HEALTHCARE WORKERS' LIVED EXPERIENCES IN RESPONDING TO FLOOD-AFFECTED COMMUNITIES: A DESCRIPTIVE PHENOMENOLOGICAL STUDY

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Abstract

Flooding is among the most frequent hydrometeorological disasters in Indonesia. Healthcare workers serve on the front lines of emergency response, yet limited attention has been given to how they live through and make sense of this work. This study aimed to describe the lived experiences of Public Safety Center healthcare workers responding to flood-affected communities in Bantaeng Regency, Indonesia. A qualitative design grounded in descriptive phenomenology was used. Ten Public Safety Center healthcare workers with flood-response experience and at least three years of work experience were recruited through purposive sampling. Data were collected through in-depth, semi-structured interviews and analyzed using thematic analysis grounded in descriptive phenomenology. Four themes captured the shared structure of participants' experiences: (1) entering an unpredictable disaster environment, with preparedness shaped by experience; (2) striving to provide care amid restricted access and limited resources; (3) sustaining professional commitment through spirituality and team solidarity; and (4) transforming difficult field experiences into expectations for a more responsive system. Participants experienced flood response as an ongoing effort to fulfill professional and humanitarian responsibilities despite rapidly changing conditions and operational constraints. Clinical preparation, experience, interagency coordination, spirituality, and solidarity enabled them to sustain care. These experiences also shaped expectations for stronger logistics, coordination, workforce capacity, and community preparedness. Disaster-response systems should support not only technical preparedness but also psychological well-being, team relationships, and safe, responsive care in resource-constrained settings.

Keywords: Disaster Response; Flood; Healthcare Workers; Lived Experience; Psychospiritual Adaptation

1. INTRODUCTION

Disasters pose significant threats to public health by causing fatalities, injuries, displacement, environmental damage, and disruptions to essential services. Floods are among the most frequent natural hazards worldwide and can have both immediate and long-term consequences for affected communities and healthcare systems. In 2023, 164 flood events were recorded globally, resulting in more than 7,700 deaths and affecting approximately 32 million people [1]. These figures demonstrate the substantial public health burden associated with flooding and the need for effective emergency preparedness and response systems..Indonesia, a tropical archipelagic country, is highly vulnerable to natural hazards, particularly hydrometeorological events. In 2021, floods were the most frequently recorded disaster type in the country [2].

Indonesia is particularly vulnerable to natural hazards because of its geographical and climatic characteristics. According to the National Disaster Management Agency [3], Indonesia recorded 5,402 disaster events in 2021, including 1,794 floods, making flooding the most frequently recorded disaster

type that year. These events resulted in substantial human and infrastructure losses, with millions of people affected or displaced [2]. Flood-related health consequences extend beyond injuries and immediate emergency conditions. Contaminated water, inadequate sanitation, overcrowding in temporary shelters, and disruptions to routine healthcare may increase the risk of infectious diseases and interrupt the management of chronic conditions. Flooding can also damage healthcare infrastructure, disrupt electricity and water supplies, obstruct transportation routes, and restrict access to medical services [1].

Floods may also disrupt access to healthcare, damage infrastructure, and complicate the delivery of timely and appropriate care. Therefore, flood response requires not only emergency clinical interventions but also the capacity to maintain continuity of care under rapidly changing and resource-constrained conditions.Bantaeng Regency in South Sulawesi is vulnerable to flooding. Regional disaster records indicate that floods have repeatedly affected the regency, prompting emergency responses [4]. In this context, Public Safety Center 119 operates within Indonesia's integrated emergency-management system, coordinating emergency reports, medical response, evacuation, and referrals to appropriate health facilities [5].

Nurses and other healthcare workers play essential roles across preparedness, response, and recovery. Their responsibilities require clinical competence, psychological readiness, communication, adaptability, and disaster-specific knowledge and skills [6;7]. In practice, inadequate preparedness, limited disaster education, role uncertainty, and resource constraints may hinder safe and effective response [6].

Providing healthcare during a flood is both an operational responsibility and a lived human experience. Healthcare workers may make rapid decisions, work beyond their usual roles, face personal safety risks, and continue providing care despite limited control over their environment. Their experiences may include uncertainty, physical and emotional strain, professional responsibility, team solidarity, and reliance on personal or spiritual values.

Previous studies have largely focused on preparedness, knowledge, competencies, training, and organizational readiness. Community health nurse coordinators in South Sulawesi were reported to have moderate preparedness and ongoing learning needs [8]. Disaster preparedness has also been linked to work experience, workplace preparedness, training, and prior disaster-response experience [9]. These findings are important, but competency-focused evidence may not fully illuminate how frontline personnel experience and interpret flood response.

Descriptive phenomenology focuses on describing a phenomenon as it is lived and experienced while remaining open to the meanings expressed in participants' accounts. Rather than examining flood response solely as clinical activities or procedures, this approach can illuminate shared meanings and the structure of healthcare workers' experiences [10].

Bantaeng Regency in South Sulawesi, Indonesia, has experienced recurrent flooding, although the annual number of recorded events has varied. Data reported in the South Sulawesi Provincial Government's disaster records indicate that five flood events occurred in Bantaeng Regency in 2021, affecting approximately 5,000 people and 2,423 facilities or infrastructure units. The number of recorded flood events subsequently decreased to one in 2022, with no flood events recorded in 2023, before increasing to three events in 2024 [11]. These fluctuations highlight the importance of maintaining emergency-response capacity even when flood occurrence decreases in a particular year. For healthcare workers, flood emergencies may require rapid mobilization, coordination across agencies, adaptation to changing environmental conditions, and the delivery of care to affected communities. Understanding how healthcare workers experience and respond to these demands is therefore important for strengthening local emergency preparedness and response.

Limited attention has been paid to the lived experiences of Public Safety Center personnel who provide frontline flood-emergency services in Indonesia. Understanding how personnel navigate responsibility, uncertainty, resource constraints, relationships, and personal meaning can inform systems that address both operational preparedness and the psychological, relational, and professional needs of responders. Therefore, this study aimed to describe the lived experiences of Public Safety Center healthcare workers responding to flood-affected communities in Bantaeng Regency, Indonesia.

2. METHODOLOGY

This study employed a qualitative design grounded in descriptive phenomenology. The phenomenon of interest was the lived experience of Public Safety Center healthcare workers delivering emergency services to flood-affected communities. Descriptive phenomenology was chosen to illuminate the meanings embedded in participants' accounts while maintaining openness to the phenomenon [10]. A local qualitative research guide served as a supplementary source [12]. Reflective notes were used throughout the analysis to examine how prior assumptions could influence interpretation.

The study was conducted from March to May 2025 at the Public Safety Center in Bantaeng Regency, South Sulawesi, Indonesia. The center was selected because it is a frontline emergency unit with experience responding to floods. Participants were recruited through purposive sampling. Eligible participants were Public Safety Center healthcare workers who were willing to complete the interview process, held Basic Trauma and Cardiac Life Support certification, had at least three years of work experience, and had participated in flood response. Ten healthcare workers participated, enabling detailed accounts of the shared phenomenon and attention to variation across participants.

The primary researcher conducted in-depth, face-to-face, semi-structured interviews at the Public Safety Center. Semi-structured interviews provided consistent coverage of the phenomenon while allowing participants to describe their experiences in their own terms [13]. Interviews lasted approximately 45–60 minutes, were digitally audio-recorded with consent, and were supplemented by field notes. Questions addressed preparation, field care, operational and emotional challenges, personal and spiritual resources, relationships with other responders, and expectations for improvement.

Data were analyzed using thematic analysis grounded in descriptive phenomenology, following the methodological principles described by [10]. Sundler et al.'s framework provided the phenomenological orientation for identifying patterns of meaning across participants' lived experiences, while [13], six-phase process guided the systematic procedures of data familiarization, initial coding, theme development, theme review, theme definition and naming, and production of the final report. Audio recordings were transcribed verbatim and read repeatedly to obtain a holistic understanding. Relevant segments were coded, compared across participants, and organized into patterns of meaning. Emerging themes were reviewed against coded segments, complete transcripts, and the dataset as a whole. Analysis was conducted manually and supported by field notes and reflective notes.

Trustworthiness was addressed through credibility, transferability, dependability, and confirmability [14]. Credibility was supported by sustained engagement with the interview data, cross-participant comparison, member checking, and analytical discussion with the research supervisor. Transferability was enhanced by detailed contextual description. Dependability was supported by an audit trail of recruitment, data collection, coding, theme development, and analytical decisions. Confirmability was strengthened by reflective notes and discussions examining the relationship between the data and interpretations.

Ethical approval was obtained from the Research Ethics Committee of STIKes Panrita Husada Bulukumba under approval number 001326/KEP STIKes Panrita Husada Bulukumba/2025. All participants provided written informed consent. Confidentiality was protected using participant codes P1–P10, and participants could withdraw at any time without penalty.

3. RESULTS

3.1. Participant Characteristics

Ten healthcare workers participated. Six were men, and seven held a professional nursing qualification. Most participants were aged 35–40 years. Participant characteristics are summarized in Table 1.

Table 1. Participant Characteristics (n = 10)

Characteristic	Total (n)	Percentage (%)
Age		
- 28–34 years	2	20
- 35–40 years	8	80
Sex		
- Men	6	60
- Women	4	40
Education		
- Bachelor of nursing	3	30
- Professional nurse	7	70
Total	10	100

3.2 Thematic Structure of the Lived Experience

Participants experienced flood response as a tension between the responsibility to provide timely humanitarian care and uncertainty in a rapidly changing, resource-constrained environment. Preparedness was shaped by training, experience, and team planning, but access difficulties, insufficient personnel, and limited equipment repeatedly constrained action. Spiritual beliefs and team solidarity sustained commitment. Difficult encounters were later transformed into expectations for a stronger, more responsive system.

Table 2. Themes and Patterns of Meaning

No.	Theme	Patterns of meaning
1	Entering an unpredictable disaster environment with preparedness shaped by experience	Physical, mental, and logistical preparation; training and field experience; coordination before deployment; readiness translated into emergency care.
2	Striving to provide care amid restricted access and limited resources	Personnel, medicine, and equipment shortages; narrow and muddy routes; adaptation of evacuation and care.
3	Sustaining professional commitment through spirituality and team solidarity	Psychosocial support; personal coping; prayer and surrender; humanitarian meaning; shared team burdens.
4	Transforming difficult field experiences into expectations for a more responsive system	Stronger logistics and workforce capacity; community preparedness; environmental responsibility; system learning.

Theme 1. Entering an Unpredictable Disaster Environment With Preparedness Shaped by Experience

Preparedness was experienced as a practical, embodied process for entering an uncertain environment. Mental and physical preparation, medicines, consumable supplies, rotating teams, and command-post coordination contributed to readiness. Basic Trauma and Cardiac Life Support and water-rescue training increased confidence, while prior field experience helped participants anticipate changing conditions.

Readiness was not perceived as an individual attribute alone. Coordinated action among the Public Safety Center, the disaster-management agency, search-and-rescue personnel, the fire service, primary healthcare centers, and other agencies enabled evacuation, door-to-door assessment, wound care, stabilization, and referral.

> *"We usually collaborate with other search-and-rescue teams, including the fire service, the regional disaster management agency, and the local water utility." (P1)*

> *"Working here requires us to complete Basic Trauma and Cardiac Life Support training." (P3)*

> *"We have to be mentally and physically prepared. We also prepare the medicines, equipment, and consumable supplies that we will use in the field." (P7)*

> *"We identify affected locations and go directly to streets or homes to determine what residents need and what should be done next." (P8)*

Theme 2. Striving to Provide Care Amid Restricted Access and Limited Resources

Participants sought to uphold professional responsibility despite limited control over care conditions. Shortages of personnel, medicine, and equipment complicated the response as needs increased, while rapidly changing conditions intensified uncertainty about priorities, deployment, and evacuation.

Restricted access was the most immediate expression of this struggle. Narrow alleys kept ambulances from reaching homes, while mud blocked routes to hospitals and primary healthcare centers. Responders therefore continued on foot and carried patients.

> *"Access to the location is usually the problem. If the house is in a narrow alley, the vehicle cannot enter." (P3)*

> *"The evacuation route can be very difficult because there is often a lot of mud." (P6)*

> *"We have to continue on foot and carry the patient when a car or ambulance cannot enter." (P10)*

Theme 3. Sustaining Professional Commitment Through Spirituality and Team Solidarity

Flood response extended beyond clinical intervention. Participants encountered residents who were shocked, anxious, or distressed by the damage and loss. Responders provided reassurance, education, and positive communication, while managing their own physical and emotional strain and working to reduce panic.

Spirituality provided strength when situations were beyond participants' control. Prayer, surrender to God, and understanding work as a humanitarian and spiritual responsibility fostered calmness and perseverance. Rest, vitamin intake, mutual support, and team solidarity complemented these spiritual resources.

"We pray that, as healthcare workers, we will be given strength and health to care for people affected by the flood." (P1)

"We surrender ourselves to God. We can only make our best effort and pray." (P2)

"She was in shock and stressed about her belongings, so we tried to reassure her and encourage her to remain patient and pray." (P7)

"For psychosocial support, we provide education, comfort, and positive encouragement so that people do not panic." (P8)

Theme 4. Transforming Difficult Field Experiences Into Expectations for a More Responsive System

Field experiences shaped expectations for future disaster response. Shortages of medicine and equipment led participants to emphasize more comprehensive and accessible logistics, stronger workforce capacity, and better collaboration.

Participants also understood prevention and community preparedness as part of their responsibility. They encouraged environmental cleanliness and avoidance of indiscriminate waste disposal, reflecting a shift from response alone toward community awareness and risk reduction.

"From the health-service perspective, medicines and other facilities must be fully provided." (P1)

"People should not dispose of waste indiscriminately and should continue to protect the environment." (P5)

"Clean the surrounding environment and do not throw rubbish anywhere so that a disaster like this will not happen again." (P9)

4. DISCUSSION

The essence of participants' experience was sustaining professional and humanitarian responsibility in an unpredictable, resource-constrained environment. Preparedness enabled organized entry into affected areas but was repeatedly tested by access barriers, insufficient personnel, and limited equipment. Spirituality and team solidarity sustained engagement, and difficult encounters became expectations for stronger organizational and community preparedness. The themes are therefore interconnected dimensions of a shared experience.

Preparedness as an Individual, Relational, and Systemic Experience

Participants experienced readiness as more than clinical knowledge. Mental and physical preparation, supplies, technical training, team organization, and interagency coordination collectively shaped their ability to enter the disaster environment.

Zhang et al [15], found that disaster-response experience, disaster nursing education, simulation exercises, and specialized disaster training were positively associated with emergency nurses' preparedness. Lamberti-Castronuovo et al [16], similarly demonstrated that prior disaster experience, workplace preparedness, and competency-based training were important preparedness factors. Individual certification should therefore be complemented by scenario-based exercises, interprofessional training, role clarification, and decision-making practice in resource-constrained conditions.

Lamberti-Castronuovo et al [16], emphasized integrating primary healthcare into overall disaster-management strategies to maintain continuity of care and to respond to the needs of vulnerable populations. Such integration requires clear roles, effective communication, and coordination among

emergency services, primary healthcare facilities, disaster-management agencies, and local responders.

Providing Care Within Environmental and Resource Constraints

Operational constraints directly challenged professional responsibility. Limited personnel, medicines, and equipment restricted the response, while narrow alleys and mud prevented ambulances from reaching affected residents. The experience was marked by a gap between the care participants believed should be provided and what the environment allowed them to deliver.

The World Health Organization has emphasized that effective emergency response requires a ready and capable workforce supported by continuing education and competency development [17]. Previous reviews have also identified inadequate preparedness, limited disaster education, role-related uncertainty, and organizational constraints among nurses throughout disaster management [6].

Evidence from informal riverbank settlements in Yogyakarta indicates that flood-evacuation routes are shaped by individual physical capacity, path safety, spatial legibility, and path-network configuration [19]. At the health-system level, Pradhan et al [19], found that floods disrupted transportation and outreach, caused shortages of medicines and personnel, and exposed weaknesses in financing, training, supply chains, and reporting. Therefore, locally adapted evacuation plans and logistics should reflect the accessibility and physical characteristics of affected areas.

Psychospiritual Meaning, Humanitarian Responsibility, and Team Solidarity.

Participants' accounts revealed clinical, psychological, relational, spiritual, and existential dimensions. Said et al [20], demonstrated that psychological first aid training improved nurses' psychological preparedness, optimism, self-esteem, and self-efficacy for emergencies and disasters. This supports structured training in psychological first aid, crisis communication, identification of vulnerable groups, referral pathways, and professional boundaries.

Li et al [21], found that lower social support and negative coping strategies were linked to higher psychological stress among frontline medical personnel during an earthquake. Support for responders should therefore be treated as an essential component of workforce safety and service continuity.

Spirituality helped participants stay engaged when circumstances were beyond their control. In Aceh, religiosity, beliefs, values, communication, family engagement, and spiritual care were identified as elements of nurses' disaster-response competencies [23] .Spirituality should serve as a personal source of resilience, while support for affected people should remain person-centered and respectful of differing beliefs and preferences.

Team solidarity enabled participants to share physical tasks, emotional burdens, and responsibilities. Peer support, pre-deployment briefings, team check-ins, and post-operation debriefings could help personnel reflect on field experiences, identify support needs, and prepare for subsequent events.

From Lived Experience to System and Community Preparedness.

Difficult field experiences were transformed into practical expectations for adequate medicines, equipment, workforce capacity, and coordination. Frontline expectations reflect experiential knowledge gained through direct engagement with system limitations.

Participants also linked emergency response to prevention and community preparedness. Sofyana et al [23], reported that the ILATGANA-PHN model strengthened community knowledge and attitudes, preparedness planning, warning systems, and resource mobilization. Noor et al [24], found that a Health Belief Model-based intervention improved community knowledge, skills, flood preparedness, perceived benefits, perceived barriers, and cues to action. Community education should therefore extend beyond information provision to practical preparedness capabilities.

At the system level, after-action reviews should assess resources, access barriers, coordination, role distribution, staff well-being, and training gaps. Incorporating frontline accounts into organizational learning may translate lived experience into measurable improvements in preparedness.

Phenomenological Interpretation and Implications.

Phenomenologically, the experience involved continual negotiation of responsibility, uncertainty, and limitations. Familiar roads and alleys became inaccessible workplaces; action depended on colleagues, other agencies, and community cooperation; and coping, solidarity, prayer, and humanitarian meaning sustained continued care. Disaster-preparedness programs should combine technical training with interagency simulation, adaptable logistics, psychological first aid, workforce support, spiritual and cultural sensitivity, and community engagement.

5. CONCLUSIONS

The main findings of the study indicate that the experiences of Public Safety Center (PSC) healthcare personnel in responding to flood victims are multidimensional. These experiences are reflected in four main themes: (1) healthcare personnel preparedness and capacity, (2) challenges and barriers in service delivery, (3) psychospritual adaptation through the meaning of humanitarian service, and (4) system improvement and personnel expectations.

The preparedness and capacity of healthcare personnel serve as the foundation for delivering services; however, in practice, personnel must cope with various challenges, including limited human resources, logistical constraints, and difficulties accessing flooded areas. These conditions require healthcare personnel to adapt psychologically while simultaneously providing psychosocial support to affected victims.

In facing the pressures encountered during disasters, spirituality, a sense of meaning derived from humanitarian service, and solidarity among healthcare personnel serve as important sources of strength. These experiences subsequently shape personnel's expectations for improvements in the service system, increased availability of logistical resources, strengthened cross-sectoral coordination, and enhanced community capacity for flood prevention and preparedness.

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