An Exploratory Study on the Influencing Factors of Disaster Inequality

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Abstract

This study aims to analyze the factors influencing disaster inequality based on public perception and propose policy directions to mitigate disaster inequality. The analysis reveals that significant factors affecting disaster inequality include political orientation, disaster experience, disaster recovery capacity of metropolitan governments, government-public communication, social disaster vulnerability, the resilience of communities, social conflict, and unfairness in resource distribution (influence of connections). Additionally, interactions between the disaster management capacity of basic local governments and unfair resource distribution during the 'recovery' phase, and between the disaster management capacity of metropolitan governments and unfair resource distribution during the 'prevention' phase, were found to significantly impact disaster inequality. Based on these findings, the study suggests policy directions for mitigating disaster inequality, including strengthening protection for vulnerable groups, enhancing communication and cooperation among community members (central government, local governments, and citizens), expanding citizen participation in disaster management policy formation and resource distribution processes, and reinforcing transparency and fairness.

Key words: Disaster, Disaster Inequality, Policy Capacity, Unfairness

I. Introduction

Disaster inequality refers to the phenomenon where certain groups suffer greater harm or distress than others when a disaster occurs. This inequality arises from various factors such as social, economic, racial, gender, and disability-related issues, with significant differences observed across different strata of society. Given that everyone has the right to equal protection, studying disaster inequality is crucial. Understanding disaster inequality allows for the identification of problems faced by specific groups in advance, enabling the development of tailored measures to minimize harm. Research on disaster inequality provides valuable information to policymakers, helping them to create effective and equitable disaster management policies and improve existing ones. Reducing disaster inequality will enhance social integration and solidarity, contributing to the long-term stability and prosperity of society. Moreover, research on disaster inequality is essential for fostering international cooperation in disaster prevention and recovery. Therefore, this study aims to analyze the factors influencing disaster inequality based on public perception and propose policy directions to mitigate disaster inequality.

II. Theoretical Rationales

1. The concept of disaster inequality

Disasters, or calamities, are defined as "social and economic damages caused by unusual natura l phenomena or man-made accidents," encompassing incidents with significant levels of damage (Kim Tae-Hwan, 2010:19; Choi Ho-Jin, 2013:10). Additionally, Baek Ok-Sun (2014:10-11) describ es disasters as "changes in natural phenomena such as weather, or man-made accidents causing ha rm to life or property," or "unexpected unfortunate events or accidents caused by natural disaster s." According to Article 3 of the Framework Act on Disaster and Safety Management, a disaster is defined as "something that can cause damage to the lives, bodies, property of the people, and the state." Disasters are generally classified into natural disasters, human-made disasters, and socia l disasters. In contrast, Article 3 of the Disaster and Safety Act broadly categorizes disasters into natural and social disasters. Therefore, this study will classify disaster types based on the current Disaster and Safety Act into 'natural disasters' and 'social disasters.'

Inequality is a concept contrasted with equality, indicating that within a nation or society, social strata are formed based on income, education, occupation, region, etc., and gaps exist between different groups. On the other hand, inequity is a term contrasted with fairness, encompassing the values of 'justice' and 'equity.' Inequity combines the values of fairness and equity with elements of discrimination. Equity, in this context, means treating equals equally and unequals unequally. This study integrates these concepts and defines disaster inequality as "the difference in resultant damage due to structural inequalities during the occurrence and management of disasters" (Korea Institute of Public Administration, 2018).

2. Factors Influencing Disaster Inequality

The causes of disaster inequality are varied, and when a disaster occurs, these factors interact to cause differential impacts on groups and individuals. The causes of disaster inequality can be broadly categorized into individual factors, policy factors, and environmental factors.

Firstly, individual factors. These are cases where disaster inequality arises due to personal characteristics or situations. Individual factors include monthly income, political orientation, and disaster experience. Regarding monthly income, low-income groups lack the resources to prepare for disasters. According to a study by the United States Census Bureau (2024), counties with high income inequality have higher social vulnerability to disasters. In counties where income inequality is above the national average, 23.4% of residents are socially vulnerable during disasters, compared to 19.2% in counties with below-average income inequality. This suggests that greater income inequality increases the potential for disparate impacts among different social strata during disasters. For example, low-income individuals may not afford emergency supplies such as food, water, and first aid kits, secure housing, or resources to recover from losses post-disaster.

Political orientation can also influence disaster inequality. Right-wing governments tend to nnovation for disaster prevention, and this effect is more pronounced with fewer political constraints (Aguilera et al., 2021). Therefore, regions or groups with predominantly non-right political orientations might prioritize disaster prevention policies less. Additionally, groups or areas that support minority parties may have less political influence, increasing their chances of being marginalized in government disaster support and recovery processes. Disaster experience can also exacerbate disaster inequality. After Hurricane Harvey,

disaster inequality based on race and social status was evident (Fitzpatrick & Spialek, 2021). Low-income and minority groups faced significant challenges during the recovery process, and such experiences intensified disaster and social inequalities. Those who have experienced disasters may suffer from PTSD (Post-Traumatic Stress Disorder) and other psychological impacts, which negatively affect long-term recovery.

Secondly, policy factors. Disaster inequality is influenced by the interactions among various levels of government agencies and members of society during disaster prevention and recovery processes. Additionally, government policies and response strategies can either cause or exacerbate disaster inequality. Policy factors include the disaster management capacity of metropolitan and local governments during the 'prevention' phase, the disaster management capacity of metropolitan and local governments during the 'recovery' phase, communication between central and local governments, communication among local governments, communication between the government and the general public, and the participation of societal members in government decision-making processes. Local governments have the authority to develop urban planning and disaster management plans aimed at reducing disaster risks during the 'prevention' stage (UNDRR, 2017). These plans contribute to reducing disaster risks and enhancing the resilience of communities. Metropolitan governments, responsible for developing disaster prevention plans covering the entire region, generally possess relatively more financial resources and technical capabilities. However, if metropolitan governments do not allocate sufficient resources for disaster prevention or concentrate resources on specific areas, inequality can arise. In such cases, regions or groups excluded from disaster prevention efforts may suffer greater damage when a disaster occurs.

Local governments, being geographically closer to local residents, play a crucial role in on-the-ground disaster prevention and initial response. They are well-acquainted with local characteristics and should develop tailored disaster prevention plans. However, if local governments lack financial or human resources or have insufficient disaster management experience, effective disaster management becomes challenging. The disaster management capacity of local governments is also crucial during the "recovery" phase. If local governments lack resources and capacity during disaster recovery, social inequality can be exacerbated. Particularly, local governments with insufficient financial resources may fail to adequately support low-income and vulnerable groups, increasing their hardships and deepening inequality post-disaster (UNDRR, 2017). Metropolitan governments need to develop long-term recovery plans and ensure the fair distribution of recovery resources. If all regions and groups are not treated equitably, social inequality may be reinforced in marginalized areas or groups. Metropolitan governments, with their relatively greater financial and technical capabilities, bear the responsibility of distributing recovery resources justly to ensure no group is overlooked. Local governments also play a key role in on-the-ground disaster recovery efforts. They must conduct accurate damage assessments to provide targeted support. However, if they lack resources or administrative efficiency, timely and necessary support may not be delivered to those in need. This can result in further hardships for the affected populations, thus exacerbating existing inequalities.

Furthermore, the resilience of a region to disasters is enhanced through external networks and public relations (Lee, 2019). Disaster governance plays a crucial role on social, political, and economic levels, and effective communication among stakeholders leads to more effective disaster recovery and a reduction in disaster inequality. Cooperation and communication between central and local governments are essential in reducing inequality in disaster response and recovery. Effective transmission of central government policies to local governments, and accurate communication of local conditions to the central government, ensures policy consistency. A lack of communication between central and local governments can lead to confusion during disaster response and recovery, potentially marginalizing certain regions. Communication among local governments is also vital in mitigating disaster inequality. Cooperation between neighboring municipalities, through sharing disaster management experiences and resources, can enhance disaster

response capabilities. Disasters often span multiple regions, so effective communication among local governments is necessary for integrated and effective responses. Effective communication between local governments and residents is crucial for reducing inequality during the disaster recovery process (Mitcham, 2021). When local governments communicate with residents based on trust, the effectiveness of disaster recovery improves, contributing to the mitigation of disaster inequality (Pal & Shaw, 2018). Local governments should develop strategies to effectively convey information by collaborating with key community stakeholders, ensuring residents have easy access to disaster-related information. This enables residents to better prepare for disasters, and an imbalance in information can lead to inequalities in disaster response. Moreover, the participation of societal members in government decision-making processes helps reduce disaster inequality. It is necessary for disaster policies to be fair and reflect the needs of diverse residents by involving various societal members in disaster management decision-making processes. Public participation in policy processes plays a crucial role in enhancing government transparency and accountability (Daley, 2013), building public trust in disaster management, and enabling inclusive and improved decision-making.

Thirdly, environmental factors play a significant role. Certain natural and physical environmental factors can cause specific groups or individuals to suffer greater harm when a disaster occurs. These environmental factors include social vulnerability, regional disaster resilience, social integration capacity, and social conflict. Social vulnerability exacerbates disaster inequality by causing specific groups or individuals to suffer more when a disaster occurs. According to Adams (2022), socially vulnerable groups are exposed to greater risks and recover more slowly during disasters. For example, low-income individuals may live in old or unsafe housing and lack the resources necessary for disaster prevention and recovery. Additionally, elderly and disabled individuals may face difficulties in mobility or evacuation, leading to greater harm and slower recovery during disasters. Regional disaster resilience refers to the capacity of a community to withstand and recover from disasters. Communities with higher resilience can better manage and mitigate the impacts of disasters, thereby reducing disaster inequality. Conversely, regions with low resilience may struggle to respond effectively to disasters, resulting in greater disparities in the impact on different groups. Social integration capacity indicates the strength of social networks and community cohesion. Strong social integration can facilitate mutual aid and support during disasters, helping to distribute resources more equitably and support vulnerable individuals. On the other hand, weak social integration can lead to isolation and insufficient support for those most in need, thereby worsening disaster inequality. Social conflict can influence disaster outcomes by affecting the distribution of resources and support. High levels of social conflict can hinder cooperative efforts in disaster response and recovery, leading to unequal access to aid and resources. Addressing social conflicts and promoting collaboration can help ensure a more equitable disaster response, mitigating the adverse effects on vulnerable populations.

Disaster resilience refers to the ability of a community to quickly and effectively recover after a disaster. Resilience comprises several elements, including robustness, adaptability, and recovery. Recently, the concept has evolved to aim not just for recovery, but for advancement to a better state post-disaster (Graveline & Germain, 2022). For instance, if physical infrastructure such as roads, bridges, and power supply systems is well-maintained, and sufficient financial resources are available within the community to quickly fund recovery efforts, the post-disaster recovery process can be expedited. Additionally, swift restoration of jobs can promote economic recovery in the region, and well-established networks among community organizations can facilitate cooperation and support during the recovery process. Rapid resumption of public services, healthcare services, educational services, and social welfare services post-disaster can significantly enhance the resilience of residents' lives. Communities with high disaster resilience are able to recover more quickly after a disaster, thereby contributing to the reduction of long-term inequalities (Chopel et al., 2021). This means that regions with strong resilience can not only restore normalcy faster but also build back in a way that reduces pre-existing inequalities and vulnerabilities.

Social integration capacity refers to the ability of community members to cooperate during a disaster and recover collectively as a community afterward. According to Orazani et al. (2023), communities with high social integration capacity can recover more quickly from disasters by supporting each other and sharing resources, thereby mitigating disaster inequality. In contrast, communities with low social integration capacity may struggle with social cohesion, resulting in less trust and cooperation among members, which can hinder disaster response and recovery efforts. This lack of cohesion can exacerbate inequality during the recovery process and may lead to long-term social division. Moreover, social conflict is a factor that exacerbates disaster inequality. In regions with low social integration capacity, inequality in resource distribution and support can increase conflicts post-disaster (Peters & Kelman, 2020). For example, conflicts may arise over resource allocation, with specific groups attempting to secure more resources, and social tensions between disadvantaged and affluent groups may intensify during the recovery process. Additionally, conflicts can occur between central and local governments, or between regions with different political orientations, during the decision-making process for disaster response and recovery policies. If disaster aid is perceived to be concentrated on particular groups, dissatisfaction and conflict may arise among other groups. Therefore, enhancing social integration capacity and addressing social conflicts are crucial for effective disaster management and reducing disaster inequality. By fostering cooperation and trust within communities, and ensuring fair resource distribution, the negative impacts of disasters can be minimized, leading to more equitable recovery outcomes.

III. Research methodology

This study aims to analyze the factors influencing disaster inequality based on public perception and examine the moderating effect of unfairness in the distribution process of disaster resources. For this purpose, the study establishes disaster inequality as the dependent variable, based on theoretical discussions, and categorizes the influencing factors of disaster inequality into individual factors, policy factors, and environmental factors as independent variables. Individual factors include monthly income, political orientation, and disaster experience. Policy factors comprise the disaster management capacity of metropolitan and local governments during the 'prevention' phase, the disaster management capacity of metropolitan and local governments during the 'recovery' phase, communication between central and local governments, communication among local governments, communication between the government and the public, and the participation of societal members in government decision-making processes. Environmental factors consist of social vulnerability, regional disaster resilience, social integration capacity, and social conflict.

Additionally, the study sets the fairness of resource distribution in disaster management as a moderating variable. Specifically, the fairness of resource distribution related to disaster management can be influenced by connections such as school ties, regional ties, and blood ties, which can also affect disaster inequality. When such connections intervene in the resource distribution process, resources may be concentrated on specific groups or individuals. As a result, the areas or people who have actually suffered the most may not receive adequate support, failing to distribute the impact of the disaster evenly and exacerbating social inequality. The intervention of connections in resource distribution undermines public trust and can lead to redundant support and resource wastage. If the influence of such connections affects the prevention and recovery stages of disaster management, disaster management plans may be biased in favor of certain groups, thus deepening disaster inequality in the long term and reducing the reliability of the disaster management system. Therefore, this study sets the fairness of resource distribution in disaster management, influenced by connections such as school ties, regional ties, and blood ties, as the moderating variable.

<Table 1> Variables, Indicators, Measurement

Variable	Indicator		Measurement
Dependent Variable	Disaster Inequality		1: very disagree 6: very agree
Independent Variables	Personal Factors	Monthly Average Income	1: below 200M 10: above 1000M
		Political Orientation	1: very conservative 6: very progressive
		Experience of Disaster Damage	1: yes, 0:no
	Policy Factors	Disaster Management Capacity of Metropolitan Governments during 'Prevention' Process	1: very low 6: very high
		Disaster Management Capacity of Basic Local Governments during 'Prevention' Process	
		Disaster Management Capacity of Metropolitan Governments during 'Recovery' Process	
		Disaster Management Capacity of Basic Local Governments during 'Recovery' Process	
		Smoothness of Central-Local Communication	
		Smoothness of Inter-Local Communication	
		Communication between Government and Citizen	
		Participation of Social Members in Government Decision-Making	
	Environmental Factors	Social Disaster Vulnerability	
		Regional Disaster Recovery Resilience	
		Social Integration Capacity	
		Social Conflict	
Moderating Variable	Unfairness in the allocation of disaster management resources	Influence of Academic, Regional, and Blood Ties in Disaster Management Resource Allocation Process	

This study utilized the original data from the "Perception Survey on Strategies for Resolving D isaster Inequality and Social Integration" (2018) by the Korea Institute of Public Administration (KIPA) to examine the research topic. Permission to use the data was obtained in accordance wit h KIPA's management regulations. The data, which were collected through quota sampling of the general public, residents of disaster-affected areas, and officials from relevant departments, include survey items related to disaster inequality, making it suitable for an objective analysis of the rese arch topic. To analyze the data, descriptive statistics, reliability analysis, multiple regression analys is, and moderation effect analysis were conducted.

IV. Analysis of results

This study examined the relationship between disaster inequality and its major influencing factors, which include individual factors, policy factors, and environmental factors. Additionally, the study aimed to understand the impact of fairness in the resource distribution process (influenced by school ties, regional ties, and blood ties) within these relationships. The following model was empirically analyzed: Model 1 analyzed the impact of individual factors, policy factors, and environmental factors on disaster inequality.

The analysis results showed that among individual factors, political orientation (t=2.882**), and disaster experience (t=1.717*); among policy factors, the disaster management capacity of metropolitan governments during the 'recovery' phase (t=2.082*), communication between central and local governments (t=-1.935*), and communication between the government and the public (t=1.674*); and among environmental factors, social vulnerability (t=5.231***), and social conflict (t=2.108*), along with the moderating variable of the influence of school ties, regional ties, and blood ties in the resource distribution process (t=11.629***), were found to have significant impacts on disaster inequality.

Model 2 extends Model 1 by including interaction terms between individual factors, policy factors, environmental factors, and the moderating variable of fairness in the resource distribution process. The analysis results indicated that among individual factors, political orientation (t=2.812**) and disaster experience (t=1.885*); among policy factors, the disaster management capacity of metropolitan governments during the 'recovery' phase (t=1.677*), and communication between the government and the public (t=1.787*); and among environmental factors, social vulnerability (t=5.016***), regional disaster resilience (t=1.663*), and social conflict (t=1.978*), along with the moderating variable of the influence of school ties, regional ties, and blood ties in the resource distribution process (t=11.474***), were found to significantly impact disaster inequality. Additionally, the interaction terms revealed significant effects on disaster inequality. Specifically, the interaction between the disaster management capacity of local governments during the 'prevention' phase and the influence of connections in the resource distribution process (t=2.314*), and the interaction between the disaster management capacity of metropolitan governments during the 'recovery' phase and the influence of connections in the resource distribution process (t=-3.342**), were found to significantly impact disaster inequality.

<Table 2> Regression analysis results

Variables		Model(1)		Model(2)	
		Beta	t	Beta	t
Independent Variables	**Personal Factors**				
	Monthly Average Income(X1)	0.0001	0.003	0.000	-0.014
	Political Orientation(X2)	0.085	2.882**	0.083	2.812**
	Experience of Disaster Damage(X3)	0.048	1.717*	0.053	1.885*
	Policy Factors				
	Disaster Management Capacity of Metropolitan Governments during 'Prevention' Process(X4)	-0.031	-0.489	-0.017	-0.257
	Disaster Management Capacity of Basic Local Governments during 'Prevention' Process(X5)	-0.052	-0.767	-0.062	-0.886
	Disaster Management Capacity of Metropolitan Governments during 'Recovery' Process(X6)	0.141	2.082*	0.120	1.677*
	Disaster Management Capacity of Basic Local Governments during 'Recovery' Process(X7)	-0.027	-0.382	-0.012	-0.165
	Smoothness of Central-Local Communication(X8)	-0.092	-1.93*	-0.074	-1.501
	Smoothness of Inter-Local Communication(X9)	0.044	0.953	0.015	0.316
	Communication between Government and Citizen(X10)	0.078	1.674*	0.083	1.787*
	Participation of Social Members in Government Decision-Making(X11)	-0.025	-0.512	-0.019	-0.387
	Environmental Factors				
	Social Disaster Vulnerability(X12)	0.174	5.231***	0.174	5.016***

	Regional Disaster Recovery Resilience(X13)	0.045	1.351	0.056	1.663*
	Social Integration Capacity(X14)	-0.054	-1.263	-0.064	-1.479
	Social Conflict(X15)	0.069	2.108*	0.065	1.978*
Moderating Variable	Influence of Academic, Regional, and Blood Ties in Disaster Management Resource Allocation Process(M)	0.365	11.629***	0.364	11.474***
Interaction	(M)*(X1)			-0.016	-0.647
	(M)*(X2)			-0.001	-0.042
	(M)*(X3)			-0.013	-0.445
	(M)*(X4)			0.075	1.105
	(M)*(X5)			0.171	2.314*
	(M)*(X6)			-0.225	-3.342**
	(M)*(X7)			-0.043	-0.571
	(M)*(X8)			0.003	0.054
	(M)*(X9)			-0.050	-1.019
	(M)*(X10)			0.000	-0.001
	(M)*(X11)			0.001	0.014
	(M)*(X12)			0.009	0.258
	(M)*(X13)			0.005	0.146
	(M)*(X14)			0.068	1.405
	(M)*(X15)			0.046	1.384
Constant		15.347***		14.078***	
R^2		0.280		0.299	
Adjusted R^2		0.268		0.275	
F change		22.723***		1.631*	

*p<0.10, ** p<0.05, *** p<0.001

The analysis results of this study indicated that disaster inequality was perceived to be higher among those with more progressive political orientations, those with prior disaster experience, those in more socially vulnerable situations, those experiencing greater social conflict, and those perceiving a greater influence of connections (school ties, regional ties, and blood ties) in the resource distribution process. Contrary to expectations, it was also found that higher disaster recovery capacity of metropolitan governments, greater the regional disaster resilience, greater communication between central and local governments, and more communication between the government and the public were associated with higher perceptions of disaster inequality. When metropolitan governments have high disaster recovery capacity, they possess significant resources, technology, and expertise needed for disaster recovery. However, if these capabilities are not applied fairly and equally across communities or social strata, the differences in capabilities may actually accentuate the perception of inequality. In other words, despite high expectations, if specific groups or regions feel excluded, they may perceive the inequality more acutely.

The reason why residents in regions with high disaster resilience perceive greater disaster inequality is that these residents are more aware of their superior response capabilities and can clearly discern the differences in recovery capacities between their region and others. Residents of highly resilient areas have a higher level of crisis management awareness, are more interested in disaster-related information, and have better access to such information, allowing them to more quickly recognize inequalities in disaster response. Additionally, these individuals tend to have higher expectations for disaster response, and when these

expectations are not met, or when they perceive disparities compared to other regions, they are more critical. Furthermore, increased communication between the government and citizens leads to higher perceptions of disaster inequality due to differences in information accessibility and awareness. As government-citizen communication increases, more information about disaster management and recovery is disseminated among the public. This increased transparency can reveal inequalities and inefficiencies in resource distribution more clearly. Greater access to information allows individuals to compare their situations with others, and if they feel relatively disadvantaged, they perceive greater inequality.

The analysis of moderating effects revealed that during the 'prevention' phase of disasters, the greater the interaction between local governments' disaster management capabilities and the influence of personal connections in resource distribution, the higher the perception of disaster inequality. Effective resource distribution and policy decisions based on appropriate resource allocation plans are crucial during the disaster prevention stage. However, if personal connections, such as school ties, regional ties, and blood ties, significantly influence resource distribution, disaster management resources may not be distributed equitably and may be concentrated in specific groups or regions. In this case, even if a local government has sufficient disaster management capabilities, groups with personal connections receive more benefits in resource distribution, exacerbating disaster inequality. Moreover, local governments tend to rely on external networks to secure resources due to their more limited resources compared to metropolitan governments. The higher this external dependency, the less likely it is that the resources necessary for disaster prevention will be distributed equally among all community members, resulting in reliance on personal connections for resource distribution, which leads to inequality. Additionally, if individuals with personal connections actively participate in and influence the policy-making process, residents without such connections may be marginalized from decision-making and influence, further deepening disaster inequality.

Conversely, during the disaster 'recovery' phase, the interaction between the disaster management capacity of metropolitan municipalities and the influence of personal connections (such as school ties, regional ties, and blood ties) in the resource allocation process was found to reduce the perception of disaster inequality. This result is closely related to the scale of resources and capabilities possessed by metropolitan municipalities. Metropolitan municipalities, having more resources and stronger capabilities than local governments, can distribute resources and capabilities more evenly among diverse groups during the disaster recovery process, thereby mitigating the negative impact of resource allocation bias caused by personal connections. Additionally, during the disaster recovery phase, the allocation of large-scale resources necessitates proper management, leading to enhanced transparency and regulation of the management process. With these regulations and rules, metropolitan municipalities are more likely to manage disaster management resources transparently, suppressing resource allocation based on personal connections and distributing resources more fairly. Furthermore, various personal connections can play a positive role in forming networks for resource sharing with external entities during the disaster recovery phase. Personal connections can facilitate effective collaboration with external organizations and secure necessary resources for recovery, contributing to a faster and more efficient recovery process. When the strong disaster management capabilities of metropolitan municipalities combine with the positive effects of personal connections, these connections can aid in securing the resources needed to mitigate disaster inequality and promote the recovery process. Thus, personal connections can play a positive role in the recovery phase by facilitating the acquisition of resources necessary for effective disaster recovery and reducing disaster inequality.

IV. Conclusion and Policy Implications

This study examines the relationship between personal factors, policy factors, environmental factors, and disaster inequality, analyzing the moderating effect of personal connections such as school ties, regional ties, and blood ties in the resource allocation process. The analysis results indicate that individuals with progressive political orientations, those with disaster experience, those who perceive higher disaster recovery capacity of metropolitan municipalities, and those who experience frequent government-citizen communication are more likely to perceive disaster inequality. Additionally, those with higher social disaster vulnerability, greater regional disaster resilience, higher levels of social conflict, and stronger influence of personal connections in the disaster management resource allocation process also perceive greater disaster inequality. Moreover, the interaction between local governments' disaster management capabilities and the influence of personal connections in resource allocation significantly affects the perception of disaster inequality. Based on these findings, the following policy directions are necessary.

First, special programs and support systems must be established to identify and protect disaster-vulnerable groups. This involves prioritizing support for socially disadvantaged individuals, minorities, and low-income populations, and developing tailored support measures for them. For example, enhancing disaster preparedness education and training for vulnerable groups can minimize damage during disasters. Additionally, creating platforms for disaster survivors to share and learn from their experiences can improve disaster preparedness and response capabilities. Policies should also reflect the needs and perceptions of groups with diverse political orientations to ensure no one is marginalized due to political differences. This means involving disaster-vulnerable groups in the policy-making process to create effective disaster management policies and increasing the acceptance of related policies among residents.

Second, enhancing communication and cooperation among community members to effectively manage disasters is necessary. To achieve this, the establishment of disaster governance structures that enable the sharing of resources necessary for disaster management is important, thereby increasing the efficiency of resource utilization. The Development of disaster management policies that reflect the expectations of community members and expand their participation in the resource allocation process, would be ensuring that policies are community-driven. Additionally, to set up mechanisms to mediate and resolve social conflicts that may arise during disasters, prevents conflicts beforehand and swiftly addresses any that occur. Third, the fairness of the resource distribution process for disaster management must be increased. For this, it is necessary to clarify the criteria for resource allocation and to make the allocation process transparent. Additionally, it is important to implement a system to monitor and evaluate inequality issues in disaster management, minimizing the influence of nepotism and continuously improving relevant policies.

However, this study has the following limitations. First, it did not examine the influencing factors of disaster inequality by diversely categorizing the subjects based on their characteristics. This limitation arises because the sample size of the study was not sufficiently large. In future research, it will be necessary to collect ample data by categorizing the subjects into various groups, such as the general public, disaster-affected residents, and disaster management officials, to analyze the differences among these groups. Second, this study is based on an empirical analysis of data from a single year. Disaster inequality has the potential to become severe over time. Therefore, future research should collect data over multiple years to conduct a time-series analysis of the influencing factors of disaster inequality.

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