation have increased the exposure and vulnerability of communities to disasters, exacerbated existing risks, created new risks, and caused sharp increases in disaster-related losses (Khalili et al., 2018; Maurya, 2019). The main reason existing hazards often turn into disasters is the failure of communities to manage the risks that arise. To reduce the damage caused by disasters and recover quickly, communities must proactively reduce risks and build social resilience (Saja et al., 2021). This underscores the crucial role of community preparedness in disaster management. Building social resilience and individual preparedness involves fostering a supportive community environment that helps people cope with and recover from disasters. Thus, we conclude that enhancing social resilience goes beyond improving individual resilience (Maurya, 2019; Saja et al., 2018). A Supportive social context is needed for vulnerable groups. In fact, in addition to being aware of their weaknesses, society's strengths are also evaluated. Social resilience has been defined as the capacity of a social entity (e.g., a group or community) to withstand natural or artificial disasters, recover from crises, or respond positively to crises (Maguire & Hagan, 2007; Maurya, 2019). In general, it refers to the capacity of a community to "bounce back" or respond positively to challenges (Omand, 2005). At the same time, social resilience addresses people's disaster responses in the context of three characteristics: resistance, recovery, and creativity. A community's efforts to resist a disaster and its consequences are expressed as resilience. Recovery is the ability of a community to cope with a disaster and "return" to its pre-disaster functioning. It can also be understood in terms of the time taken for a community to recover after a disaster. Creativity is the ability of a community to adapt to new conditions and learn from disaster experiences rather than simply returning to their pre-disaster state. A creative community can learn from experience and teach its members how to better prepare for future disasters. It is assumed that a community with high social resilience can demonstrate these characteristics.

A socially resilient community is one that is prepared for disasters. It can absorb their effects, respond effectively, and recover from shocks while also being able to adapt and innovate in crises. Such a resilient community can return to its normal state swiftly and efficiently, in contrast to a less resilient community that may take longer or even fail to recover. Additionally, resilience levels can differ among various groups within the same community when facing disasters (Maguire & Hagan, 2007; Saja et al., 2018; Saja et al., 2021). Furthermore, a community's resilience can vary depending on the type of disaster it encounters (Roisman, 2005). Disasters can encompass a wide array of events and can differ in their causes (whether natural or human-made), impacts (some being visible while others are not), proximity, size, scope, duration, severity, and resulting casualties (Maguire & Hagan, 2007). Building disaster-resistant communities not

only enhances safety but also promotes sustainability within societies (Rodriguez-Llanes et al., 2013).

During disasters, social resilience also affects the pre-disaster, response, and recovery stages. Social resilience is essential in these stages to protect society from losses by increasing the capacity of communities during the pre-disaster and response stages and improving their capacity to rebuild and return to normal after the event (Khalili et al., 2018). Therefore, the components of social resilience have been examined in different studies. Chandra et al. (2010) conducted a literature review identifying five critical components of social resilience. They highlighted the importance of physical and mental health, social and economic equality, and well-being; effective risk communication; collaboration between government and nongovernmental organizations; and social cohesion. Additionally, Nuwayhid et al. (2011) examined resilience across different stages of an adverse event, proposing that social resilience should be viewed as an ongoing process rather than a result. They also stated that social resilience is affected by collective identity, previous experiences with adverse events, social support networks, community cohesion, social solidarity, and leadership. Norris et al. (2008) considered social resilience in economic development, information and communication, community competencies, and social capital. It is believed that evaluating all characteristics of social resilience, especially those of vulnerable groups, is essential during disasters. Therefore, the strengths and weaknesses of each group should be determined. It should not be forgotten that measures taken before a disaster occurs are the most effective way to prevent and minimize damage. Determining the primary social resilience indicators is vital for today's and future disaster prevention, intervention, and management processes. Social resilience indicators express the primary conditions that a community can measure. Resilience indicators make estimating community disaster resilience easier before a disaster occurs (Rodriguez-Llanes et al., 2013). In addition, these indicators ensure that the risks related to disasters are minimized and that the capacity of these communities to manage future disasters is increased. Although intuitive knowledge exists about what constitutes a community with a high level of social resilience, it is seen that research in Türkiye that systematically presents such indicators is limited.

Developing the capacity to cope with disasters requires gaining information about hazards and risks, changing behaviors, transforming institutions, and increasing the capacity to adapt to the changing environment. This can only be achieved with social resilience. Therefore, to address problems and develop capacities, it is necessary to define and measure the primary indicators of social resilience (Cutter et al., 2008). However, it can also be seen that there is no standard method for determining these indicators. Therefore, the necessity of indicators in determining the changes in the capacity to withstand and recover from hazards

within a community is obvious (Khalili et al., 2018). These indicators of social resilience can be evaluated and conceptual (Norris et al., 2008; Parsons et al., 2016) or applied (Cutter et al., 2008) models can be developed. Thus, it is possible to increase social resilience and reduce disaster effects.

There is an urgent need to determine social resilience indicators to improve disaster preparedness and disaster recovery quickly (Saja et al.,2021). Indicators related to social resilience have been proposed in different studies. These include factors like trust, leadership, collective efficacy, social capital, social cohesion, community identity, participation, existing norms, attitudes, values, and aspects such as communication and access to information (Enemark, 2006; Ink, 2006; Moore et al., 2004; Oxfam, 2005; Hikichi et al., 2017; Bonanno et al., 2010; Ungar & Theron, 2020; Maguire & Hagan, 2007). These indicators reflect various community dimensions. They can influence different phases of a disaster, but their impact may vary in different situations and over time (Khalili et al., 2018).

7. Resilience and Disaster Management

It is thought that it would be helpful to evaluate the concept of social resilience in disaster management. To build resilience, societies need to be proactive and consistent in preparing for risks and making efforts to reduce risks (Saja et al., 2019). In disaster management preparation, response, and recovery processes, minimizing the possible effects of disasters and making societies more resilient are vital. These processes require disaster risk reduction, early warning systems, emergency plans, public awareness raising, and increased resilience (Maguire & Hagan, 2007). Considering the weaknesses within a community in disaster management, the stages of disaster prevention, preparation, response, and recovery (e.g., Mileti, 1999) can be designed cyclically on a community basis (Wolkin et al., 2015). The prevention stage is when a community strengthens its competencies to better cope with future disasters. The preparation phase involves predicting a disaster and creating an appropriate response program. Risks are analyzed at this stage, and warning and response structures are created (Maguire & Hagan, 2007). The prevention and preparation phases before a disaster can sometimes be considered a single preparation phase that covers the entire period before the disaster (Khalili et al., 2018). The response phase refers to actions taken during and immediately after the disaster. At this stage, society is affected by a crisis. The primary goals are to save lives, minimize property damage, and minimize social disruption. Typically, this phase involves coordinating search and rescue efforts for disaster victims. The final phase, recovery, involves rebuilding a community after a disaster and returning it to its pre-disaster state. The damage assessment is completed during the recovery phase. In other words, this stage is the process of meeting the community's immediate needs, and the disaster no longer impacts the community (Waugh & Streib, 2006; Khalili et al., 2018).

In addition, infrastructure and housing are rebuilt during this stage. Mitigation occurs after a disaster occurs in the cyclical process of disaster management. Mitigation is about preparing for, responding to, and recovering from disasters; it also involves learning from past experiences to craft new policies and initiatives to strengthen community resilience (Mileti, 1999). Without solid mitigation efforts, communities may find it challenging to enhance their resilience. They risk getting caught in repetitive short-term preparation, response, and recovery cycles without making significant progress (Moore et al., 2004). The most significant improvements in social resilience can be realized by addressing all four phases of the disaster process (Maguire & Hagan, 2007; Khalili et al., 2018).

The importance of social resilience in disaster management is being increasingly recognized by researchers and practitioners. However, the complex nature of social resilience makes it challenging to assess it quickly and accurately. Many key indicators that focus on processes are difficult to operationalize because they are inherently dynamic, leading to their omission from current social resilience frameworks. Consequently, there is a critical need for a comprehensive framework that can be tailored to various contexts and integrated with specific measurement tools and guidelines. Such a framework would enable consistent resilience assessments across regions by adapting to local resilience traits (Saja et al., 2019). Effective disaster planning must build upon the capacities developed through social resilience (Jurgens & Helsloot, 2018; Maguire & Hagan, 2007).

Conclusion

When the effects of disasters on societies and the reactions developed against them are examined from a social-psychological perspective, a complex and multidimensional structure emerges. Disasters are natural or human-induced events that negatively affect individuals and societies because of their general consequences, such as disrupting the psychological structure of individuals and societies, social life, destruction of infrastructure, housing, and the environment, death, and injury. In this context, the concept of social resilience is critical for understanding communities' capacity to mitigate disaster effects and develop resistance to such events. The effects of disasters on individuals and societies are complex and multidimensional. Disasters are external, semi-random, and unexpected disasters that have psychological, social, and economic consequences (Morgado, 2020). The complex nature, effects, and consequences of disasters may vary depending on the type, magnitude, and socioeconomic structure of the region where the disaster occurs (Bonanno et al., 2010). Disasters are usually measured by the cost of social and economic damages, but this cannot be compared to the emotional pain experienced by victims after the disaster. Therefore, in addition to socioeconomic difficulties, psychological distress is common among victims (Makwana, 2019). All these situations need to be considered.

The effects of disasters exceed the ability of individuals and communities to cope with the situation; they cause human, material, economic, or environmental losses and seriously disrupt the functioning of society (Ginige et al., 2009). Disasters are experienced collectively, causing the death or injury of many people at the same time. In addition, disasters are chaotic and traumatic events with an acute onset, a time limit, and affect a wide geographical area (Bonanno et al., 2010; McFarlane & Norris, 2006).

The psychological effects of disasters are especially severe in children, women, and the elderly. In developing countries, poverty can lead to more severe individual and social consequences due to a lack of educational opportunities, resources, infrastructure, an educated workforce, and awareness. In short, regardless of the devastating effects of disasters, their psychosocial effects and consequences on people are straightforward.

Thousands of people are affected and/or killed each year because of disasters. Such disasters leave behind deaths, destroyed homes, fragmented communities, and widespread damage to national economies and the general well-being of a country. Although everyone is thought to be equally affected by disasters, disaster response research suggests that vulnerable groups such as women, children, the elderly, the poor, the disabled, racial and/or ethnic minorities, immigrants, and those living in developing countries are likely to be at greater psychosocial risk (Maurya, 2019). Because people in these groups have less control over their lives and the resources available to them, it is known that these groups suffer more significant damage and losses than other groups and experience higher levels of vulnerability than others. This is especially important for those working on program and policy issues.

Knowledge that is local and rooted in tradition, particularly from vulnerable communities, should be the foundation for external efforts aimed at mitigating disaster risks (Maurya, 2019). The Oxfam (2005, p. 1) report states that "disasters, no matter how 'natural', are highly discriminatory. Wherever they strike, pre-existing structures and social conditions determine whether some members of society will be less affected, and others will pay a higher price". In disaster situations, it is essential to address and emphasize individual differences in all activities, practices, and regulations that must be implemented.

Enhancing social resilience in disaster management is a pivotal strategy to ensure that communities are better prepared for such events. In this vein, the current interest and necessity for studies on the conceptualization and measurement of social resilience are significant in terms of bridging research gaps in this area, offering a sense of reassurance about the potential of social resilience in disaster management.

Most authorities believe that citizens panic and feel helpless and dependent during crises (Jurgens & Helsloot, 2018). However, resilience is much more common in societies' disaster response. Immediately after a disaster, communities come together, and most individuals exhibit more positive social behaviors. This shows that the disaster preparedness and response plans of the authorities do not match with actual citizen behaviors. This inconsistency can negatively affect disaster management and reduce response effectiveness. Social resilience refers to how a social entity (e.g., a group or community) responds to disasters and how it can recover from disasters or respond positively to crises. Social resilience is a multifaceted structure with characteristics such as resistance, recovery, and creativity. Resilience refers to a community's effort to resist a disaster and its consequences, while recovery is related to a community's ability to cope with a disaster. On the other hand, creativity refers to a society's ability to adapt to new conditions and increase functionality by learning from disaster experiences beyond returning to the initial balance point (Maguire & Hagan, 2007).

It is important to consider the roles of various actors in the context of disasters. These events not only impact individual relationships but can also disrupt family dynamics and affect various aspects of life, including peer groups, schools, neighborhoods, communication networks, the economy, and international relations. Cadamuro et al. (2021) highlighted that disasters involve intricate interactions among individual, interpersonal, group, and intergroup factors. Each of these levels has its own set of risk and protective elements that can influence both the direct and indirect outcomes of a disaster.

Future research should examine the broader consequences of disasters and investigate how they affect interpersonal, group, and intergroup relationships. This ongoing research is crucial for understanding the full impact of disasters and developing effective strategies for pre-disaster preparedness and post-disaster response. The needs of particularly vulnerable groups are crucial for the success of these processes. The development and implementation of holistic and inclusive disaster management policies with the participation of all segments of society will play a key role in reducing the negative impacts of disasters and increasing social resilience. Engagement in ongoing research is vital for the advancement of our understanding and the development of effective strategies.

Understanding the causes and consequences of disaster impacts is important for preventing, managing, and reducing disaster risks (Hettige, 2022). Therefore, the concepts of social inequality and social vulnerability are interrelated (Reid, 2013; Maurya, 2019). It is thought that increasing awareness of the weaknesses of these individuals and groups and strengthening them will help reduce the potential damage caused by disasters. Although disasters carry a higher risk for vulnerable groups, it should not be ignored that these groups may also have unique

knowledge, skills, competencies, and resources to reduce risks and overcome the consequences of a disaster. The potential of vulnerable groups to contribute to disaster management should inspire and motivate us in our efforts to build resilience.

Because disasters are complex and have many layers, enhancing social resilience is crucial for communities to better withstand future natural disasters. For this reason, there is a growing interest in defining and measuring social resilience, which is vital for addressing existing research gaps in this field.

Understanding the impact of disasters is vital for improving the resilience of individuals and communities. As a result, there has been a growing recognition of the importance of social resilience in disaster management, attracting attention from researchers and practitioners alike. Strengthening social resilience is critical for better-preparing communities for future natural disasters. Considering this, there is an urgent need for studies that focus on defining and measuring social resilience to address research gaps. It is crucial to investigate how social resilience plays a role in disaster response, particularly for vulnerable groups, to create effective and inclusive intervention strategies. Future research should comprehensively explore the complex effects of disasters on individuals and communities and identify social resilience indicators. This strategy enhances community resilience against future disasters and improves the overall effectiveness of disaster management efforts.

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