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Identifying the Practice Profile of Advanced Practice for Nurses in Disaster Settings

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ABSTRACT

Introduction: Nurses form the largest segment of the health workforce and play crucial roles in disaster response. Despite this, the scope of practice for Advanced Practice Nurses (APNs) in disasters remains undefined, leading to inconsistent utilisation and preparedness. **Background and purpose:** It is well known that nurses are at the forefront of managing disasters, yet their complex role as clinicians and leaders is not always fully understood or appreciated by their communities. Advanced practice nurses are suited for these complex roles and should be involved with disaster and crisis mitigation from a leadership level. This study aims to identify and define the scope of practice of APNs within the disaster context to enhance disaster response capacity. **Materials and methods:** A qualitative design was employed, using semi-structured interviews with key informants experienced in disaster nursing. The aim was to explore the perceptions of advanced nurses' roles and identify the nature and scope of practice. Braun and Clarke's five-step framework was used for thematic analysis, and then these themes were sorted into the eight domains of the International Council of Nurses competencies for disasters. **Results and conclusion:** Nurses identified advanced practice roles as providing an overview of disaster response-managing teams, maintaining communication, and ensuring adequate resources and staffing. The study highlighted the critical leadership role of advanced practice nurses in disaster settings, informing education, workforce planning, and preparedness strategies. This work showed that nurses worked as team leaders and are crucial for the successful running of the response.

Keywords: Advanced practice nursing; disasters; qualitative; response

Disaster Preparedness and Educational Gaps among Nurse Practitioners in Geographically Isolated Eastern Taiwan

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ABSTRACT

Introduction: The frequency of complex disasters is escalating globally, with Taiwan identified as a high-risk nation due to its unique geographical location. **Background and purpose:** Eastern Taiwan is prone to the 'island effect' when natural disasters sever external transportation, necessitating Nurse Practitioners (NPs) to undertake prolonged field care and independent decision-making without physician support. However, current training often overlooks these region-specific demands. This study aimed to explore disaster preparedness, confidence in geographically isolated scenarios, and educational gaps among NPs in an Eastern Taiwan medical centre, comparing acute and non-acute care backgrounds. **Materials and methods:** A cross-sectional descriptive correlational design was employed. A purposive sample of 160 NPs from a medical centre in Eastern Taiwan was recruited and stratified into acute (e.g., intensive care unit, Emergency Department) and non-acute care groups. Data were collected using the Disaster Preparedness Evaluation Tool and the self-developed 'Eastern Geographic Isolation Confidence Scale'. Descriptive statistics, t-tests, and regression analyses were utilised for analysis. **Results:** Findings indicated that while acute care NPs demonstrated higher scores in technical skills compared to the non-acute group, both groups reported low confidence in leadership and independent decision-making during communication blackouts. Disaster preparedness was significantly positively correlated with prior disaster training hours and advanced certifications. **Conclusion:** A critical gap exists between clinical skills and disaster competencies required for geographic isolation. Developing stratified, scenario-based simulation training focusing on leadership and resource-scarce decision-making is essential to enhance the resilience of the disaster nursing workforce in eastern Taiwan.

Keywords: Core competencies; disaster preparedness; education; geographic isolation; nurse practitioners

Factors Associated with Emergency Nurses' Preparedness for Chemical Disasters

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ABSTRACT

Introduction: The global expansion of chemical production has increased the frequency and severity of chemical incidents, causing approximately 3,200 technological disasters worldwide and 100,000 deaths. **Background and purpose:** In Thailand (2017–2022), 290 chemical incidents caused 899 injuries and 64 deaths. This study examined individual factors (emergency department experience, disaster training, response experience and risk perception) and organisational factors (colleague, supervisor and organisational support) associated with chemical disaster preparedness among emergency nurses. **Materials and methods:** A cross-sectional design surveyed 212 emergency nurses with at least one year of experience in Phra Nakhon Si Ayutthaya and Saraburi provinces via stratified random sampling. Instruments included a demographic questionnaire and scales on perceived chemical disaster risk, perceived support and chemical disaster preparedness (Content Validity Index 0.95; Cronbach's alpha 0.82–0.98). **Results:** Participants' mean age was 36.21 years (SD = 9.98) and mean emergency experience was 11.96 years (SD = 9.74). Mean training and response experiences were 1.44 (SD = 1.71) and 1.23 (SD = 1.62), respectively. Perceived risk was moderate and perceived support was high. Chemical disaster preparedness, overall and across the pre-disaster, response and recovery phases, was relatively high. Preparedness was significantly associated with emergency department experience, disaster response experience, risk perception and support from colleagues, supervisors and the organisation ($p < 0.05$). **Conclusion:** Enhancing emergency nurses' chemical disaster preparedness through both individual and organisational strategies is vital to optimise emergency medical outcomes.

Keywords: Chemical disasters; emergency nurses; factors associated; preparedness

How Prepared are Japanese Nurses for Disaster Response after COVID-19?

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ABSTRACT

Introduction: Japan has experienced frequent and complex natural and health-related disasters in recent years, including bushfires, floods, earthquakes and the coronavirus-19 (COVID-19) pandemic. **Materials and methods:** This cross-sectional study examines Japanese nurses' perceived knowledge, skills and needs in disaster preparedness in the post-COVID-19 context. It also explores their perceived barriers and facilitators in disaster preparedness within their local health-care settings. **Results:** Quantitative data were collected using a validated 45-item scale called the Disaster Preparedness Evaluation Tool (DPET), administered as an online survey. Among the disaster nursing society members, there were 88 responses. The completed DPET responses were analysed to assess nurses' levels of disaster knowledge, skills and preparedness. Inferential statistics were used to examine the patterns and relationships between preparedness levels and nursing demographics. The response rate was low, although the DPET score overall indicated a relatively higher score compared to other studies. The survey was distributed to the Japan Society of Disaster Nursing, and the members' interest in knowing how to respond to disasters could be higher than that of other nurses. This result implies that the study sample's baseline could be higher than nurses who are working in other healthcare facilities. There were also some items which indicated potential relevance in position, geological location and period of living. **Conclusion:** The study findings will offer cross-sectional insights into the critical gaps and needs of Japanese nurses during disaster phases, highlighting the geographical, environmental and healthcare system factors. This research result will add further evidence to inform international guidelines for disaster nursing education and practice.

Keywords: Disaster preparedness; Disaster Preparedness Evaluation Tool; nursing

Earthquake Response Readiness among Emergency Nurses in Bangkok

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ABSTRACT

Background: Earthquakes represent a critical public health threat, causing substantial casualties and economic burden across Southeast Asia. Emergency department nurses are essential in disaster response through triage, stabilisation, and multidisciplinary collaboration. However, earthquake preparedness among emergency nurses in Bangkok remains inadequately researched despite increasing seismic risk. **Objectives:** To evaluate earthquake response readiness competencies among emergency nurses and to examine the relationship between individual readiness and hospital organisational preparedness. **Materials and methods:** A cross-sectional survey of 100 emergency nurses from three tertiary hospitals in Bangkok. The Earthquake Response Readiness Questionnaire (READI-JV adapted; Maeda, 2016) assessed clinical competency, operational capability, survival skills, stress management, personal readiness, leadership support, and team engagement. Hospital Disaster Preparedness was measured using a validated organisational assessment tool evaluating facility infrastructure, supplies, logistics, and human resource capacity. **Results:** Participants averaged 36.97 years (SD = 10.71) with 13.33 years of emergency experience. Over 56.7% had prior disaster experience. Overall earthquake response readiness was moderate (63.3%). Regarding sub-dimensions, clinical competence, operational capability, and survival skills were predominantly high. However, psychological attitude, stress coping mechanisms, team integration and participation, and leadership/administrative support were mostly moderate. Perceived organisational disaster preparedness was also at a moderate level. Furthermore, organisational disaster preparedness was significantly associated with overall readiness ($p < 0.001$). **Conclusion:** Enhanced organisational disaster preparedness infrastructure strengthens individual nurse readiness. Targeted training programmes addressing identified gaps are essential for effective earthquake response in Bangkok's healthcare system.

Keywords: Disaster preparedness; earthquake readiness; emergency nurses

Enhancing Emergency Department Nurses' Disaster Response Capacity in Underground Shelter Hospitals

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ABSTRACT

Introduction: Increasing global conflicts and large-scale disasters have highlighted the importance of healthcare system resilience in extreme environments. Underground shelter hospitals have become an important disaster medical strategy for maintaining healthcare services during emergencies. Therefore, improving the disaster response capacity of emergency department nurses in such environments is essential for ensuring effective medical operations. **Background and purpose:** A baseline assessment revealed that the disaster response capability of emergency department nurses in operating an underground shelter hospital in this institution was only 55.8%, indicating a significant need for improvement. This project aimed to enhance nurses' disaster response capacity and operational readiness through systematic training and structured preparedness strategies. **Materials and methods:** This quality improvement project implemented the following strategies: (i) establishing standardised operating procedures for underground shelter hospital activation and deployment drills; (ii) planning functional zones and improving equipment preparedness; (iii) implementing education and multidimensional simulation-based training programmes; (iv) establishing an audit and feedback mechanism through performance-based simulations; and (v) providing psychological support resources for healthcare personnel. **Results:** After implementation, the disaster response capability rate significantly improved from 55.8% to 92.8%, demonstrating substantial enhancement in nurses' preparedness and operational performance during disaster scenarios. **Conclusion:** The findings indicate that a structured preparedness model can effectively strengthen emergency nurses' disaster response capacity in underground shelter hospital settings. This model may serve as a practical reference for healthcare institutions seeking to improve disaster preparedness and enhance overall healthcare system resilience.

Keywords: Disaster preparedness; emergency nursing; response capacity; underground shelter hospitals

Enhancing Fire Disaster Preparedness in a Surgical Intensive Care Unit of a Regional Teaching Hospital: Integration of Hazard Vulnerability Analysis and Simulation-Based Interprofessional Training

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ABSTRACT

Introduction: Fire incidents in intensive care units (ICUs) are high-risk events with potentially catastrophic consequences. Although Hazard Vulnerability Analysis (HVA) is widely recommended for disaster risk assessment, its integration into simulation-based training remains limited, particularly in regional teaching hospitals. **Materials and methods:** This study was conducted in a surgical ICU of a regional teaching hospital in Taiwan. A two-stage HVA identified fire as the highest-priority risk (score: 16), followed by earthquake (12) and workplace violence (8). A scenario-based simulation programme was developed, incorporating the RACE protocol, horizontal evacuation, interprofessional collaboration, communication systems, and fire equipment operation. An earthquake-induced electrical fire scenario was simulated. Performance was evaluated using checklists, team assessment, and debriefing. **Results:** Electrical hazards were identified as the primary fire risk, with electrical ignition and exposed wiring ranked highest. Simulation results demonstrated full protocol compliance, successful evacuation of all patients, effective horizontal evacuation, and strong team coordination. Areas for improvement included communication continuity and equipment familiarity. **Conclusion:** Integrating HVA with simulation training enhances ICU fire preparedness, teamwork, and patient safety. This scalable model may be applicable to other high-risk healthcare settings.

Keywords: Disaster nursing; fire emergency; Hazard Vulnerability Analysis

Natural Disaster Preparedness in Japanese Hospital Nursing Departments: Changes from 2013 to 2025

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ABSTRACT

Purpose: To clarify the changes in preparedness of hospital nursing departments for natural disasters in Japan by comparing data from 2013 and 2025. **Materials and methods:** A questionnaire survey was conducted among Nursing Department administrators using the "Natural Disaster Preparedness Scale for Hospital Nursing Departments (abbreviated as NDP-Scale)" developed by Nishigami. Data from 2013 were collected at the time of the scale's development (May 2013), and a follow-up survey using the same scale was conducted in June 2025. **Results:** Valid responses were obtained from 555 institutions in 2013 (valid response rate: 12.9%) and 1,373 institutions in 2025 (valid response rate: 17.1%). There were no regional differences observed, but differences were noted based on the number of hospital beds, among other factors. Over the 12-year period, there was no change in the experience of dispatching nurses to disaster-affected areas or in the level of satisfaction with preparedness. On the other hand, stockpiling of supplies increased significantly. The overall score on the preparedness measurement scale also improved significantly. Among the subcategories, "planning", "organisation" and "equipment" showed significant improvement, while "training", "drills" and "evaluation and improvement" tended to improve but did not show significant differences. **Conclusion:** While dispatching staff to disaster-affected areas and conducting large-scale training became difficult due to the impact of COVID-19, it is suggested that individual hospitals make efforts to improve stockpiling and organisational systems on their own initiative. In particular, there was improvement in system aspects that are easier to implement, but progress in hands-on initiatives was limited.

Keywords: Disaster prevention; hospital; Nursing Departments; preparedness

Observing Disaster Management Practices: Insights from a Tabletop Exercise

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ABSTRACT

Introduction: Tabletop exercise is a discussion-based activity that simulates emergencies and scenarios. It is a valuable method for assessing the emergency policies utilised and familiarising disaster organisations with their roles, responsibilities, planning elements, and objectives in disaster preparedness training. This study aims to observe and evaluate disaster management practices during a tabletop exercise, identify strengths, and recommend strategies to enhance the effectiveness of disaster preparedness training. **Materials and methods:** A non-participant observation was used to observe adherence to policies and guidelines, communication, decision-making, teamwork, and coordination among the participants during the tabletop exercise training. **Results:** From August 2023 to October 2024, four tabletop exercises were observed in Kuala Lumpur, Kuantan, and Johor Bahru. Three exercises in 2023 followed the Majlis Keselamatan Negara Directive No. 20. Meanwhile, one in 2024 followed the latest National Disaster Management Agency Directive No. 1 as the main guideline implemented in the training. **Discussion:** Each tabletop exercise had distinct training methods for presenting scenarios and discussing disaster management with the participants. All tabletop exercise training demonstrated noteworthy strengths in dynamic discussion, collaborative decision-making, and presentation of response strategies, which enhanced the understanding of inter-agency coordination and disaster response planning. However, several limitations were detected in participants' engagement and communication, the roles of moderators and facilitators, and critical thinking during decision-making. **Conclusion:** Tabletop exercise training is an essential element in disaster preparedness and has been widely utilised in government organisations. However, continuous innovations and enhancements in multi-agency coordination in training are needed to improve the effectiveness of the tabletop exercises.

Keywords: Disaster management; emergency preparedness; observational study; tabletop exercise

Strengthening Emergency Preparedness of Nurse Team Leaders Through Hybrid Case-Based and Simulation Training: A Disaster-Readiness Approach

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ABSTRACT

Background: Hospitals increasingly encounter high-acuity emergencies, mass casualty events, and unexpected system disruptions. Nurse team leaders function as the first-line coordinators responsible for triage prioritisation, team communication, and workflow stabilisation during crises. However, conventional lecture-based education inadequately prepares leaders for real-time decision-making under pressure. Training strategies that enhance situational awareness and command ability are essential for disaster readiness. This study aimed to evaluate whether a hybrid case-based and simulation training programme improves nurse team leaders' emergency preparedness and leadership performance. **Materials and methods:** A prospective pre-post intervention was conducted in a regional teaching hospital in Taiwan (March 2024–October 2025). Eighteen nurse team leaders participated. The programme integrated real critical-event case analysis, interprofessional simulation scenarios, workflow rehearsal, and structured GAS (Gather–Analysis–Summary) debriefing. Preparedness outcomes -including situational awareness, leadership confidence, workflow familiarity, and communication effectiveness—were measured before and after training. **Results:** Significant improvements were observed: leadership confidence (3.2→4.5), workflow familiarity (3.4→4.6), and situational awareness (3.1→4.4) (all $p < 0.05$). Participants demonstrated faster decision-making, clearer task delegation, and improved team coordination during simulated crises. GAS debriefing facilitated reflection and identification of command blind spots. **Conclusion:** Hybrid case-based and simulation training enhanced nurse team leaders' disaster readiness by strengthening decision-making, situational awareness, and team coordination. Incorporating structured debriefing into leadership development programmes may improve hospital preparedness for high-acuity and surge events.

Keywords: Disaster preparedness; emergency response; nurse leadership; simulation training

Enhancing Disaster Preparedness of Emergency Nurses in Regional Hospitals via Mass Casualty Exercises

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ABSTRACT

Introduction: Emergency hospitals are the core infrastructure for medical response to large-scale disasters. Emergency nurses must demonstrate exceptional triage and life-saving capabilities under extreme pressure. However, sudden mass casualty incidents often present significant logistical and psychological challenges. This study evaluates the impact of structured mass casualty exercises on the clinical preparedness and response efficiency of emergency nursing staff within a high-acuity setting. **Materials and methods:** A retrospective observational study was conducted during a simulated multi-vehicle collision involving 26 Emergency Department nurses. Assessment tools included structured performance checklists and post-exercise debriefing sessions. Key performance indicators focused on triage accuracy, the speed of initial patient stabilisation, and the effectiveness of interprofessional communication during the simulation. **Results:** The exercise significantly enhanced operational readiness among the twenty-six participants. Triage accuracy reached 92%, representing twenty-four nurses who judged correctly, which marked a substantial improvement over pre-exercise benchmarks. The average time required for initial assessment and patient stabilisation was reduced by 15%. Qualitative feedback from debriefing sessions indicated a significant increase in self-reported confidence when managing surge capacity and a clearer understanding of resource allocation protocols. **Conclusion:** Mass casualty exercises are an indispensable component of disaster management for emergency nurses. By bridging the gap between theoretical knowledge and practical application, these simulations ensure personnel maintain peak performance during high-impact events. It is recommended that such simulations be integrated into regular professional development programmes to sustain critical disaster response resilience.

Keywords: Clinical competence; disaster preparedness; emergency nursing; mass casualty exercise

Perceived Difficulties and Support Needs of Disaster Nursing Educators in Japan

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ABSTRACT

Introduction: Japan experiences diverse natural disasters, and disaster nursing education has become increasingly important in nursing education. Various perceived difficulties among disaster nursing educators have been reported both in Japan and worldwide. However, factors associated with perceived difficulties and educators' support needs remain unclear. This study aimed to examine perceived difficulties among disaster nursing educators in Japan and to analyse factors associated with perceived difficulties and support needs. **Materials and methods:** A cross-sectional survey was conducted among lead educators responsible for disaster nursing-related courses at 299 Japanese nursing universities. Data were analysed using descriptive statistics and Fisher's exact test. Associations between perceived difficulties and educator characteristics were analysed after dichotomising educator characteristics into two groups where appropriate. **Results:** Valid responses from 59 educators were analysed (valid response rate: 19.7%). Overall, 78.0% of educators reported perceived difficulties. The most common difficulty was designing realistic disaster scenarios. Perceived difficulties were multifactorial and included curriculum-related, instructional design, individual, organisational, and system-wide disaster nursing education factors. Several educator characteristics, including teaching experience, nursing professional experience, and severe disaster experience, showed significant associations with perceived difficulties and support needs. **Conclusion:** Perceived difficulties in disaster nursing education cannot be explained solely by lack of experience. Severe disaster experience may deepen educators' awareness of the realities, complexity, and challenges of disaster nursing practice, potentially contributing to greater perceived educational difficulties. Because perceived difficulties were multifactorial and varied in nature, generalised support alone may be insufficient. Structured and tailored educational support systems are therefore needed according to the type of perceived difficulty.

Keywords: Disaster nursing; nursing educators; perceived difficulties; pre-licensure nursing education; support needs

Disaster Preparedness Education in Pre-Registration Nursing across Three Countries (United Kingdom, Ghana, Japan)

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ABSTRACT

Introduction: Disaster preparedness is an essential component of nursing practice, yet expectations for pre-registration education vary internationally. Professional regulators and global frameworks highlight the importance of preparing future nurses to respond to emergencies and crises. However, there is limited clarity regarding how consistently disaster preparedness is embedded within nursing curricula. This study explores current expectations and experiences of disaster preparedness education across three countries, with a particular focus on regulatory requirements and curriculum implementation. **Materials and methods:** A comparative qualitative study was undertaken, involving analysis of professional regulatory standards and curriculum expectations within three national contexts. Case study examples from each country were included to illustrate how disaster preparedness is interpreted and delivered within pre-registration nursing programmes. **Results:** Findings indicate variability in both regulatory expectations and curriculum delivery. While disaster preparedness is recognised within professional standards, its integration into nursing education is inconsistent. In some contexts, content is limited or embedded within broader topics rather than delivered as dedicated training. Case studies highlight differing approaches, with some programmes offering structured preparation and others providing minimal exposure. Emerging areas such as community resilience and human-centred approaches are not consistently included. **Conclusion:** Disaster preparedness education for pre-registration nursing students lacks consistency across countries and institutions. There is a need for clearer expectations, enhanced curriculum guidance, and further research to determine effective approaches. Strengthening this area is essential to ensure future nurses are equipped to respond to increasingly complex global health challenges.

Keywords: Curriculum; disaster preparedness; global health; nursing education; professional regulation

The Logical Structure of Students' Considerations: Learning from the Disaster Citizen Science Programme

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ABSTRACT

Introduction: In 2022, we developed a citizen science-education programme aimed at disaster preparedness. In this programme, students gather citizens' experiences and perspectives on disaster preparedness through community walks and share them as audio programmes. **Purpose:** This study aims to clarify the logical structure of students' considerations by analysing essays from 2024–2025 course participants to obtain insights into learning effects and educational improvement. **Materials and methods:** Essays from 10 consenting students were analysed using the qualitative synthesis method (KJ method). **Results:** Participants were first- and second-year nursing, horticultural, and engineering students. Six symbolic themes were identified: (i) disaster preparedness through industry–government–academia–citizen collaboration; (ii) increasing citizens' interest and improving information dissemination; (iii) mutually supportive communities built through sharing disaster histories and countermeasures; (iv) human resource development through compulsory disaster education in high schools and universities; (v) students' role as bridges between citizens and government; and (vi) fostering self-help and mutual aid beyond disasters through citizen–student–government interaction. Students regarded Theme 1 as important and Themes 2 and 4 as challenges. They interpreted Themes 3 and 5 as ways to address these challenges and contribute to Theme 6. They considered Themes 1 and 6 as mutually reinforcing. **Conclusion:** Students recognised local disaster-preparedness issues through dialogue with local citizens and identified their bridging role. Compared with the previous study, which included more upper-year students, their considerations focused more on disaster interests, information disparities, and bridging roles than on professional expertise. Future courses should consider diverse team composition and interdisciplinary faculty support.

Keywords: Disaster citizen science; disaster preparedness community walk; university students

How Disaster Experience Becomes Managerial Competence: A Qualitative Study of Nurse Managers

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ABSTRACT

Nurse managers play a pivotal role in sustaining healthcare systems during disasters; however, how disaster experience is transformed into managerial competence over time remains insufficiently understood. The purpose of this study was to explore the long-term processes through which disaster experience is meaningfully interpreted and consolidated into managerial competence among nurse managers. A qualitative descriptive design was employed. Semi-structured interviews were conducted with nurse managers who held managerial roles during the 2016 Kumamoto Earthquake in Japan. Interviews focused on disaster-related decision-making, coordination, emotional challenges, and subsequent reflection. Data were analysed inductively to generate categories grounded in participants' narratives, followed by an interpretive phase using the International Council of Nurses Disaster Nursing Core Competencies 2.0 as a sensitising framework. Preliminary results indicate that nurse managers made critical decisions under extreme uncertainty and carried substantial emotional responsibility during the acute response. Over time, participants engaged in reflective reframing of their experiences through sensemaking, reinterpreting challenges and integrating lessons learned into everyday managerial practice. This longitudinal reflective process contributed to the consolidation of managerial competence, rather than competence being formed solely during the disaster itself. The findings highlight the importance of reflective and experience-based learning in disaster nursing leadership and provide insights for strengthening education and management development programmes.

Keywords: Managerial competence; nurse managers; qualitative research; reflective learning

Elucidating Sustainable Disaster Countermeasure Systems in Hospitals Through Interview Surveys

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ABSTRACT

Introduction: Given the predicted large-scale earthquake in Japan, identifying effective disaste countermeasures for hospitals is imperative. However, practical information remains limited, and disparities in preparedness among hospitals have been highlighted. Therefore, establishing strategies to strengthen and sustain hospital disaster preparedness is urgently needed. **Purpose:** This study aimed to clarify the organisational systems necessary for hospitals to continuously and sustainably strengthen their disaster countermeasures. **Materials and methods:** Semi-structured interviews were conducted, and data were analysed using a qualitative descriptive approach. Participants included 17 practitioners involved in disaster countermeasures at medical facilities, selected across various occupations and ages. The interviews covered five areas: participant demographics, disaster countermeasure content, organisational environment, challenges and improvements, and other relevant matters. Interviews were transcribed verbatim, and segments regarding disaster countermeasures were coded as individual units of analysis. Codes were extracted, compared for similarities, and categorised into themes. This study was conducted with the approval of the ethics review committee at the participating institution. **Results and conclusion:** The 17 participants comprised five physicians, six nurses and six logisticians (radiologic technologists, pharmacists, clinical laboratory technologists, and administrative staff), with an average of 14.6 years (range: 7–25 years) of experience in disaster preparedness. Key elements emerged as essential components for hospital disaster countermeasure: clearly designating and empowering disaster preparedness personnel within the organisation; managing human and material resources effectively; providing continuous education and training while maintaining the work environment; and fostering external collaboration. These components are essential for maintaining a resilient and sustainable disaster response system.

Keywords: Disaster countermeasures system; hospitals; interview survey; Japan; preparedness

Staff Surge Capacity in Government Primary Healthcare Centres during Natural Hazard-Related Disasters in Indonesia

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ABSTRACT

Introduction: During natural hazard disasters, primary healthcare centres must meet increased disaster-related health needs while maintaining routine services, often with reduced staffing. **Background and purpose:** Surge-capacity research has largely focused on hospitals, leaving limited understanding of how these centres manage competing workforce demands. This study explored primary healthcare centre personnel's experiences of disasters, relating to staff surge capacity. **Materials and methods:** This research used a descriptive qualitative design. Clinical and non-clinical personnel were recruited as participants through purposive and snowball sampling from government primary healthcare centres in West Java and the Special Region of Yogyakarta. Data were collected from semi-structured interviews. Data were analysed using Braun and Clarke's reflexive thematic analysis, combining inductive coding with deductive organisation guided by staff, sponsorship, suitability, security, and supply. **Results:** A total of 25 primary healthcare centre personnel participated in this research. Four themes emerged: mobilising the initial workforce; organising staff, roles, and service coverage; coordinating external support to expand capacity; and sustaining coverage and workforce wellbeing. These strategies were enabled or constrained by leadership and coordination, skill and role fit, safe access and staff protection, and personnel availability, reinforcement, and reliability. **Conclusion:** The findings extend surge-capacity knowledge by showing that staff surge capacity in primary healthcare centres relied on local mobilisation and distribution of personnel across health posts and wider service areas while maintaining routine services. Effective response depended on organising available personnel into suitable, safe, and sustainable capacity across sites and functions.

Keywords: Disaster response; health workforce; natural hazards; primary healthcare; surge capacity

Integrated Nursing Care in Disaster Medical Response: Lessons from a Flood Disaster

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ABSTRACT

Background and purpose: Disaster emergency response requires rapidly mobilising resources to save lives. On 23 September 2025, Typhoon Ragasa flooding isolated local health services. On 24 September, our medical team deployed to establish a frontline station. This article explores how nurses, under resource constraints, developed a cross-disciplinary network to address immense acute and chronic healthcare demands. **Materials and methods:** A retrospective analysis reviewed station data (24 September to 11 October 2025). A cross-disciplinary network was established. Nurses directed three core practices: (i) dynamic triage; (ii) coordination of integrated emergency care; and (iii) a continuous medication dispensing mechanism. **Results:** Managing 4,600 visits over 18 days, the primary needs were internal medicine (2,119 patients, 46.1%), acute trauma (1,861 patients, 40.5%), and traditional Chinese medicine (516 patients, 11.2%). Paediatrics (58 patients, 1.3%), psychiatry (46 patients, 1.0%), and 61 remote consultations managed the remainder. Interventions yielded significant outcomes: (i) dynamic triage identified 34 patients requiring interfacility transfer (0.74%), while 99.2% were effectively managed locally; (ii) 516 traditional Chinese medicine referrals alleviated musculoskeletal pain among frontline personnel, enhancing emergency response capacity; and (iii) 664 medication deliveries using paper verification reported zero errors, preventing acute exacerbations of chronic diseases. **Conclusion:** Disaster response encompasses acute trauma care and significant chronic disease management. Nurses played a central role leading dynamic triage, promoting integrative care, and implementing medication safety systems to minimise errors. These coordinated interventions enabled 99.2% of patients to be managed locally. This multidisciplinary model serves as a valuable framework, enhancing overall system efficiency and resilience.

Keywords: Disaster nursing; dynamic triage; emergency response; integrated care; nursing practice

Impact of Climate-Related Flood Disasters on Emergency Department Utilisation: A Disaster Nursing Experience from a Rural Hospital in Taiwan

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ABSTRACT

Introduction: As climate change intensifies, natural disasters have become major global public health challenges. Flood disasters damage infrastructure, disrupt transportation and rapidly increase healthcare demands, testing hospital surge capacity and nursing response capability. **Background and purpose:** In November 2025, Typhoon Phoenix caused severe flooding and transportation disruption in Suao Township, Yilan County, Taiwan, with a cumulative daily rainfall of 648 mm. This study investigated the impact of this climate-related flood disaster on Emergency Department (ED) utilisation and nursing response in a rural hospital. **Materials and methods:** A retrospective observational study was conducted. **Results:** During the disaster period, ED visits increased by 62.5%, with greater demand related to exacerbation of chronic diseases, infections and trauma. Approximately 70% of patients were triaged as level 3, indicating mostly moderate-acuity conditions. Most patients sought care on the following day, reflecting delayed access due to transportation disruption. Nurses were required to demonstrate proficiency in triage, emergency care and trauma management. Effective resource allocation, psychological support interventions and coordination with government agencies enhanced healthcare quality and response efficiency. Ongoing disaster education and training, specialised nursing teams, comprehensive emergency response plans and psychological support systems further improved disaster nursing capacity. **Conclusion:** Typhoon-induced flooding significantly increased the emergency healthcare burden in this rural region. Nurses equipped with disaster preparedness, rapid response and recovery competencies can reduce disaster-related impacts and mortality risks while supporting community recovery.

Keywords: Disaster nursing; Emergency Department; flood disaster; typhoon

Clarifying Mid- to Long-Term Nursing Activities Practised in the Aftermath of the 2024 Noto Peninsula Earthquake

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ABSTRACT

Introduction: Following the 2024 Noto Peninsula Earthquake, the Japan Society of Disaster Nursing (JSDN) initiated support operations the day after the disaster and sustained its activities in City A for 17 months. While on-site conditions shifted dynamically from acute-phase emergency response to mid- to long-term recovery, documentation of nursing activities adapted to these changing phases remains limited. Visualising continuous nursing practices in disaster-affected areas can provide crucial insights for advancing disaster nursing. **Purpose:** This study aimed to clarify, in chronological order, the nursing activities practised by the JSDN during this disaster. **Materials and methods:** A qualitative research design was adopted to inductively generate themes. Data were extracted from JSDN official activity reports published between January 1, 2024, and June 30, 2025. Sentences describing distinct nursing actions were coded, organised by implementation month, and categorised into themes based on semantic similarities. This study was approved by the research ethics committee of the relevant academic society. **Results and conclusion:** A total of 113 themes were identified across the 18-month period. These themes were classified into four overarching categories: medical and nursing care (58 themes), environmental management (29 themes), coordination (20 themes), and support systems (6 themes). Overall, nursing activities were most diverse during the acute phase. Across all phases, medical and nursing care activities were the most extensive, followed by environmental management and coordination.

Keywords: 2024 Noto Peninsula Earthquake; Japan Society of Disaster Nursing; mid- to long-term; nursing activities; qualitative research

Research for the Revision of the Evacuation Shelter Health Management Guidelines in Japan

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ABSTRACT

Introduction: Driven by climate change, worsening natural disasters require effective initiatives in Japan to minimise secondary health damage and disaster-related deaths in post-disaster living settings. This study aims to formulate evidence-based, practical revision proposals for national health guidelines, enabling local governments to enhance emergency preparedness. **Materials and methods:** From April 2025 to March 2026, a multidisciplinary task force consisting of six specialised subcommittees conducted literature and case reviews on health and frameworks during domestic and international disasters, including a three-country comparison and summer heatstroke countermeasures. Empirical data from the Japan Surveillance in Post-Extreme Emergencies and Disasters (J-SPEED) were analysed to track health trends. Furthermore, a questionnaire survey was distributed to local governments nationwide, receiving 82 responses, supplemented by key-informant hearings in areas affected by the 2024 Noto Peninsula Earthquake. **Results:** To go beyond traditional physical environments, this study proposes shifting the guidelines' paradigm from "shelter life" to a broader "disaster-affected lifestyle", integrating a "self-care" perspective to empower affected populations. Municipal data identified key health priorities: mental health (63.2%), infectious diseases (55.9%), and exacerbated chronic illnesses (51.5%). Evidence underscored the adverse impacts of carbohydrate-heavy diets on cardiovascular health, thermal environments and ventilation on sleep

quality, and the vital need for Child-Friendly Spaces. The resulting four-chapter framework facilitates rapid responder prioritisation. **Conclusion:** This research advocates for a fundamental paradigm shift from site-specific shelter management to individual-centred life support and self-care advocacy, potentially bolstering community disaster resilience through peacetime dissemination. Continuous reviews are required to further refine these strategies.

Keywords: Disaster resilience; healthy post-disaster living; Japan; public health

Thermoregulation Support for Children with Medical Complexity: Family Caregivers' Support Practices and Disaster Implications

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ABSTRACT

Introduction: Children with medical complexity are vulnerable to environmental temperature changes and extreme heat, facing increased health risks during disasters. Family caregivers play a central role in thermoregulation support at home; however, related difficulties and the children's support needs have been insufficiently clarified. **Background and purpose:** These children may experience difficulties in thermoregulation during disasters and in extreme thermal environments, thus increasing the burden on caregivers. This study aimed to clarify thermoregulation support practices provided by family caregivers and identify health-management challenges and needs during disasters. **Materials and methods:** This quantitative descriptive study targeted family caregivers primarily caring for children with medical complexity. Data were collected using a web-based questionnaire and analysed via descriptive statistics and chi-squared tests. Ethics approval was obtained from the Toyama Prefectural University Ethics Committee (R5-31). **Results:** Data from 63 caregivers (17 females and 46 males) were analysed. Summer was reported as the most difficult season for thermoregulation (58.7%). The summer group included significantly more children with epileptic seizures ($p = 0.003$) and children able to roll over ($p = 0.001$). Many caregivers relied on non-verbal signs to assess the children's condition. **Conclusion:** Family caregivers experienced the greatest difficulty throughout summer, suggesting increased risks during heat-related disasters. Objective monitoring devices and support systems are thus needed for safe temperature management during disasters. These findings highlight the importance of disaster preparedness that considers the thermoregulation needs of children with medical complexity. They also have vital implications for the potential to minimise risks faced by these children.

Keywords: Children with medical complexity; family caregivers; heat risk; thermoregulation

The Team Formation Process of a Mother-Led Disaster Preparedness Project: An Action Research Approach

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ABSTRACT

Introduction: A coastal city in western Japan is expected to experience severe damage from a Nankai Trough earthquake; however, maternal and child disaster preparedness remains insufficient. **Background and purpose:** Peer-led networks could facilitate behavioural change, yet their team formation processes remain unclear. This study aimed to clarify how a project team of mothers develops into disaster preparedness supporters. **Materials and methods:** This action research involved 11 mothers from a parenting network in City A. The project aimed to develop peer supporters for disaster preparedness and was guided by the Theory of Planned Behaviour and andragogy. Through self-directed learning sessions, participants acquired self-help and mutual-aid skills and developed solutions to preparedness challenges. Data from semi-structured interviews at three time points and participant observation were analysed to identify turning points in the team formation process. **Results:** An eight-month intervention revealed an eight-stage team formation process: (i) Motivation to overcome declining disaster preparedness and become supporters; (ii) Increased disaster awareness and reliance on experts; (iii) A shift toward self-directed learning; (iv) Intention to act on disaster preparedness and orientation toward the supporter role; (v) An agentic shift from knowledge acquisition to practical application; (vi) Differences in enthusiasm during skill acquisition, (vii) Strengthening team relationships and generating creative ideas through casual conversation, and (viii) Enhanced self-help skills and supporter self-efficacy through practice, accompanied by negative emotions. **Conclusion:** To promote team formation, facilitators should encourage autonomous learning and provide opportunities for dialogue and collaborative learning, while addressing the emotional complexities of the supporter role.

Keywords: Action research; disaster preparedness; mothers

Thermoregulation by Family Caregivers of Children with Medical Complexity: Daily Challenges and Disaster Implications

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ABSTRACT

Introduction: Children with medical complexity (CMC) living at home are highly vulnerable to temperature fluctuations. Family caregivers play a central role in maintaining their children's body temperature. However, their decision-making criteria, practical methods, and daily challenges remain poorly understood. Understanding these daily experiences can provide insights into potential difficulties faced during disasters. **Background and purpose:** This study aimed to clarify how family caregivers manage the thermoregulation of CMC in everyday life and to identify the challenges they face, with implications for improving disaster preparedness. **Materials and methods:** A qualitative descriptive study was conducted with eight primary family caregivers in Prefecture A between March 2023 and March 2024. Semi-structured interviews addressed six themes related to caregiving and environmental conditions. Verbatim transcripts were analysed using qualitative descriptive methods with inductive categorisation. Ethical approval was obtained from the Ethics Review Board of Toyama Prefectural University (R5-1). **Results:** Three main themes emerged: judgement criteria, specific methods, and difficulties. Judgement criteria combined objective measures with subjective observations and experience-based predictions. Specific methods included environmental adjustments using hygrometers, prompt physical care in response to temperature changes, and preparation for outings. Difficulties included unstable body temperature, environmental and equipment limitations, and the mental and physical burdens of continuous monitoring. These everyday challenges suggest that disasters may amplify the difficulties facing caregivers. **Conclusion:** Family caregivers rely on multifaceted, experience-based knowledge for thermoregulation, which increases health risks for CMC and caregiver burden. Supporting subjective decision-making, promoting multidisciplinary collaboration, and providing equipment and respite care can enhance daily care and disaster preparedness.

Keywords: Children with medical complexity; family caregivers; heat risk; thermoregulation

Toe Grip Strength and Bone Density in Secondary Disaster Prevention among Community Residents

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ABSTRACT

Introduction: Falls and fractures during evacuation, combined with shelter-inactivity-induced reduction in muscle strength and bone density, can negatively affect long-term functional ability after disasters. In this study, we examined the association of toe grip strength with fall risk and fracture-risk-associated bone density among community residents participating in disaster-prevention programmes, and explored age- and sex-related characteristics and risks during evacuation. **Materials and methods:** This cross-sectional study received ethical approval and enrolled 82 community residents who participated in a city-sponsored disaster-prevention awareness programme and voluntarily underwent health measurements, including age, sex, blood pressure, toe grip strength, and quantitative ultrasound-assessed calcaneal bone density (trabecular bone area ratio), with different sample sizes for each. Descriptive analyses of age- and sex-specific associations were performed. **Results:** Participants, mainly in their 60s and 80s, were 37 men and 45 women, with mean (standard deviation) toe grip strength of 11.5 (6.2) and 9.8 (4.7) kg and mean trabecular bone area ratio of 26.5% and 26.4%, respectively. A moderate positive association was observed between toe grip strength and trabecular bone area ratio in men ($R^2 = 0.296$), but not in women ($R^2 = 0.02$). **Conclusion:** The positive association between toe grip strength and trabecular bone area ratio in men suggests potential sex differences in the relationship between physical function and bone density. Therefore, toe grip strength potentially constitutes a useful indicator for assessing the risk of falls and fractures during evacuation.

Keywords: Bone density; community health; secondary disaster prevention; toe grip strength

Exploring Women's Role in Cultural Care and Mutual Support during Flood Disaster in Kuantan, Pahang

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ABSTRACT

Introduction: Although flood disasters are common in Malaysia, women's contributions through cultural care, caregiving, and mutual support remain underrecognised, highlighting the need for more inclusive and culturally responsive disaster management. **Materials and methods:** A qualitative descriptive study was conducted among 17 women in Sungai Isap, Kuantan, using purposive sampling. Data were collected through focus group discussions and semi-structured interviews, analysed using thematic analysis, and methodological rigour was maintained through member checking, reflexivity, audit trails, and supervisor review. **Results:** Six major themes emerged from the analysis: (i) Immediate Flood Response and Household Protection; (ii) Faith-Based Coping and Spiritual Resilience; (iii) Women's Community Coordination and Mutual Support; (iv) Cultural Norms, Gender Roles and Caregiving Barriers; (v) Adaptive Resilience and Personal Growth; and (vi) Gaps in Disaster Response and Women's Needs. Participants demonstrated cultural care, mutual support, faith-based coping, and adaptive preparedness despite persistent gender-specific needs and limited representation in disaster decision-making. **Discussion:** Women's caregiving extended beyond household responsibilities through cultural care, informal leadership, and mutual support, strengthening community resilience and disaster preparedness. However, their contributions and gender-specific needs remain insufficiently recognised in current disaster management policies. **Conclusion:** Integrating women's experiences and caregiving roles into disaster management can strengthen community resilience and support inclusive disaster preparedness.

Keywords: Community resilience; cultural care; flood disaster; mutual support; women

Developing a Community-Based Disaster Preparedness Education Toolkit for Women Volunteers in Flood-Prone Areas of Kuantan, Pahang

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ABSTRACT

Introduction: Floods are among the most frequent natural disasters in Malaysia, particularly in flood-prone areas such as Sungai Isap, Kuantan, Pahang. Women play an important role in household preparedness and community response; however, gender-sensitive disaster preparedness education resources remain limited. This study aimed to develop a Community-Based Disaster Preparedness Education Toolkit for women volunteers in Sungai Isap through Participatory Action Research (PAR), exploring their current preparedness, preferred toolkit content and features, and participation in its co-development. **Materials and methods:** A qualitative PAR design was employed. Eleven women with previous flood experience and involvement in community or volunteer activities were purposively recruited. Data were collected through seven semi-structured individual interviews and one focus group discussion with four participants, transcribed verbatim and analysed thematically. **Results:** Three themes emerged: (i) flood preparedness knowledge, experience and self-readiness; (ii) essential components of a community-based toolkit for women; and (iii) co-development of the toolkit through women's participation. **Discussion:** Previous flood experiences strengthened participants' preparedness. They emphasised the need for practical knowledge, first aid skills, psychosocial support, household safety measures and women-specific health information, and recommended a concise, user-friendly, checklist-based, waterproof and culturally appropriate toolkit. Participants were strongly willing to contribute to its design, review and refinement. **Conclusion:** Involving women volunteers in co-developing disaster preparedness resources enhances their relevance, usability and cultural appropriateness. The toolkit may strengthen community resilience, support community health nursing practice and inform gender-sensitive disaster preparedness programmes in Malaysia.

Keywords: Community resilience; Community-Based Disaster Preparedness; disaster preparedness; education toolkit; flood; Participatory Action Research; women volunteers

Association between Personal Growth and COVID-19 Response Support among Infection Control Nurses in Disaster Contexts

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ABSTRACT

Introduction: During the COVID-19 pandemic in Japan, which was a public health emergency requiring disaster-level response, certified nurses in infection control were urgently deployed to long-term care facilities reporting infection outbreaks. This study proposes that such emergency response experiences may foster these nurses' proactive personal growth. **Background and purpose:** This study aimed to examine the association between outbreak response support in long-term care facilities and personal growth initiative among certified nurses in infection control. **Materials and methods:** A cross-sectional online survey in Japan of 1,700 certified nurses in infection control gathered data on nurses' demographic information, experience and content of outbreak response support, and scores on the Personal Growth Initiative Scale-II. Differences in these scores between nurses who had outbreak response experience and those who did not were analysed using an independent-samples t-test. **Results:** Of the 335 valid responses (response rate: 19.7%), 252 nurses had outbreak response experience (mean experience: 10.5 years). The average number of facilities supported per nurse was 10.7 (range: 1-90). Over 90% were involved in assessing infection status, zoning, proper use of personal protective equipment, and care revision. The mean score on the Personal Growth Initiative Scale-II (maximum 96, 63.7±11.5 vs. 59.8±13.6, $p = 0.038$), Planfulness ($p = 0.041$) and "Readiness for Change" ($p = 0.042$) were significantly higher in the experienced group. **Conclusion:** Outbreak response support by nurses was associated with higher personal growth initiative, suggesting that disaster-like infection control deployments may strengthen adaptive capacity and proactive competencies in emergency response.

Keywords: COVID-19 pandemic; infection control nursing; infection prevention; long-term care facilities; Personal Growth Initiative Scale-II (PGIS-II)

Psychometric Testing of the Chinese Version of the Individual Disaster Resilience Scale

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ABSTRACT

Background: With the increasing frequency of global disasters, enhancing individual adaptive capacity is critical. Currently, Taiwan lacks standardised instruments to evaluate public resilience, necessitating the development of a validated tool for nursing practice. **Purpose:** This study aims to develop a Chinese version of the Personal Disaster Resilience Scale (PDRS) based on international frameworks and to evaluate its reliability and validity. **Materials and methods:** A cross-sectional design was employed. Initially, two experts translated the original PDRS into Chinese, followed by a back-translation into English by a third expert to ensure conceptual equivalence. Content validity was established via the Delphi method involving five experts, followed by a pilot test with 20 participants. Statistical analysis was performed using SPSS 23.0, utilising frequency distributions, percentages, content validity index, and Cronbach's α for psychometric testing. **Results:** The final Chinese PDRS comprises 24 items across eight dimensions (3 items each): understanding disasters and their impacts, disaster response knowledge, financial preparedness, stockpiling essentials, independent decision-making during evacuation, adaptability to post-disaster changes, participation in local reconstruction, and disaster communication with family and neighbours. The scale demonstrated excellent internal consistency with an overall Cronbach's α of 0.945 and a KMO value of 0.910. **Nursing Applications:** This tool provides significant clinical utility across three phases: (i) Pre-disaster: screening high-risk individuals and guiding resilience education; (ii) During disaster: facilitating rapid psychological assessments; and (iii) Post-disaster: tracking recovery and evaluating life reconstruction efficacy. Ultimately, the Chinese PDRS serves as a robust instrument for enhancing individual disaster resilience within nursing practice.

Keywords: Disaster nursing; Personal Disaster Resilience Scale; psychological resilience; psychometric testing

Determinants of Generative Artificial Intelligence Acceptance among Emergency and Disaster Health Care Workers

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ABSTRACT

Introduction: Generative artificial intelligence is rapidly emerging as a decision-support tool in health care, with applications in triage, clinical reasoning, and patient communication. In high-risk settings such as emergency departments, intensive care units, trauma centres, and disaster response, frontline physicians, nurses, and emergency medical technicians increasingly interact with these technologies under time-sensitive conditions requiring patient safety and professional accountability. **Background and purpose:** This study examined generative artificial intelligence acceptance among emergency, critical care, and disaster health care workers and identified determinants of behavioural intention and word-of-mouth intention. **Materials and methods:** A cross-sectional online survey was conducted with South Korean physicians, nurses, and emergency medical technicians. Ten constructs based on the Technology Acceptance Model and the Theory of Planned Behaviour were analysed using analysis of variance, regression, and bootstrapping mediation. **Results:** Acceptance was generally favourable, with no significant inter-professional differences except for perceived behavioural control, which was lowest among nurses. Trust was the strongest predictor of word-of-mouth intention, followed by attitude and perceived usefulness. Behavioural intention fully mediated the pathway from perceived ease of use to word-of-mouth intention and partially mediated the effects of perceived usefulness, attitude, and trust. **Conclusion:** Generative artificial intelligence acceptance is shaped by trust, attitudes, and behavioural intention rather than by technical convenience alone. Lower perceived behavioural control among nurses suggests organisational constraints. Findings underscore trust-building, ethical alignment, and profession-inclusive implementation for safe integration of generative artificial intelligence in emergency and disaster nursing practice.

Keywords: Disaster nursing; generative artificial intelligence; health care workers; trust