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# Evaluation of Health System Preparedness for Post-Disaster Health Crises

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***Abstrak*:** *Post-disaster health crises frequently expose structural vulnerabilities within health systems, including disrupted service delivery, limited medical resources, and weak inter-institutional coordination. This study aims to evaluate the level of health system preparedness for post-disaster health crises and to identify the structural barriers that hinder effective response and recovery. A mixed-methods approach was employed using a convergent explanatory design. Quantitative data were collected through a health system preparedness checklist covering human resources, infrastructure, logistics, referral systems, and emergency response protocols. Descriptive statistics and gap analysis were used to assess preparedness levels against established standards. Qualitative data were obtained through in-depth interviews with health policymakers, facility managers, and frontline health workers involved in disaster response, and analyzed thematically to explain quantitative findings.The results indicate that overall health system preparedness is at a moderate level, with relatively strong formal preparedness in emergency protocols but substantial gaps in logistics capacity, human resource availability, and operational coordination. Qualitative findings reveal that fragmented governance, delayed resource mobilization, and limited functional integration across institutions undermine the implementation of preparedness plans during post-disaster conditions. The integration of quantitative and qualitative results highlights a persistent gap between formal preparedness and functional readiness.This study concludes that effective post-disaster health preparedness requires moving beyond administrative compliance toward strengthening functional system capacity. The findings underscore the value of mixed-methods evaluation in generating comprehensive evidence to inform policy reforms aimed at improving health system resilience in disaster-prone settings.*
***Keywords: disaster preparedness; health system resilience; mixed methods; post-disaster health crisis; public health emergency***

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## INTRODUCTION

Post-disaster health crises represent one of the most complex challenges faced by contemporary health systems, as they involve a sudden surge in healthcare demand, disruption of essential services, and severe constraints on resources and coordination mechanisms. Evidence from natural disasters, conflicts,

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and public health emergencies demonstrates that health impacts often extend beyond the immediate emergency phase, manifesting as secondary crises such as infectious disease outbreaks, deterioration of chronic care services, and widespread psychological distress among affected populations (Goniewicz, 2025; Gosling et al., 2024). In this context, the level of health system preparedness becomes a critical determinant of response effectiveness and post-disaster recovery outcomes.

Health system preparedness is broadly defined as the capacity of health systems to anticipate, respond to, and recover from health emergencies while maintaining essential functions. This capacity encompasses not only tangible components such as infrastructure, medical supplies, and human resources, but also less visible yet equally crucial elements, including governance structures, leadership, intersectoral coordination, communication systems, and operational flexibility (Gooding et al., 2022; Talab et al., 2024). Despite the formal existence of preparedness plans and policies in many settings, real-world disaster responses frequently reveal a gap between documented readiness and functional performance during crises.

From an academic perspective, the evaluation of health system preparedness has predominantly relied on single-method approaches. Quantitative studies typically assess preparedness using indices, checklists, or scoring tools that measure structural and capacity-related dimensions of health systems (Chiossi et al., 2021; Ene et al., 2025). While such approaches provide standardized and comparable metrics, they often fail to explain why health systems with seemingly adequate preparedness scores struggle to deliver effective responses during post-disaster situations. Conversely, qualitative research has highlighted critical issues related to coordination failures, communication breakdowns, leadership challenges, and institutional fragmentation that undermine response efforts (Khatri et al., 2023; Thobaity, 2024). However, qualitative approaches alone lack objective measurements that policymakers require to guide resource allocation and strategic planning.

The reliance on fragmented methodological approaches has resulted in preparedness assessments that are frequently partial and insufficient for policy translation. Policymakers and health authorities require evaluative frameworks that not only quantify preparedness levels but also illuminate the underlying reasons why preparedness mechanisms succeed or fail in practice (Atnafu et al., 2025; Ezeh et al., 2025). Similarly, frontline health workers need systems that are not merely administratively prepared, but operationally functional under the intense pressures of post-disaster environments.

Recent studies have begun to emphasize the importance of integrating structural assessments with experiential insights from stakeholders involved in disaster response. Sakr et al. (2024) demonstrated that inter-hospital collaboration can strengthen pandemic preparedness, yet its effectiveness is highly dependent on governance arrangements and coordination mechanisms at the operational level. Likewise, a mixed-method study by Bachtiar et al. (2025) revealed that integrated health service posts established after disasters often encounter implementation barriers related to bureaucratic fragmentation and unclear authority lines, despite being formally institutionalized. These findings underscore the persistent discrepancy between formal preparedness and functional readiness within health systems.

Accordingly, a critical research gap remains in the limited number of mixed-methods studies that simultaneously measure health system preparedness and explain implementation barriers based on real-world experiences. The scoping review by Chiossi et al. (2021) mapped a wide range of preparedness assessment tools but did not link quantitative scores with stakeholder experiences. Meanwhile, the synthesis

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by Gooding et al. (2022) highlighted coordination challenges across countries facing shocks but did not integrate these insights with quantitative preparedness metrics. This lack of methodological integration constrains a holistic understanding of post-disaster health system preparedness.

To address this gap, the present study adopts a mixed-methods approach using a convergent/explanatory design to evaluate health system preparedness for post-disaster health crises. This design enables the integration of quantitative assessments—through preparedness indices and gap analyses—with qualitative insights derived from policymakers and healthcare providers. By merging numerical evidence with experiential narratives at the interpretation stage, the study seeks to identify discrepancies between formal preparedness standards and actual system performance, thereby revealing structural and operational weaknesses that are often overlooked in single-method evaluations.

The objectives of this study are threefold: (1) to measure the level of health system preparedness in responding to post-disaster health crises, (2) to identify gaps between preparedness standards and actual conditions, and (3) to analyze structural, organizational, and coordination-related barriers that affect post-disaster health responses. Through this integrated evaluation, the study aims to contribute theoretically to the literature on disaster health preparedness and practically to evidence-based policy formulation and health system strengthening in disaster-prone contexts.

## METODOLOGI

### Research Design

This study employed a mixed-methods approach using a convergent–explanatory design to comprehensively evaluate health system preparedness for post-disaster health crises. The mixed-methods design was selected to enable the simultaneous assessment of preparedness levels through quantitative indicators and the exploration of implementation challenges through qualitative inquiry. Quantitative and qualitative data were collected either in parallel or sequentially and integrated at the interpretation stage to provide a holistic understanding of preparedness beyond formal policy compliance (Chiossi et al., 2021; Gooding et al., 2022).The quantitative component aimed to measure the level of preparedness and identify gaps between established standards and actual system capacity, while the qualitative component sought to explain these gaps by examining coordination dynamics, governance issues, and operational constraints experienced by key stakeholders during post-disaster health responses. This design strengthens inferential validity by combining objective measurement with contextual interpretation (Sugiyono, 2019; Bachtiar et al., 2025).

### Quantitative Component

### Study Design and Instruments

The quantitative phase utilized an observational descriptive–analytical design. Health system preparedness was assessed using a structured preparedness checklist/index adapted from established public health emergency preparedness frameworks. The instrument covered multiple dimensions of health system capacity, including human resources, healthcare infrastructure, medical logistics, referral systems, surveillance mechanisms, and emergency response protocols (Chiossi et al., 2021; Ene et al., 2025). Each indicator was scored based on the degree of availability and functionality, allowing the calculation of composite preparedness scores for each dimension. Preparedness standards were defined based on national and international disaster health guidelines to enable systematic comparison with observed conditions.

### Data Analysis

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Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, means, and composite scores to depict the overall level of preparedness across system dimensions. A gap analysis was conducted by comparing standard preparedness benchmarks with observed system conditions to identify areas of deficiency. The results were presented in tabular and graphical formats to support policy-oriented interpretation (Atnafu et al., 2025; Afrihyia et al., 2025).

### Qualitative Component

### Study Design and Participants

The qualitative phase adopted a phenomenological-exploratory approach to capture stakeholders' lived experiences and perceptions of post-disaster health system preparedness. Data were collected through in-depth interviews with purposively selected informants, including policymakers, health system managers, and frontline healthcare providers who were directly involved in disaster preparedness planning and emergency health responses. Participants were selected based on their institutional roles, decision-making authority, and direct experience in post-disaster health service delivery, ensuring information-rich cases relevant to the study objectives (Khatri et al., 2023; Thobaity, 2024).

### Data Collection and Analysis

Semi-structured interview guides were used to explore themes related to coordination mechanisms, communication flows, leadership, resource mobilization, and structural barriers encountered during post-disaster health responses. Interviews were audio-recorded, transcribed verbatim, and analyzed using thematic analysis.The analysis followed a systematic process of coding, categorization, and theme development to identify recurring patterns related to preparedness gaps and adaptive practices within the health system. Analytical rigor was enhanced through iterative coding and peer discussion to ensure credibility and consistency of findings (Gosling et al., 2024; Shrestha et al., 2025).

### Integration of Quantitative and Qualitative Data

Integration of mixed-methods findings occurred at the interpretation stage, where quantitative preparedness scores and gap analysis results were compared and triangulated with qualitative themes. Qualitative findings were used to explain why certain preparedness dimensions scored low or high and how formal preparedness mechanisms translated, or failed to translate, into functional capacity during crises.
This integrative approach enabled the identification of discrepancies between formal preparedness (policy, plans, and structural capacity) and functional preparedness (operational readiness and coordination effectiveness), thereby providing a nuanced evaluation of health system preparedness in post-disaster contexts (Gooding et al., 2022; Talab et al., 2024).

### Ethical Considerations

Ethical approval was obtained from the relevant institutional review board prior to data collection. All participants provided informed consent and were assured of confidentiality, anonymity, and the voluntary nature of participation. Data were used exclusively for research purposes in accordance with ethical standards for health systems research.

## RESULTS AND DISCUSSION

### Quantitative Results

### Characteristics of Health Facilities/System Units

The quantitative assessment involved **35 health system units**, including public hospitals, primary health centers, and district health offices operating in post-disaster settings. These units represented

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different levels of care and administrative responsibility within the health system, providing a comprehensive overview of system preparedness capacity. Most facilities were public-sector institutions (82.9%), with varying levels of service complexity. Approximately 60% of facilities had experienced at least one major disaster-related health emergency within the past five years, indicating substantial exposure to crisis conditions.

**Health System Preparedness Scores**

Health system preparedness was measured using a structured checklist covering five core dimensions: human resources, health facilities and infrastructure, medical logistics, referral and surveillance systems, and emergency response protocols.

**Table 1. Health System Preparedness Scores by Dimension**

| Dimension | Mean Score (%) | Preparedness Level |
|---|---|---|
| Human resources | 71.2 | Moderate |
| Facilities & infrastructure | 64.5 | Moderate |
| Medical logistics | 58.7 | Low |
| Referral & surveillance systems | 62.1 | Moderate |
| Emergency response protocols | 76.4 | High |
| **Overall preparedness** | **66.6** | **Moderate** |

The overall preparedness score of 66.6% indicates a moderate level of health system preparedness. Emergency response protocols demonstrated the highest level of readiness, reflecting the existence of formal disaster plans and standard operating procedures. In contrast, medical logistics recorded the lowest score, indicating limited availability, distribution inefficiencies, and delayed replenishment of essential medical supplies during crises.

**Gap Analysis between Standards and Actual Conditions**

Gap analysis revealed discrepancies between preparedness standards and actual implementation across several dimensions.

**Table 2. Gap Analysis of Health System Preparedness**

| Dimension | Standard (%) | Actual (%) | Gap (%) |
|---|---|---|---|
| Human resources | 85 | 71.2 | -13.8 |
| Facilities & infrastructure | 80 | 64.5 | -15.5 |
| Medical logistics | 80 | 58.7 | -21.3 |
| Referral & surveillance | 75 | 62.1 | -12.9 |
| Emergency protocols | 85 | 76.4 | -8.6 |

The largest gap was observed in medical logistics, followed by facilities and infrastructure, suggesting that preparedness deficits were primarily structural and operational rather than procedural.

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Although emergency protocols were formally established, their implementation was constrained by limited resources and system fragmentation.

**Qualitative Results**

**Themes Identified from In-Depth Interviews**

A total of 18 key informants participated in in-depth interviews, including policymakers, hospital managers, emergency coordinators, and frontline healthcare workers. Thematic analysis yielded three major themes.

**Theme 1: Fragmented Coordination and Communication**

Participants consistently reported weak coordination among health institutions during post-disaster responses. Although coordination mechanisms existed formally, communication breakdowns frequently occurred in practice, particularly between hospitals, primary care facilities, and local health authorities.

*"On paper, coordination looks solid, but during the crisis, everyone works separately. Information does not flow fast enough when it is most needed."* (Health system manager)

**Theme 2: Structural and Logistical Constraints**

Informants emphasized that shortages of medical supplies, limited transportation access, and delayed logistics were major barriers to effective crisis response. These constraints often forced health workers to improvise care delivery under suboptimal conditions.

*"We had protocols, but without medicines and equipment, protocols alone cannot save lives."* (Frontline healthcare worker)

**Theme 3: Discrepancy between Formal Preparedness and Functional Readiness**

A recurring theme was the mismatch between documented preparedness plans and actual operational readiness. Several participants described preparedness as "administrative compliance" rather than genuine system capability.

*"Preparedness is often measured by documents, not by how well the system actually functions during disasters."*

**Integration of Quantitative and Qualitative Findings**

The integration of quantitative and qualitative findings revealed a clear distinction between formal preparedness and functional preparedness. Quantitative results indicated moderate preparedness levels, particularly in emergency response protocols. However, qualitative insights demonstrated that these protocols were frequently undermined by coordination failures and logistical constraints.

Low preparedness scores in medical logistics were explained by qualitative accounts of supply chain disruptions and delayed mobilization of resources. Similarly, moderate scores in human resources and referral systems were contextualized by interview data highlighting workload overload, role ambiguity, and communication gaps during crises. Overall, the mixed-methods findings indicate that health system preparedness in post-disaster contexts is constrained less by the absence of policies and more by structural weaknesses and coordination challenges, resulting in limited functional readiness despite formal preparedness frameworks.

**Discussion**

**Level of Health System Preparedness in Post-Disaster Health Crises**

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The findings of this study indicate that overall health system preparedness for post-disaster health crises remains at a moderate level, characterized by relatively strong formal preparedness mechanisms but limited operational readiness. Quantitative results demonstrated higher preparedness scores in emergency response protocols, reflecting the presence of disaster plans, standard operating procedures, and policy frameworks. Similar patterns have been reported in previous studies showing that many health systems prioritize formal preparedness documentation as part of compliance with national or international standards (Chiossi et al., 2021; Goniewicz, 2025).

However, the gap analysis revealed substantial discrepancies between preparedness standards and actual conditions, particularly in medical logistics, infrastructure, and human resource capacity. These findings align with prior evidence suggesting that preparedness indices often overestimate real-world response capacity because they inadequately capture functional performance during crises (Gooding et al., 2022; Tayfur et al., 2024). The moderate preparedness score therefore reflects a system that is administratively prepared but operationally constrained.

The mixed-methods approach highlights an important conceptual distinction between formal preparedness and functional preparedness. While formal preparedness refers to the existence of policies, plans, and protocols, functional preparedness emphasizes the ability of the health system to mobilize resources, coordinate actors, and deliver services effectively under crisis conditions. This distinction supports earlier critiques of preparedness assessment tools that focus primarily on structural indicators rather than system functionality (Khatri et al., 2023; Ene et al., 2025).

**Structural Barriers and Their Implications for Health Crisis Response**

Qualitative findings provided critical explanations for the quantitative preparedness gaps, particularly through the identification of structural and coordination barriers. Informants consistently emphasized fragmented inter-institutional coordination, delayed logistics, and limited flexibility in resource allocation during post-disaster responses. These barriers directly undermine the implementation of otherwise well-designed emergency protocols.

The prominence of logistical constraints echoes findings from health system resilience studies in disaster-prone settings, which identify supply chain fragility as a major determinant of response effectiveness (Atnafu et al., 2025; Gosling et al., 2024). Inadequate logistics not only restrict access to essential medicines and equipment but also exacerbate staff burnout and reduce service continuity, thereby amplifying secondary health crises such as disease outbreaks and unmanaged chronic conditions.

Furthermore, the qualitative theme of “administrative preparedness without functional readiness” reinforces the argument that preparedness evaluations must go beyond checklist-based assessments. As noted by Talab et al. (2024), organizational resilience in emergencies depends on adaptive capacity, leadership coordination, and real-time decision-making rather than static preparedness indicators. The lack of integrated command structures and communication channels identified in this study reflects broader governance challenges in emergency health systems (Sakr et al., 2024; Ongesa et al., 2025).

Taken together, the findings suggest that preparedness failures are not solely technical but systemic, rooted in governance fragmentation and insufficient integration between policy design and frontline implementation. This underscores the need for preparedness frameworks that explicitly incorporate coordination capacity, operational flexibility, and experiential learning from past disasters.

## CONCLUSIONS

This study demonstrates that health system preparedness for post-disaster health crises remains moderate and uneven, with a clear discrepancy between formal preparedness mechanisms and functional readiness. While emergency response protocols and preparedness plans are widely available, their

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effectiveness is constrained by structural limitations in logistics, infrastructure, human resources, and coordination. These findings confirm that preparedness cannot be adequately understood through quantitative indices alone, as formal compliance does not necessarily translate into operational capacity during crises.

By employing a mixed-methods approach, this study contributes empirically and methodologically to the literature on disaster health preparedness. The integration of preparedness scoring with qualitative insights reveals how structural barriers, governance fragmentation, and coordination failures explain the observed preparedness gaps. This approach strengthens the validity of preparedness evaluations and responds to calls for more holistic assessments of health system resilience (Gooding et al., 2022; Goniewicz, 2025).

Practically, the findings suggest that strengthening post-disaster health preparedness requires shifting policy focus from procedural readiness toward functional system capacity. Priority interventions should include reinforcing medical logistics systems, improving inter-institutional coordination mechanisms, and embedding preparedness training within routine health system operations. Future research should expand mixed-methods evaluations across multiple disaster contexts and longitudinally assess how preparedness reforms translate into improved crisis response outcomes.

## REFERENCES

Afrihyia, E., Chianumba, E., Forkuo, A., Mustapha, A., & Omotayo, O. (2025). Public Health Emergency Preparedness and Crisis Response: Strengthening National Strategies Against Emerging Threats. International Journal of Advanced Multidisciplinary Research and Studies. https://doi.org/10.62225/2583049x.2025.5.3.4382.

Aldosari, F., Sufyani, M., Alshehri, S., Al-Abdullah, A., & Alanazi, M. (2025). Public Health Preparedness and Response Through Project Management: Improving Emergency Response Systems in Urban Health Crises. Journal of Posthumanism. https://doi.org/10.63332/joph.v5i1.2634.

Atnafu, A., Teshale, G., Dellie, E., & Park, Y. (2025). Exploring health system challenges and gaps for crisis response in Ethiopia: a scoping review of publications and reports from 2020-2024. BMC Health Services Research, 25. https://doi.org/10.1186/s12913-025-13084-y.

Bachtiar, A., Hasri, S., & Candi, C. (2025). Analyzing implementation of integrated health services post: a mixed-method. Journal of Integrated Care. https://doi.org/10.1108/jica-11-2024-0064.

Chiossi, S., Tsolova, S., & Ciotti, M. (2021). Assessing public health emergency preparedness: A scoping review on recent tools and methods. International Journal of Disaster Risk Reduction, 56, 102104. https://doi.org/10.1016/j.ijdrr.2021.102104.

Ene, G., Stoia, M., Cojocaru, C., & Todea, D. (2025). SMART Multi-Criteria Decision Analysis (MCDA)—One of the Keys to Future Pandemic Strategies. Journal of Clinical Medicine, 14. https://doi.org/10.3390/jcm14061943.

Ezeh, F., Gado, P., Oparah, S., Gbaraba, S., & Adeleke, A. (2025). Health System Resilience Modeling to Support Post-Disaster Recovery and Future Crisis Preparedness Planning. International Journal of Advanced Multidisciplinary Research and Studies. https://doi.org/10.62225/2583049x.2025.5.5.5117.

Noreen, K., Khalid, S., Javaid, M., & Khan, S. (2025). Public Health Implications of Introducing Human Papillomavirus (HPV) Vaccination in Pakistan: A protocol for a mixed-method study to explore

community perceptions and health system preparedness. PLOS One, 20. https://doi.org/10.1371/journal.pone.0323826.

Goniewicz, K. (2025). Public health response to disasters and crises: setting the agenda for effective action. International Journal of Emergency Medicine, 18. https://doi.org/10.1186/s12245-025-00953-w.

Gooding, K., Bertone, M., Loffreda, G., & Witter, S. (2022). How can we strengthen partnership and coordination for health system emergency preparedness and response? Findings from a synthesis of experience across countries facing shocks. BMC Health Services Research, 22. https://doi.org/10.1186/s12913-022-08859-6.

Gosling, J., Maritz, R., Laplante-Lévesque, A., & Sabariego, C. (2024). Lessons learned from health system rehabilitation preparedness and response for disasters in LMICs: a scoping review. BMC Public Health, 24. https://doi.org/10.1186/s12889-024-17992-2.

Karam, V., Malhab, S., Succar, S., Elias, S., Gerges, C., Khalil, M., & Barakat, H. (2025). Anesthesiologists' Preparedness and Training Needs in Disaster Management: A Mixed-Methods Study from a Conflict-Affected Region – CORRIGENDUM. Disaster Medicine and Public Health Preparedness, 19. https://doi.org/10.1017/dmp.2025.10187.

Khatri, R., Endalamaw, A., Erku, D., Wolka, E., Nigatu, F., Zewdie, A., & Assefa, Y. (2023). Preparedness, impacts, and responses of public health emergencies towards health security: qualitative synthesis of evidence. Archives of Public Health, 81. https://doi.org/10.1186/s13690-023-01223-y.

Ongesa, T., Paul-Chima, U., Ugwu, C., Alum, E., Eze, V., Basajja, M., Ugwu, J., Ogenyi, F., Okon, M., & Ejemot-Nwadiaro, R. (2025). Optimizing emergency response systems in urban health crises: A project management approach to public health preparedness and response. Medicine, 104. https://doi.org/10.1097/md.0000000000041279.

Prastiwi, F., Azali, L., Budiman, A., & Rahmad, M. (2025). Edukasi Meningkatkatkan Kualitas Hidup Lansia Dengan Krisis Hipertensi Melalui Dukungan Keluarga. Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM). https://doi.org/10.33024/jkpm.v8i6.20151.

Sakr, C., Assaf, S., Fakih, L., Dakroub, S., Rahme, D., Musharrafieh, U., Khater, B., Naous, J., Romani, M., Tannous, J., Zahreddine, N., Fakhreddine, M., Itani, M., Zalaquett, N., & Honein, G. (2024). Hospitals' Collaborations Strengthen Pandemic Preparedness: Lessons Learnt from COVID-19. Healthcare, 12. https://doi.org/10.3390/healthcare12030321.

Shrestha, A., Shrestha, R., Risal, A., Shakya, R., Sigdel, K., Bajracharya, R., Paudel, P., Gumudavelly, D., Egger, E., Zhuang, S., Vijayakumar, L., & Hagaman, A. (2025). Evaluating implementation preparedness for suicide screening and referral in a Nepali emergency department: A mixed-methods study. Implementation Research and Practice, 6. https://doi.org/10.1177/26334895251343644.

Sibualamu, K., Ernawati, E., Wahdini, R., Chairunisa, R., Saragih, D., Kusmayanti, E., & Mustafa, S. (2024). KESIAPSIAGAAN DAN TANGGAP DARURAT BENCANA PADA SISWA DI SEKOLAH: A SCOPING REVIEW. KOSALA : Jurnal Ilmu Kesehatan. https://doi.org/10.37831/kjik.v12i2.354.

Sugiyono. 2019. Metode Penelitian & Pengembangan. Alfabeta

Susanto, E., Kuntjoro, C., & Indrayati, Y. (2025). Pengaturan Pemenuhan Hak Kesehatan Masyarakat pada Keadaan Darurat Kesehatan sebagai Pedoman Jajaran Dokkes Polri untuk Mewujudkan Sistem Ketahanan Kesehatan Nasional. Soepra Jurnal Hukum Kesehatan. https://doi.org/10.24167/sjhk.v11i1.11849.

Talab, F., Ahadinezhad, B., Khosravizadeh, O., & Amerzadeh, M. (2024). A model of the organizational resilience of hospitals in emergencies and disasters. BMC Emergency Medicine, 24. https://doi.org/10.1186/s12873-024-01026-6.

Tayfur, I., Kako, M., Gündüz, A., Rahman, M., Şimşek, P., Ryan, B., Garner, S., Bayramoğlu, B., Teramoto, C., Takada, Y., Kubo, T., & Bhatia, S. (2024). Exploring Key Capacities: Insights from Assessing the Resilience of the Public Health System Before and After the Kahramanmaraş Earthquakes. International Journal of Disaster Risk Science, 15, 688 - 702. https://doi.org/10.1007/s13753-024-00588-0.

Thobaity, A. (2024). Overcoming challenges in nursing disaster preparedness and response: an umbrella review. BMC Nursing, 23. https://doi.org/10.1186/s12912-024-02226-y.