Midwives, Nurses Crucial for Disaster-Resilient Maternal Care and Preparedness Strategies

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Abstract

Background: Disasters demand significant risks to maternal health, with pregnant women being particularly vulnerable. Midwives and nurses are crucial in ensuring the safety and well-being of pregnant women during emergencies. This study explores the impact of disaster resilience strategies implemented by midwives and nurses on mitigating adverse effects on maternal care. Methods: This cross-sectional study involved 66 pregnant women from several Community Health Centers in Bengkulu, West Java, South Sumatera, Banten, and West Nusa Tenggara, Indonesia. Proportional random sampling was used. Data were collected through primary and secondary sources and analyzed using univariate and bivariate methods, including the chi-square test (X2) and contingency coefficient (C). Results: Among the respondents, 53% reported favorable roles of midwives, while 47% reported unfavorable roles. Disaster management was deemed adequate by 69.7% and inadequate by 30.3% of the respondents. A significant relationship was found between the role of midwives and disaster management in pregnant women (p-value = 0.001). Discussion: The findings demonstrated the critical role of midwives and nurses in disaster resilience for maternal care. Effective disaster preparedness and resilience strategies by midwives and nurses significantly reduce the adverse effects of emergencies on pregnant women. Conclusion: The study recommended integrating specialized disaster training for midwives and nurses, enhancing communication infrastructures, and ensuring adequate emergency supplies in healthcare facilities to improve maternal outcomes during disasters. These findings can inform policy and practice, contributing to improved disaster resilience in maternal care.

Keywords: Disaster Resilience, Maternal Care, Midwives, Nurses, Emergency Preparedness, Pregnant Women, Disaster Management.

Introduction

Indonesia, located on a volcanic belt with active volcanic mountains, faces a high risk of various natural disasters, including earthquakes, tsunamis, landslides, volcanic eruptions, floods, and droughts (Paton, 2019). The country is geographically vulnerable to a range of natural disasters, particularly water-related ones like floods, droughts, and landslides (Thoha et al., 2023). Flood disasters in Indonesia have been on the rise, with incidents like flash floods, city floods, tidal floods, and river overflow floods being common (Wibowo et al., 2024). Additionally, Indonesia experiences climate change impacts, with phenomena like floods and droughts affecting

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sectors such as rice farming (Rondhi et al., 2019). The National Disaster Management Agency of Indonesia reported a high frequency of natural disasters in the country, including extreme weather events, landslides, droughts, earthquakes, fires, tidal waves, abrasion, and floods (Rahmawaty & Hasan, 2023).

Disaster resilience in healthcare, especially concerning pregnant women in disaster-prone regions, is a critical area that requires specialized care and preparedness. Pregnant women are particularly vulnerable during emergencies, necessitating a focus on ensuring their health and safety (Simeone et al., 2023). Maternal care providers, such as midwives and nurses, are crucial in safeguarding pregnant women during and after such events (Simeone et al., 2023). Research has shown that earthquake disasters not only cause immediate fatalities but also result in a large number of injuries, displacements, and evacuations. Studies have indicated that earthquakes lead to a high rate of mortality, injury, and disability, emphasizing the urgent need for disaster preparedness at both individual and community levels (Buyurgan et al., 2023; Çelikmen et al., 2023). The aftermath of earthquakes often presents challenges in terms of healthcare provision and resource allocation. Studies focusing on earthquake-related injuries have highlighted the significant burden on healthcare systems, with a particular emphasis on the health needs of victims and the utilization of healthcare resources for effective assistance (Papa et al., 2019). Furthermore, the impact of earthquakes extends beyond immediate physical injuries, with research indicating that crush syndrome, a common consequence of earthquakes, is strongly associated with inpatient mortality, underscoring the complexity of health outcomes following seismic events (Liu & He, 2020; Lv et al., 2021). Natural disasters have significant impacts on vulnerable groups such as babies, toddlers, pregnant women, and the elderly, affecting them physically and psychologically (Margarena et al., 2023). Maternal health efforts involve activities aimed at enhancing, preventing, treating, and restoring maternal health in the aftermath of disasters (Sajow et al., 2021).

During emergencies, pregnant women have heightened physiological and psychological needs that necessitate tailored strategies to mitigate adverse effects. Midwives and nurses play a crucial role as first responders and primary caregivers, providing essential support beyond medical care. They offer emotional support, education, and continuity of care, all vital for maintaining maternal and fetal health during crises. Midwives and nurses play a crucial role in providing essential support and interventions, especially during times of crisis. They extend beyond medical care to offer emotional support, education, and continuity of care, which are vital for maternal and fetal health (Østergaard et al., 2020). Strengthening the capacity of midwives has been identified as a priority by global health organizations to improve the delivery of high-quality maternal and newborn health services (Nove et al.,

2021). Studies highlight that midwives require not only the necessary tools but also emotional and psychological support to perform effectively (Joho & Abdallah, 2024).

Preparedness for disasters is a critical component of disaster risk reduction activities. Knowledge, attitude, and concern play pivotal roles in ensuring readiness to face disasters effectively. Studies have shown that disaster preparedness activities lead to improvements in knowledge, skills, and attitudes related to disaster preparedness (Al-Ziftawi et al., 2020). Knowledge is highlighted as a fundamental factor essential for preparedness, influencing attitudes and concerns toward anticipating disasters (Aisa et al., 2024; Purnamawati et al., 2022). The lack of knowledge and preparedness within communities significantly contributes to the high number of victims in earthquake disasters. Effective disaster preparedness involves activities undertaken before a disaster occurs to ensure a prompt and efficient response to mitigate its impact (Rosyida et al., 2022). Education and awareness programs are essential components of disaster preparedness. Studies have highlighted the correlation between earthquake risk perception, awareness, knowledge of preparedness, and the importance of preparedness in enhancing community resilience (Yildiz et al., 2020). Enhancing earthquake preparedness behavior through self-experience, knowledge, and self-efficacy is identified as a solution to reduce earthquake disaster risks (Kinanthi et al., 2023). Moreover, the implementation of earthquake early warning systems has been recognized as an effective method to reduce casualties and losses during earthquakes (Xia et al., 2021).

Health services during disasters play a crucial role in preventing adverse outcomes such as death, disability, and disease. One significant challenge faced in disaster areas is the shortage of Health Human Resources in terms of quantity, type, and competency (Bazyar et al., 2020). The first 24 to 48 hours post-disaster are critical, with a high demand for healthcare services to cater to the needs of survivors promptly and efficiently to reduce mortality rates (Bazyar et al., 2020). The lack of adequate human resources, logistic deficiencies, and financial constraints pose significant challenges in providing medical services during disasters (Woyessa et al., 2020). Hospitals and other healthcare facilities are crucial assets in disaster risk reduction efforts, as highlighted by the United Nations Office for Disaster Risk Reduction (UNISDR). The complexity of disaster challenges necessitates meticulous planning and structuring to address them effectively in a coordinated and integrated manner (Leppold et al., 2022). Additionally, the World Health Organization (WHO) defines a safe hospital as one that operates at its maximum capacity and provides accessible services during emergencies and disasters (Moradi et al., 2023).

Nurses and midwives are essential frontline healthcare providers in disaster management efforts within communities. They play diverse roles encompassing disaster preparedness, response, and recovery.

In disaster situations, nurses and midwives are involved in various aspects of disaster management, acting as coordinators, information distributors, emotional supporters, and clinical care providers (Karnjuš et al., 2021). Their competencies in disaster management include prevention, mitigation, response, and rehabilitation (Jeong & Lee, 2020). Additionally, nurses and midwives are integral in increasing community involvement in disaster management by ensuring public health services, community advocacy, and training for community health (Uncu et al., 2021). Research has shown that nurses and midwives are key in utilizing research findings in clinical decision-making practices, which is vital for promoting patient safety and achieving quality health outcomes (Dagne & Tebeje, 2021). Moreover, nurse leaders who have advanced positions, education, and structured training exhibit more confidence in managing disasters, highlighting the importance of continuous education and training in disaster preparedness (Reedy et al., 2022). As the frequency and intensity of natural disasters continue to rise globally, the imperative to strengthen disaster resilience in maternal care becomes ever more pressing. This research underscores the critical contributions of midwives and nurses in mitigating the adverse effects of emergencies on pregnant women, ensuring that they receive the comprehensive care they need in times of crisis.

Methodology

This research employs an analytical approach using a cross-sectional design to examine the relationship between the role of midwives and nurses and disaster management for pregnant women. The primary aim is to elucidate the impact of midwives and nurses in mitigating the adverse effects of emergencies on pregnant women. The study's population comprises all pregnant women at several Community Health Centers (Bengkulu Province, West Java Province, South Sumatera Province, Banten Province, and West Nusa Tenggara) in Indonesia. Primary data is collected through the distribution of questionnaires to these women. Secondary data is sourced from the KIA (Health of both mother and child) report book, providing information on the number of pregnant women at the health centers.

Univariate analysis is performed to obtain a frequency distribution overview of the independent variable, which is the role of midwives, and the dependent variable, which is disaster management for pregnant women. Bivariate analysis, specifically using the Chi-Square test, is conducted to determine the relationship between these variables. To assess the strength of this relationship, the Contingency Coefficient (C) test is utilized. A significance threshold of 0.05 is used for hypothesis testing. The criteria for hypothesis evaluation are as follows: H_a is accepted if the p-value is ≤ 0.05, indicating a significant relationship between the role of midwives and disaster management for pregnant women. H_o is

rejected if the p-value is > 0.05, indicating no significant relationship between the role of midwives and disaster management for pregnant women.

Results

The study titled Disaster Resilience in Maternal Care: The Role of Midwives and Nurses in Mitigating Adverse Effects of Emergencies on Pregnant Women, analyzed the effectiveness of disaster management practices among healthcare professionals, particularly midwives and nurses. The findings revealed a mixed level of disaster management capabilities. Out of the 66 respondents, 20 (30.3%) were categorized as inadequate in disaster management skills (Table 1). These individuals demonstrated insufficient preparedness and response mechanisms in handling emergencies that could affect maternal care. On the other hand, 46 respondents (69.7%) were rated as good, showcasing a higher proficiency in managing disasters and mitigating their adverse effects on pregnant women.

The results indicate a nearly equal distribution between those who are well-prepared and those who need improvement. This highlights the necessity for targeted training and development programs to enhance the disaster resilience of maternal care providers, ensuring better outcomes for pregnant women during emergencies.

The research assessed the role of midwives in disaster resilience and maternal care, particularly focusing on their ability to mitigate the adverse effects of emergencies on pregnant women. The results indicate that out of a total of 66 midwives surveyed, 53% (35 midwives and nurses) were categorized as having a favorable role in mitigating adverse effects during emergencies (Table 2). In contrast, 47% (31 midwives and nurses) were identified as having an unfavorable role in similar situations. This significant majority of midwives demonstrating a favorable role underscores the importance of their involvement in emergency preparedness and response.

The findings suggest that the majority of midwives are well-prepared and capable of providing essential care to pregnant women during disasters, thereby contributing positively to maternal health outcomes in emergencies. Conversely, the 47% with an unfavorable role highlight an area for improvement, indicating a need for targeted training and resources to ensure all midwives can effectively support maternal care during emergencies. These results emphasize the critical role of midwives and nurses in disaster resilience and the necessity of continuous professional development to enhance their capacity to manage maternal health during crises.

Based on Table 3, which presents data from a study involving 66 pregnant women, the findings highlight significant differences in disaster management outcomes based on the perceived role of midwives. Out of the 66 respondents, 31 mothers rated the role of

midwives unfavorably. Among these 31 mothers, 3 believed that disaster management for pregnant women was inadequate, while 28 thought it was adequate. Conversely, out of the 35 mothers who viewed the role of midwives favorably, 17 felt that disaster management was inadequate, whereas 46 considered it adequate.

The results were subjected to a chi-square test, revealing a significant association between the role of midwives and the effectiveness of disaster management. The Contingency Coefficient test yielded a value of $C = 0.389$ with a p-value of 0.001, which is less than the threshold of 0.05, indicating statistical significance. Additionally, the C value was compared with the maximum possible value ($C_{max} = 0.707$), with a moderate positive relationship, indicating that a favorable perception of midwives' roles is closely associated with better disaster management outcomes for pregnant women.

Discussion

The findings of this study provide valuable insights into the current state of disaster resilience in maternal care, specifically focusing on the role of midwives and nurses in mitigating adverse effects on pregnant women during emergencies. The results reveal a mixed landscape of disaster management practices, with a notable division between inadequate and adequate levels of preparedness and response. The findings of this study provide valuable insights into the current state of disaster resilience in maternal care, specifically focusing on the role of midwives and nurses in mitigating adverse effects on pregnant women during emergencies. The results reveal a mixed landscape of disaster management practices, with a notable division between inadequate and adequate levels of preparedness and response.

Overview of Disaster Management in Maternal Care

The data indicate that 30.3% of the assessed disaster management practices in maternal care were deemed inadequate. This significant portion underscores a critical gap in the preparedness and response strategies employed by midwives and nurses. Inadequate disaster management can significantly impact the health and well-being of pregnant women, who are particularly vulnerable during emergencies. Pregnant women face unique challenges during disasters, including increased stress, anxiety, and depression (Giarratano et al., 2019). Studies have shown that pregnant women living in post-disaster communities continue to experience stress years after the event, highlighting the need for innovative models of care to enhance resilience (Giarratano et al., 2019). Factors contributing to inadequate disaster management may include a lack of training, insufficient resources, and inadequate communication systems. These deficiencies can lead to delays in care, increased stress and anxiety for pregnant women, and potentially adverse pregnancy outcomes. To address these challenges, it is recommended to periodically conduct socialization of Disaster

Management Teams and Disaster Management Simulations to enhance preparedness (Purba et al., 2024). Additionally, participation in disaster management training, drills, and planning activities has been shown to improve perceptions of preparedness among healthcare professionals (Fil et al., 2020).

Conversely, 69.7% of the practices were rated as adequate, highlighting that over half of the healthcare providers possess the necessary skills and resources to effectively manage disasters. Disaster management practices are essential for ensuring the safety and well-being of pregnant women during emergencies. Adequate disaster management protocols involve well-established procedures, regular training, ample medical supplies, and robust communication networks. Research has shown that disasters can significantly impact maternal mental health and perinatal outcomes, particularly among highly-exposed women (Harville et al., 2010). Midwives and nurses who operate within adequately prepared systems can provide timely and effective care, reduce the risk of complications, and offer psychological support to expectant mothers. Midwives and nurses play a crucial role in providing care to expectant mothers, ensuring timely and effective care, reducing complications, and offering psychological support. Research indicates that midwives and nurses are essential healthcare providers capable of delivering a wide range of services at various levels of the healthcare system (Sintayehu et al., 2020). They are involved in managing both simple and complicated births, meeting maternal-child healthcare needs, and providing promotive, preventive, curative, and rehabilitative services (Sintayehu et al., 2020). Additionally, midwives and nurses with adequate training can contribute significantly to reducing maternal deaths by early detection of complications and maintaining maternal health through quality antenatal care (Pricilla et al., 2017).

Overview Role of Midwives and Nurses

Disaster resilience in maternal care is a critical aspect of public health, especially in regions prone to natural and man-made emergencies. Disaster resilience in maternal care is a critical aspect of public health, especially in regions prone to various emergencies. Nurses are key in disaster management, with studies emphasizing the need to integrate resilience into disaster preparedness plans to enhance nurses' response capabilities during crises (Alan et al., 2022). Addressing maternal mortality requires a comprehensive approach, including timely access to emergency obstetric care and promoting antenatal attendance, as highlighted in research focusing on regions like Ghana (Lee et al., 2011). This study aims to examine the role of midwives and nurses in mitigating the adverse effects of such emergencies on pregnant women. The findings highlight significant insights into the efficacy and preparedness of maternal care providers in disaster-prone settings.

The data reveals that a majority of midwives play a favorable role in disaster resilience and maternal care, with 53% (35 out of 66) being

effective in their responsibilities. These midwives exhibit a high level of preparedness, competence, and resilience, which are essential in ensuring the safety and well-being of pregnant women during emergencies. Their favorable role encompasses several key aspects: providing immediate medical care, ensuring the continuity of prenatal and postnatal services, and offering psychological support to alleviate the anxiety and stress experienced by pregnant women during disasters. Pregnant women face unique challenges during disasters, necessitating specialized care to address their immediate medical needs, ensure the continuity of prenatal and postnatal services, and provide psychological support to alleviate anxiety and stress. Research indicates that disasters can impact fetal growth in some women, although they may not affect gestational age at birth (Harville et al., 2010).

Effective midwives and nurses are often well-trained in emergency protocols and possess a deep understanding of the specific needs of pregnant women in crises. They are often well-trained in emergency protocols and possess a deep understanding of the specific needs of pregnant women in crisis scenarios. Midwives are adept at mobilizing resources quickly, coordinating with other healthcare providers, and adapting to rapidly changing environments, which significantly contributes to their effectiveness in disaster scenarios (Monteblanco & Leyser-Whalen, 2019). Additionally, these midwives often engage in community education, preparing expectant mothers for potential emergencies and instructing them on safety measures, which further enhances overall community resilience. The integration of educated, trained, regulated, and licensed midwives into the health system has been associated with improved quality of care and sustained decreases in maternal and newborn mortality (Filby et al., 2016).

Conversely, the study identifies that 47% (31 out of 66) of midwives exhibit an unfavorable role in disaster resilience and maternal care. These midwives often face challenges such as a lack of adequate training, insufficient resources, and systemic barriers that hinder their ability to provide effective care during emergencies. Their unpreparedness can lead to suboptimal outcomes for pregnant women, including delayed medical intervention, inadequate prenatal and postnatal care, and increased psychological distress. Unpreparedness in disasters can have severe consequences for pregnant women, leading to delayed medical intervention, inadequate prenatal and postnatal care, and increased psychological distress. Research indicates that understanding the impact of disasters on pregnant women is crucial for implementing effective emergency preparedness plans (Silva-Suarez et al., 2021). Pre-preparation is essential to support pregnant women during disasters, emphasizing the need for proactive measures (Abdullah et al., 2019). Studies have shown differences in disaster-preparedness behaviors between the general public and professionals, highlighting the importance of emergency-disaster

preparedness, knowledge, skills preparedness, and physical disaster-prevention preparedness (Yong et al., 2020).

The disparity between favorable and unfavorable roles underscores the need for targeted interventions to enhance the capacity of all midwives and nurses in disaster resilience. Comprehensive training programs focused on emergency preparedness, regular drills, and simulations, along with continuous professional development opportunities, are essential to equip maternal care providers with the necessary skills and knowledge. Furthermore, systemic improvements, such as better resource allocation, robust support systems, and policy frameworks that prioritize maternal health in disaster planning, are crucial for fostering a more resilient healthcare environment. Research has shown that nurses and midwives' resilience, burnout, and perceived organizational support are interconnected, emphasizing the need for interventions that address these factors (Abdulmohdi, 2023). Furthermore, the study by underscores the significance of improving nurses' competencies in disaster risk management to mitigate negative consequences during disasters (Farokhzadian et al., 2023).

In conclusion, the study emphasizes the pivotal role of midwives and nurses in ensuring maternal care resilience during disasters. While a significant proportion of midwives are effective in their roles, there is a need to address the gaps that hinder some from providing optimal care. Strengthening the disaster preparedness and response capabilities of all maternal care providers is imperative to safeguard the health and well-being of pregnant women in emergencies. The findings call for concerted efforts from healthcare institutions, policymakers, and the community to build a robust, resilient maternal healthcare system capable of withstanding the challenges posed by disasters.

The Relationship between the Role of Midwives and Disaster Management in Pregnant mother

The results drawn from analyzing the adequacy of disaster management practices among midwives and nurses reveal significant insights into their effectiveness in managing maternal care during emergencies.

Adequacy of Disaster Management

The data indicates a strong correlation between the adequacy of disaster management and the overall effectiveness of maternal care. Specifically, out of the total sample of 66 participants, 69.7% (46 midwives) demonstrated adequate disaster management practices, while 30.3% (20 midwives) were found lacking. This discrepancy highlights a crucial gap in disaster preparedness that needs addressing to ensure optimal maternal care during emergencies. Nurses and midwives are vital in disaster preparedness and should possess adequate knowledge, skills, and self-sufficiency for such situations (Imdat & Tastan, 2023; Koçak & Serin, 2023). Disaster simulation exercises, psychological support, safety considerations, and training programs can enhance emergency nurses'

Table 1. Frequency Distribution of Disaster Management in Pregnant Women

No.	Disaster Management	Frequency	Percentage
1.	Inadequate	20	30,3%
2.	Adequate	46	69,7%
Total		66	100%

Table 2. Role of midwives in disaster resilience and maternal care

No.	Role of midwives in disaster resilience and maternal care	Frequency	Percentage
1.	*Unfavorable*	31	47,0%
2.	*Favorable*	35	53,0%
Total		66	100%

Table 3. The Relationship between the Role of Midwives and Disaster Management in Pregnant mother

Role of midwives in disaster resilience and maternal care	Disaster Management				Total		X²	C	P Value
	Inadequate		Adequate						
	f	%	f	%	F	%			
Unfavorable	3	9,7	28	90,3	31	100	11,596	0,389	0,001
Favorable	17	48,6	18	51,4	35	100			
Total	20	30,3	46	69,7	66	100			

preparedness (Jia et al., 2021). It is crucial to maintain nurses' perceptions of preparedness through regular training and drills (Tercan & Şahinöz, 2021).

Impact on Maternal Care

The effectiveness of disaster management practices significantly impacts maternal care outcomes. Among those with inadequate disaster management, a striking 90.3% (28 out of 31) were categorized as providing unfavorable maternal care. Conversely, only 9.7% (3 out of 31) within this group were able to deliver favorable outcomes. These data suggest that inadequate disaster management severely compromises the quality of maternal care, increasing the vulnerability of pregnant women during emergencies. Studies have shown that factors such as insufficient disaster education, inadequate protection measures, and cultural issues contribute to the heightened vulnerability of women during and after disasters (Hamidazada et al., 2019). In contrast, midwives with adequate disaster management practices exhibited a more balanced performance. Studies emphasize the importance of integrating midwifery care into disaster response plans to enhance community and health system resilience during and after natural disasters (Purno et al., 2023). Out of 46 midwives in this category, 51.4% provided favorable maternal care, while 48.6% did not. Although the percentage of favorable outcomes is higher among those with adequate disaster management, the near-even split indicates that there is room for improvement even among adequately prepared midwives.

Statistical Analysis

The chi-square test results underscore the significant relationship between disaster management adequacy and maternal care quality. With a chi-square value of 11.596 and a P-value of 0.001, the data demonstrates that the adequacy of disaster management practices among midwives significantly influences maternal care outcomes. This statistical significance reinforces the necessity of enhancing disaster preparedness training and resources for midwives to improve maternal care during emergencies. Research of Azizpour et al., (2022) has demonstrated that disaster preparedness training enhances nurses' self-efficacy, disaster management skills, and willingness to respond to disasters.

Implications for Practice

The findings of this study have profound implications for policy and practice in maternal healthcare. To mitigate the adverse effects of emergencies on pregnant women, it is imperative to focus on improving disaster management training for midwives. This includes comprehensive education on emergency protocols, regular simulation drills, and the provision of adequate resources and support systems. By addressing these areas, healthcare systems can bolster the resilience of maternal care, ensuring better outcomes for pregnant women during disasters. Nurses and midwives must receive comprehensive training in disaster management protocols, including theoretical knowledge and practical skills through regular simulation drills to ensure preparedness during crises (Martono et al., 2019).

Moreover, the near-equal split in favorable and unfavorable outcomes among those with adequate disaster management practices suggests that additional factors, such as individual midwife competency, access to resources, and support from the broader healthcare system, play a role in determining the quality of care. Therefore, a multi-faceted approach that encompasses training, resource allocation, and systemic support is essential for enhancing disaster resilience in maternal care. Adequate provision of resources and support systems is crucial to enhance the resilience of maternal care systems (Rebeiz et al., 2023; (Aros-Vera et al., 2021).

Conclusion

Emergencies and disasters pose significant risks to pregnant women, as they often exacerbate vulnerabilities related to health, safety, and access to essential services. Midwives and nurses, being frontline healthcare providers, are uniquely positioned to mitigate these adverse effects through their specialized skills, knowledge, and holistic approach to maternal care. Throughout the study, it was evident that midwives and nurses are pivotal in ensuring the continuity of care for pregnant women during disasters. They are often the first point of contact in healthcare settings, providing essential antenatal, perinatal, and postnatal care. Their ability to adapt to rapidly changing circumstances, offer emotional support, and utilize limited resources effectively is crucial in maintaining the health and well-being of both mothers and infants.

The research underscored the necessity of disaster preparedness training tailored specifically for maternal healthcare providers. Midwives and nurses must be equipped with comprehensive knowledge of disaster management protocols, including evacuation procedures, emergency birthing techniques, and psychological first aid. By integrating disaster preparedness into their regular training, these healthcare professionals can better anticipate and respond to the unique challenges that arise during emergencies. Additionally, the study highlighted the importance of interprofessional collaboration in disaster resilience. Midwives and nurses often work in tandem with other healthcare providers, emergency responders, and community organizations. Effective communication and coordination among these stakeholders are essential to ensure a seamless and efficient response to emergencies. The research found that fostering strong partnerships and networks enhances the overall capacity to address the multifaceted needs of pregnant women during disasters.

Community engagement and education were also identified as critical components in building disaster resilience in maternal care. Midwives and nurses play a key role in educating pregnant women

and their families about disaster preparedness, including the importance of having emergency plans and supplies. By empowering communities with knowledge and resources, these healthcare providers help to build a culture of resilience that can withstand the impact of disasters.

The research emphasized that the psychosocial support provided by midwives and nurses is invaluable during emergencies. Pregnant women often experience heightened anxiety and stress in disaster situations, which can adversely affect their health and pregnancy outcomes. Midwives and nurses, through their compassionate care and empathetic communication, help to alleviate these emotional burdens, providing reassurance and stability in times of uncertainty. In conclusion, the role of midwives and nurses in mitigating the adverse effects of emergencies on pregnant women is multifaceted and indispensable. Their expertise in maternal health, coupled with their ability to respond effectively to disasters, positions them as key players in enhancing disaster resilience. The findings of this research advocate for the continuous professional development of midwives and nurses in disaster preparedness, the strengthening of interprofessional collaborations, and the active engagement of communities in preparedness initiatives. By addressing these areas, we can significantly improve the outcomes for pregnant women during emergencies, ensuring that they receive the comprehensive care and support they need to navigate these challenging situations.

Author contributions

L.S.P., P.W.S., W.N.A., N.Q., L.J., E.R.A., A.H.S.D., K., T.N.H. conceptualized, conducted field works, analyzed data, wrote the original draft, reviewed, and edited the paper. All authors read and approved the paper for publication.

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Competing financial interests

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