

Community empowerment for health service integration in disaster-prone rural Indonesia: a multidisciplinary literature review



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ABSTRACT

Introduction: Indonesia, one of the most disaster-prone countries globally, faces persistent challenges in delivering equitable and resilient health services, particularly in rural regions vulnerable to natural hazards. Community empowerment has emerged as a promising approach to strengthening health systems by fostering local capacity, promoting inclusive participation, and ensuring culturally appropriate interventions. However, the integration of community empowerment into health service frameworks in disaster-prone rural areas remains fragmented and inconsistent. This literature review aims to explore how community empowerment contributes to the integration of health services in disaster-prone rural areas of Indonesia.

Methods: This study employed a narrative synthesis approach to analyze peer-reviewed articles published between 2020 and 2025. Articles were selected from electronic databases including PubMed, ScienceDirect, and Google Scholar using specific keywords related to community empowerment, health services, disaster contexts, and rural Indonesia. From an initial pool of 230 studies, fifteen articles were included for in-depth thematic analysis.

Results: The findings reveal that community empowerment facilitates improved health service delivery, enhanced disaster preparedness, and greater resilience through strategies such as participatory planning, utilization of local knowledge, social capital mobilization, and grassroots leadership. However, these initiatives often face significant challenges, including short-term funding, exclusion of marginalized groups, and limited institutional support.

Conclusion: The review concludes that community empowerment has shown effectiveness in integrating health services in disaster-prone rural Indonesia; its sustainability and scalability require stronger policy support, long-term funding mechanisms, and inclusive program design. Future efforts must prioritize co-created approaches that align with the socio-cultural and structural realities of rural communities to achieve meaningful and lasting health outcomes.

Keywords: Community participation; community health service; disaster planning; Indonesia; public health.

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INTRODUCTION

Indonesia's status as one of the most disaster-prone countries exacerbates health inequities in rural areas, where underdeveloped infrastructure, geographic isolation, and low health literacy hinder service delivery and resilience.¹⁻³ Natural and human-made disasters disproportionately disrupt rural health systems, compounding vulnerabilities during crises, which are further exacerbated by geographic isolation, inadequate health workforce distribution, and low health literacy,

creating a complex challenge for sustainable health development.⁴⁻⁶ Despite the implementation of programs such as community health workers (*kader*), early warning systems, and localized disaster training, many efforts remain fragmented and lack sustainable integration into existing health service frameworks.⁷⁻¹⁰

Community empowerment is increasingly recognized as a cornerstone of resilient health systems, particularly in low-resource and high-risk settings.^{11,12} Community-based health promotion and disaster education initiatives empower

communities to prevent disease, enhance well-being, and improve awareness and preparedness.¹³⁻¹⁵ Rooted in participatory planning and inclusive governance, empowerment fosters local leadership, promotes culturally relevant solutions, and enhances adaptive capacity.^{7,16-20} The World Health Organization's Jakarta Declaration underscores its importance in addressing the broader determinants of health.²¹ However, in Indonesia, many top-down approaches have failed to secure local ownership or reflect cultural values, often marginalizing vulnerable

populations and limiting the sustainability of community-based interventions.^{22,23}

This narrative review explores how community empowerment can bridge the gap between fragmented service delivery and the need for integrated, resilient health systems in disaster-prone rural Indonesia. Existing studies highlight the role of grassroots leadership in disaster-prone rural areas, such as participatory planning by village forums,²⁴ the integration of religious and local wisdom in preparedness strategies,²⁵ early warning education programs in coastal communities,²⁶ and local leadership in disaster-resilient village initiatives.²⁷ Moreover, culturally sensitive public health nursing models have been emphasized to enhance disaster risk-reduction training in low-literacy communities.²⁸ These studies affirm that community empowerment, when contextually grounded and institutionally supported, is a critical pillar in integrating health services and building resilience in Indonesia’s vulnerable rural areas.

The objective of this literature review is to explore how community empowerment can serve as a foundation for integrating health services in Indonesia’s rural disaster-prone areas. This review aims to synthesize multidisciplinary perspectives from public health, social medicine, medical anthropology, community-based education, and disaster response. It focuses on identifying strategies, challenges, and success factors related to community empowerment initiatives and how these initiatives contribute to the integration of health services before, during, and after disasters. Ultimately, the review seeks to provide insights and recommendations that can guide future research, policy development, and program implementation in Indonesia and similar contexts.

METHOD

This literature review employed a narrative synthesis approach to explore the role of community empowerment in the integration of health services within disaster-prone rural areas. The review focused on peer-reviewed articles published between 2020 and 2025 to capture both

foundational and recent developments in the field. A comprehensive search was conducted using electronic databases, including PubMed, ScienceDirect, and Google Scholar. The following keywords and Medical Subject Headings (MeSH) were used in various combinations: “community empowerment,” “health services integration,” “rural health,” “disaster-prone areas,” “Indonesia,” “community-based health,” “disaster preparedness,” and “health promotion.” Inclusion criteria were: (1) studies focusing on community empowerment strategies in health service delivery, (2) studies conducted in or relevant to rural and disaster-prone regions, especially in Indonesia, (3) articles published in English, and (4) open access availability and research article type. Exclusion criteria included non-peer-reviewed articles, commentaries, and studies unrelated to health or community-based interventions. Relevant articles were manually screened

first by title and abstract, followed by a full-text review to ensure both relevance and methodological rigor. Key information from the selected studies was extracted, thematically analyzed, and synthesized to identify patterns, strategies, and challenges in implementing community empowerment for integrated rural health services in disaster contexts. The Boolean operator that has been used in PubMed is “community empowerment AND Indonesia AND rural area,” in ScienceDirect is “community AND empowerment AND rural AND health AND disaster AND integration AND Indonesia,” and in Google Scholar is “(‘community empowerment’ AND ‘health services’ AND ‘rural’ AND ‘disaster-prone’ AND Indonesia).” This review did not follow a registered protocol, as it was designed as a non-systematic/narrative review aiming to synthesize relevant literature with a flexible, theme-based approach.

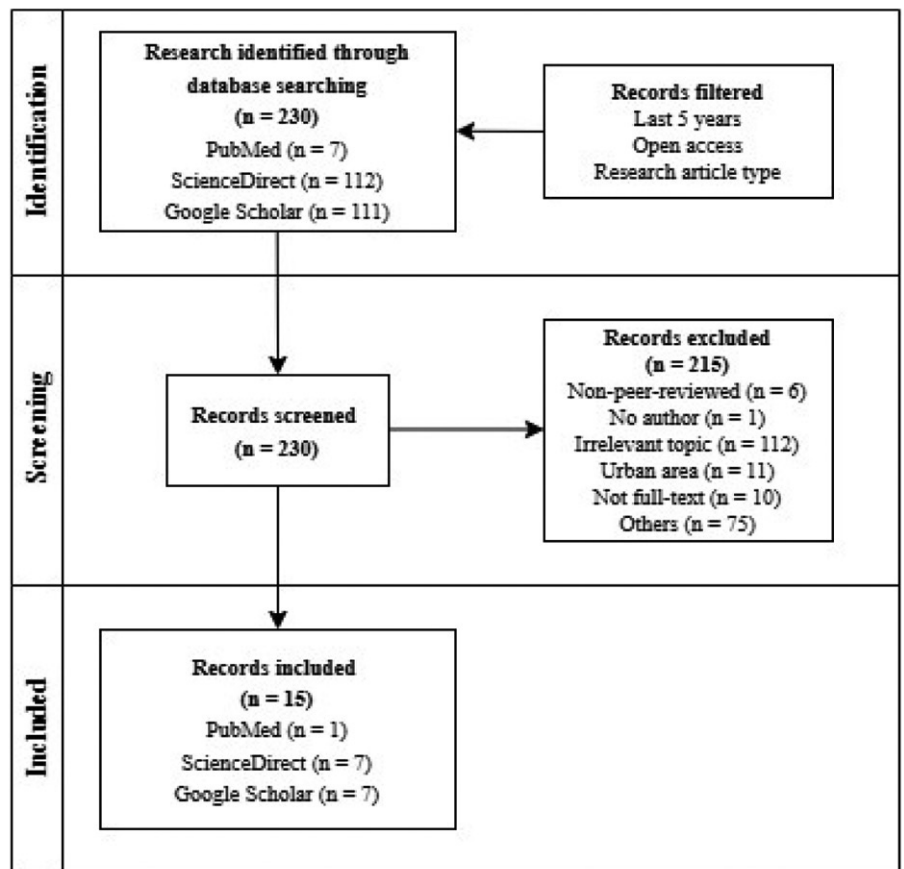


Figure 1. PRISMA flow diagram of the article selection process.

Table 1. Literature Review

No.	Year	Country of Study	Author(s)	Key Findings	Relevance to the Topic	Gaps/Challenges
1.	2022	Indonesia	Fathoni, M., et al. ²⁹	Nurses in rural health centers faced resource shortages (PPE, training) but relied on community collaboration for pandemic response; Local adaptation (e.g., using community leaders for health messaging) improved preparedness; Lack of standardized protocols for dual disasters (COVID-19 + natural hazards).	Highlights the role of frontline health workers in disaster-health integration; Shows how community-centered approaches compensated for systemic gaps.	Weak institutional support for nurses in rural settings; Need for protocols addressing overlapping disasters.
2.	2023	Indonesia	Daly, P., et al. ³⁰	Social capital (trust, networks) is critical for post-disaster recovery; community-driven integration improved resilience.	Shows how community empowerment enables health/service integration in rebuilt rural areas.	Top-down policies sometimes undermined local cohesion.
3.	2025	Indonesia	de la Roche, D., et al. ³¹	Peer networks empowered disabled women to navigate healthcare; stigma and accessibility were key barriers.	Highlights community-led solutions for inclusive health access in disasters.	Need for tailored programs for marginalized groups.
4.	2024	Indonesia	MacAfee, E., et al. ³²	Indigenous knowledge (e.g., early-warning signs) strengthened disaster preparedness; participatory mapping was effective.	Demonstrates bottom-up approaches to integrate health/DRR in informal settlements.	Formal systems often ignore local knowledge.
5.	2024	Indonesia	Sufri, S., et al. ³³	Policy integration between DRR and health improved but remained siloed; community volunteers were key.	Reveals systemic challenges in multidisciplinary integration.	Limited funding and NGO-government coordination.
6.	2020	Indonesia	Bott, L., et al. ³⁴	Migrant networks spread disaster/health info; rural areas relied on kinship ties for resilience.	Models' scalable strategies for rural health-disaster synergy.	Urban-rural knowledge transfer needs strengthening.
7.	2023	Indonesia	Koopman, J. ³⁵	Faith-based groups and traditional leaders (<i>Subawe</i>) boosted trust and disaster-health preparedness.	Cultural empowerment as a tool for integrated services.	Formal-informal institution partnerships are rare.
8.	2020	L M I C s , including Indonesia	Durrance-Bagale, A., et al. ³⁶	Cluster systems improved coordination but often excluded communities; local co-design succeeded.	Advocates for decentralized, community-owned health systems in disasters.	Lack of long-term community engagement frameworks.
9.	2024	Indonesia	Sari, G., et al. ³⁷	Communities faced dual burdens, both disaster and pandemic, leading to disrupted health access; Local trust in health workers was critical for service continuity; Barriers: Overwhelmed infrastructure and misinformation.	Directly links disasters and health services, showing community resilience strategies.	Lack of systemic support for compound crises.

No.	Year	Country of Study	Author(s)	Key Findings	Relevance to the Topic	Gaps/Challenges
10.	2024	Indonesia	Hermawan, A., et al. ³⁸	Participatory early-warning systems reduced casualties; Women's groups played key roles in preparedness.	E x e m p l i f i e s c o m m u n i t y - l e d d i s a s t e r - h e a l t h synergy (e.g., gendered empowerment).	Short-term funding limited long-term resilience.
11.	2025	Indonesia	Fuady, M., et al. ³⁹	Village-level training improved disaster response, but it varied by region; Health integration was weak (focused on infrastructure, not services).	Evaluates a national program relevant to rural health-disaster policy.	Top-down design often ignores local health needs.
12.	2021	Indonesia	Buchari, R. ⁴⁰	Traditional institutions (e.g., <i>destana</i>) were effective in mobilizing a rapid response.	Highlights cultural capital in disaster-health gaps.	Limited health training for community leaders; Need to formalize community roles in health systems.
13.	2025	Indonesia	Kurnia, A., et al. ⁴¹	Training community cadres improved mental health screening; Stigma remained a barrier to care.	Shows grassroots health empowerment in disasters (often overlooked).	Scalability issues in remote areas.
14.	2025	Indonesia	Widiastuti, I. ⁴²	“Disaster Preparedness Village” model strengthened local capacity; Health posts became hubs for DRR and primary care.	D e m o n s t r a t e s structural integration of health and DRR.	Dependent on external NGO funding.
15.	2023	Indonesia	Denisya, F., et al. ⁴³	A g e n c y - c o m m u n i t y collaboration reduced flood impacts; Health integration was reactive (not proactive).	Reveals governance dynamics in rural health-disaster efforts.	Limited community agency in planning.

Destana = Desa Tangguh Bencana/Disaster-Resilient Villages; DRR = disaster risk reduction; PPE = personal protective equipment

RESULT

The literature search identified a total of 230 records: 7 from PubMed, 112 from ScienceDirect, and 111 from Google Scholar, including publications from 2020 to 2025 that relate to the implementation of community empowerment in integrating health services within disaster-prone rural areas, particularly in the Indonesian context. After removing duplicates and screening titles and abstracts, 15 articles were selected for full-text analysis based on relevance to the review objectives (PubMed: 1, ScienceDirect: 7, Google Scholar: 7). The study selection process is summarized in the PRISMA flow diagram (Figure 1). While protocol registration is not mandatory for non-systematic reviews, we adopted elements of the PRISMA framework to improve clarity and reproducibility.

The reviewed literature collectively highlights the pivotal role of community

empowerment in promoting the integration of health services within disaster-prone rural regions of Indonesia. Most studies focus on participatory strategies such as community-led disaster planning, grassroots leadership, and social capital mobilization as effective mechanisms for fostering resilience and improving health outcomes. A prominent trend is the reliance on existing local structures—such as traditional leaders, religious institutions, and women's groups—to deliver contextually grounded and culturally sensitive interventions. Several articles emphasize the importance of inclusive participation, with particular attention to marginalized populations, including the elderly and people with disabilities. Notably, a subset of studies explores how empowerment improves access to care during complex crises such as the COVID-19 pandemic when formal systems are overwhelmed.

However, challenges persist across many settings, especially the short-term nature of funding, lack of cross-sectoral policy coordination, and insufficient institutional support for long-term sustainability. These thematic patterns highlight a growing but uneven body of practice, calling for more structured frameworks and consistent integration of community empowerment into health and disaster governance.

DISCUSSION

The reviewed literature demonstrates that community empowerment is a vital strategy for integrating health services with disaster resilience in rural Indonesia. Studies consistently highlight how social capital, such as trust-based networks in post-tsunami relocation,³⁰ and women's groups in Mount Merapi,³⁸ enhances crisis response and healthcare access. However, top-down policies often undermine these efforts, as seen in Aceh's siloed DRR-

health programs.³³ Marginalized groups, including the elderly⁴¹ and people with disabilities,³¹ rely heavily on localized empowerment, yet systemic barriers like stigma and funding gaps persist.

Community empowerment offers significant advantages, particularly its cultural adaptability and cost-effectiveness. Traditional institutions (e.g., Subawe in Lombok)³⁵ and participatory approaches (e.g., landslide risk mapping in Manado)³² ensure interventions align with local needs. During compound crises like COVID-19 and earthquakes,³⁷ empowered communities displayed remarkable resilience by leveraging existing networks. However, these efforts face critical challenges, including fragmentation (e.g., nurses in Malang lacking protocols)²⁹ and exclusion of vulnerable populations (e.g., uneven access in Aceh).³³ Without institutional support, even successful initiatives like the Disaster Preparedness Village collapse post-funding.⁴²

The disadvantages of empowerment often stem from structural inequities and short-term planning. While community cadres improved mental health detection,⁴¹ scalability was limited in remote areas. Similarly, the Resilient Village Program prioritized infrastructure over health services, reflecting a broader neglect of grassroots health integration.³⁹ Conversely, cases like Garut's traditional institutions show that formalizing community roles can mitigate these gaps.⁴⁰

To optimize community empowerment, policies must be co-designed with local actors, address overlapping disasters (e.g., pandemics and floods), and decentralize funding. Strengthening institutional support and formalizing community roles in health governance are also critical to ensure that community-based efforts are scalable, inclusive, and aligned with local realities. Future research should explore models for sustaining empowerment beyond short project cycles and assess long-term health and disaster risk reduction (DRR) outcomes. By bridging the divide between grassroots innovation and systemic support, Indonesia can build a more equitable and resilient framework for rural disaster management.

This review has several limitations. As a non-systematic literature review, the

search strategy did not follow a registered protocol, which may introduce selection bias. The inclusion of only open-access, English-language articles may have excluded relevant studies published in local or non-English sources. Additionally, due to the narrative synthesis approach, the findings are descriptive and not statistically generalizable. Despite these limitations, the review provides valuable insights into community empowerment strategies relevant to rural, disaster-prone settings in Indonesia.

CONCLUSION

This review found that community empowerment significantly contributes to the integration of health services in disaster-prone rural Indonesia through participatory planning, grassroots leadership, and the mobilization of social capital. Effective initiatives often leverage local structures such as women's groups, religious leaders, and traditional institutions to enhance disaster preparedness and health service accessibility. However, the sustainability and scalability of these efforts are frequently constrained by short-term funding, fragmented policies, limited institutional support, and the exclusion of vulnerable populations. Overall, the findings highlight that community empowerment is a vital yet under-optimized pillar in building resilient and integrated rural health systems in Indonesia.

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CONFLICT OF INTEREST

The author declares no conflict of interest

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AUTHOR CONTRIBUTION

The author solely contributed to the conception, design, analysis, and writing of this manuscript.

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