

A Valiant White Patriot: A Phenomenological Inquiry on Nurses' Experiences During Typhoons

JEFFREY B. JULIAN
Trinity University of Asia
Doctor Of Nursing Management

Abstract — Typhoons and other disasters can devastate individuals and communities with their unyielding intensity. Nurses are the pillar of healthcare, and their resilience drives community recovery, compassion, and caring. Their unwavering commitment addresses immediate medical needs and provides a beacon of hope amidst chaos. This study explored nurses' experiences during typhoons. The study utilized Husserlian phenomenology as a research design. Purposive sampling was used in the selection of participants. The Institutional Ethics Review Committee approved the study before data gathering to ensure ethical consideration was followed. Semi-structured interview both face to face and via zoom meetings were employed to collect the data. Thematic Analysis was used in analyzing the data gathered. Four themes emerged in this study: their challenges, their coping, their desires, and their realizations. Nurses face many challenges during typhoons and other disasters, but their commitment and love for their jobs and those of others overpower these challenges. They need to achieve resilience through training to improve their plight and resilience amidst disaster challenges. Their meaningful accounts are worth sharing.

Keywords — *Nurses, Experiences, Typhoons*

I. Introduction

Disasters are a major disruption to communities or societies and whilst everyone is at potential risk of harm, there are disproportionate impacts for the poorest and most marginalized people in society prior to a disaster (Gray et al, 2022). Disasters continue to affect millions of people each year, posing a threat to society and a constant threat to healthcare's ability to provide quality care to those in need, and its impact on the public health system can be far-reaching and long-lasting (Kourtit et al., 2023).

Disasters continue to test health care's ability to adequately care for those afflicted, with nearly 50,000 deaths and 97 million affected by natural, technological, antagonistic, anthropogenic, or disease outbreak events in 2020 alone (International Federation of the Red Cross, 2020). Recent trends indicate that natural disasters occur more frequently than in past years, with less loss of life.

The United Nations (UN) defines *disaster* as "a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity, leading to one or more of the following losses: human, material, economic and environmental" (Murphy, 2021, p. 25-32). The World Health Organization

(WHO) defines *disaster* as an event of such magnitude that a community's ability to respond using its resources is overwhelmed, resulting in destruction, material loss, damage, and loss of life.

The Philippines is one of several developing countries particularly vulnerable to catastrophes due to their more significant poverty levels, poor governance, inequality, and limited access to resources and assets. The Philippines is highly vulnerable to natural disasters due to its geography.

Nurses play an essential role in all phases of a disaster (Veenema, 2018). Their understanding of the needs of vulnerable populations, health workforce planning, and clinical knowledge and skills enable them to play a strategic role in promoting cooperation between the health and social sectors, governmental agencies, and non-governmental organizations, including humanitarian organizations and community groups, and make them invaluable during disaster risk prevention, response, and recovery (World Health Organization, 2020).

Also, based on the survey of literature conducted by the researcher of this study, there is scarcity of research in the nursing profession particularly those that account for the experiences of nurses during typhoons. Not one study focusing on the same was conducted in Region 1. The researcher wanted to report the challenges the nurses encounter during typhoons and also their coping strategies, and desires. Report on these will provide input on policies to help improve their heartbreaking conditions as nurses and also the saddening the health care delivery conditions in the Philippines. If nurses conditions will be improved during typhoons, this will be beneficial to the entire workforce in the healthcare system and nursing profession as a whole.

Nurses have consistently been at the forefront of delivering services to individuals affected by calamities. Utilizing nurses' experiences during typhoons might significantly enhance their preparedness to deliver healthcare services. The researcher wanted to report the nurses' challenges as they have their duties, coping strategies, and desires during typhoons. Report on these will provide policy input to help improve their heartbreaking conditions as nurses during typhoons. This study aims to comprehensively examine and record the wide range of experiences nurses face in these crucial situations, in addition to understanding the difficulties they encounter. This paper will provide significant insights to improve typhoon preparedness and healthcare delivery strategies by concentrating on nurses' experiences.

Nurses during Disasters

Disasters have become more common and dangerous in recent years, affecting individuals' and communities' economies, services, health, and well-being worldwide. Asian countries are the most disaster-prone region, accounting for 40% of all disasters and 49% of total mortality, with disasters affecting 66% of the population. Similarly, Bangladesh is a developing South Asian country which is most vulnerable to natural disasters and climate change due to its geographical location, higher population density, poor infrastructure, high poverty rate and income inequality. It is more vulnerable to natural disasters, necessitating the urgent need for effective disaster

management, including preparedness and readiness, to mitigate the negative impact of disaster events (Hasan et al., 2021, pp. 1362-1367).

While many disasters are unavoidable, health risks and vulnerabilities can be reduced and prevented by ensuring that local and national authorities and surrounding communities are well-prepared. As first line responders in disasters, nurses must ensure that their knowledge and skills are adequate to respond to disaster events. The increased occurrence of disasters in the early twenty-first century prompted practitioners and educators to emphasize disaster nursing and the principles that guide nurses' practice in disaster response (van Bavel et al, 2020, p. 123-158).

The Philippines is ranked as one of the world's most disaster-prone country. It is struck annually by several deadly natural disasters, including earthquakes, floods, volcano eruptions, landslides, and typhoons. Some areas of the country are also affected by disasters caused by human activities such as war and terrorism. This paper aims to describe nurse competency in dealing with panic situations, providing first aid to injured and affected people, and taking responsibility for difficult situations in disaster areas. The nurse in a disaster area is responsible for providing immediate assistance to those in need (Bolletino, Alcayna, Enriquez, and Vinck, 2018).

According to the US Embassy, Philippines (2020), the Philippines is considered as one of the world's most high-risk countries for experiencing natural disasters. Possible natural disasters are typhoons, floods, mudslides, earthquakes, and volcanic eruptions. Geographically, the Philippines is a tropical country with more than 7,100 islands located within the circum-Pacific seismic belt, making the Philippines a disaster-prone country (Hidalgo & Baez, 2019).

Nurses utilize their specialized knowledge, abilities, and activities to mitigate the health and life-threatening hazards that victims encounter during disasters. Having nursing expertise is crucial during disasters. Competencies include the ability to discern hierarchies, knowledge of emergency response plans, consistent engagement in practice exercises, appropriate utilization of emergency equipment (e.g., personal protective equipment), adherence to communication channels and routes, active participation in exercise evaluations, and the capacity to modify response plans as necessary. Each individual within the nursing community ought to bear accountability for the crisis (Firouzkouhi, et al, 2021).

II. Methodology

Research Design

This study utilized the qualitative method of research, specifically the transcendental or psychological phenomenology (or the Husserlian type of Phenomenology) whose goal is to describe the lived experiences of the participants (Cudjue, 2023), this approach generated data that described the WH-questions -" who, what, and where of events or experiences" from a subjective perspective.

Based from a philosophical perspective, this research approach best aligns with constructionism and critical theories using interpretative and naturalistic methods. These philosophical perspectives represent the view that reality exists within various contexts that are dynamic and perceived differently depending on the subject. Therefore, the reality is multiple and subjective (Kamble, 2022, p.157).

Research Locale

The study was conducted in Region 1. Region 1, the Ilocos Region, is located northwest of Luzon. It borders to the east the regions of the Cordillera Administrative Region and Cagayan Valley and to the south of Central Luzon. Located on its west is the South China Sea. The region comprises four provinces: Ilocos Norte, Ilocos Sur, La Union, and Pangasinan. Its regional center is San Fernando City, La Union.

Population, Sample size and Sampling Technique

The participants of the study were twelve (12) clinical nurses in region 1 working at District Hospitals. The interviews stopped upon data saturation is reached in the 12th participant, meaning no new data or theme is emerging in the study. Data saturation occurs in qualitative research when the researcher no longer observes new information, and adding more data offers no further value to the analysis (Saunders et al, 2018). Creswell (2018) stated that qualitative researchers account for multiple data sources and perspectives to ensure their study results demonstrate validity through data saturation.

Moreover, purposive sampling was used in the selection of participants who met the following criteria: (1) Registered Nurse; (2) at least five years working as a nurse; (3) of any gender; (4) 25 years old and above; (5) of any job status, and (6) had experienced duties during typhoons.

The following are the exclusion criteria: (1) does not want to be interviewed; (2) belongs to the vulnerable population, like those who are not mentally stable. The researcher used the past name of typhoons that plagued the Philippines as their pseudo names to ensure privacy and confidentiality. Furthermore, the cities, municipalities, and the hospitals where they work as nurses were not included in the profile below to ensure confidentiality.

Research Instrument

In phenomenology, the researcher is the main data-collection instrument operationalized through interviews. In an in-depth unstructured fashion, interviews were conducted face-to-face and through google meetings to explore the participants' experiences. A semi-structured interview guide is used. While some qualitative researchers advise against any structuring, it is essential to use some structuring to ensure the interview yields usable data. However, there will be some

flexibility in the approach. The semi-structured interview guide investigated nurses' challenges, fears, worries, coping, desires, and realizations during typhoons.

Data Gathering Technique

The research underwent review and approval from the St. Luke's College of Nursing - Graduate School of Nursing, Trinity University of Asia (TUA) then it was forwarded to the Institutions Ethics Review Committee (IERC), which examined and approved the paper before data gathering. A letter asking permission to participate in the study that is signed by the Adviser and the Dean of St. Luke's Graduate School of Nursing, along with the approval certificate that the Ethics Review Board issued is sent through emails to the identified participants.

Upon approval, the researcher sent personal communication/email to the participants and disclosed the informed consent, objectives, significance of the study, and procedures for gathering data. The researcher is the primary data collector operationalized by in-depth interviews. The initial interview guide is critical as it is the foundation for everything that follows. The semi-structured interview guide for each interview with the participants is patterned in the statement of the problem with its probing questions ensuring to elicit the primary purpose of the study.

The researcher used emic language during the interview. The language they are comfortable using. English and Filipino languages were used by the participants in sharing their accounts. Each interview date is meticulously documented to distinguish the initial encounter from subsequent ones. After every audio recording of the interview and transcribing the data, open coding – manual coding is done. Coding extends, restores, and re-conceptualizes data, allowing for broader analysis. Memos are used to jot down notes or make suggestions about records, transcripts, and codes. After the initial interview, participants reviewed their transcripts for accuracy. Data gathered will be stored for five years then it will be destroyed (Creswell, 2018).

Data Analysis

The study used different data analysis methods for each phase of data gathering: qualitative descriptive and the modified Delphi method. The type of analysis had two different approaches: inductive and deductive. An inductive approach allowed the data to determine the theme of the study, and the reasoned process involved coming up with data with some preconceived pieces that the researchers expected to find reflected there, based on theory or existing knowledge. The analysis then commenced with the first of a six-step processes.

III. Results and Discussion

This chapter presents the interpretation and analysis of data to answer the research questions in Chapter 1, following the order of presentation of those specific problems.

From the cool and warm analyses of participants' verbalizations of their experiences during typhoons, and grounded in opposing and pleasantly warm interpretations of the participants' utterances of their personal experiences and perceptions of typhoons, four themes emerged: 1) An Uphill Battle (their worries, fears and challenges, 2) Phalanx of Protection (how they coped with the challenges), 3) The Gladius (their desires and aspirations for the betterment of nurses working conditions during typhoons), and (4) King of the Hill (their realizations). Their meaningful accounts are worth sharing.

Despite the challenges they have encountered and their dangerous situations as clinical nurses during typhoons, they hope they will be able to continue and still serve patients at the best that they can: hence "A Valiant-white Patriot".

The first theme that emerged in this study pertains to the challenges encountered by the participants while performing their duties during typhoons. It is where they face a lot of challenges, worries, and fears.

A caring and knowledgeable healthcare worker, Kwame & Petrucka (2021) claims that a nurse giving treatment during a typhoon willingly attends to the needs of patients, frequently under trying circumstances. This includes delivering medical attention, ensuring patient safety, and offering consolation amid the hazardous and turbulent conditions brought on by a typhoon, such as heavy rain, strong winds, power disruptions, and possible infrastructure damage. These nurses show unwavering dedication, adaptability, and bravery to ensure patients receive the necessary care—even during catastrophic natural catastrophes. There is, therefore, a lot to experience and learn if this is your first time doing this function.

The Participants Worries and Fears

As Participant Ondoy stated, "*Sometimes feeling of fears and stress related to myself and relative's needs during the typhoon...I left them at home.*" For staff workers who assist disaster survivors, the text stresses the value of self-care and emotional well-being to their loved ones. Nurses may worry about the safety and well-being of their families, especially if they are required to work extended hours or if their families are also affected by the typhoon (Tanay et al, 2023).

As nurses toil ceaselessly to protect the safety and well-being of patients amid severe weather, power outages, flooding, and other unfavorable situations brought on by a typhoon, this term incorporates the physical, emotional, and mental struggles they experience (Lorenzoni et al, 2019).

Additionally, overwhelming, and incomprehensible suffering, distress, and extreme challenges nurses encounter while caring for patients in a healthcare facility during intense and chaotic typhoon conditions are concerns of their experiences working in a hospital (Brooks et al, 2019).

Concern and anxiety about the future are normal emotions, particularly when protecting our loved ones. Emotional and physical health may suffer as a result of persistent worrying, pessimistic thinking, and always expecting the worst; it can deplete your emotional stamina, make you jittery and restless, give you headaches, stomachaches, and muscle strain, and make it difficult for you to focus at work or school. It could vent your frustrations on your loved ones, use alcohol or drugs as self-medication, or try to divert your attention by zoning out in front of the television (Umeda et al, 2020).

The hospital preparation strategy must address and incorporate the requirement that staff members consider their personal and professional situations during typhoons. Health professionals frequently felt unsafe, which affected how often they visited the hospital. They are impacted by hospital accessibility, safety, and a lack of knowledge regarding their relatives' circumstances. Dedication to helping patients was seen as a major driving force during disasters (Sultan et al, 2021).

Financial Challenges

This sub-theme describes the financial struggles of the participants during typhoons. It can be a challenging and distressing experience for individuals and their families. People's responses to financial struggles can vary widely, but they often include a combination of emotional, practical, and behavioral reactions.

Finance in healthcare refers to the management and allocation of financial resources within the healthcare industry. It plays a crucial role in ensuring the sustainability and effectiveness of healthcare services. Nurses face several financial challenges during typhoons and other natural disasters, which can impact their personal finances and financial well-being.

According to Tasri (2021), the financial aspect is particularly challenging for those on fixed incomes who may need access to other resources such as health insurance or financial assistance. Additionally, the cost of medications and PPEs can be high, and finding the resources to purchase them can be challenging.

Participant Rolly said: "*Expenses because of medications for self and family as everyone's immunity weakens on cold weathers, mas madadagdagan ang gastos* (additional expenses will arise)." healthcare and safety expenses can be pretty expensive in areas that are prone to typhoons and cold temperatures.

Participant Ulysses narrated “*kaya sa bahay, mahirap magbudget ng gastusin kasi yung iba naman dahil may bagyo sinasamantala para maningil ng malaki and mataas na bilihin din eh nakaka-aray nga naman sa bulsa talaga lalo na kung walang ipong pera*” (At home, it's challenging to budget expenses because some people take advantage of storms to charge higher prices, which can really be a burden, especially when there's no savings).

If the cost of transportation increases due to limited availability, they may have to cut back on essential items, such as food and medicine, to make ends meet. This could have profound health implications if the typhoon hits; they need these essential items to weather the storm. Severe weather can disrupt financial health, resulting in unexpected employment disruptions or loss of income and expenses for temporary housing and repairing or replacing property or belongings (Centre for Research on the Epidemiology of Disaster, 2019).

As a result, business cycles and macroeconomic structures are significantly associated with natural resource price volatility (Sharma et al., 2021). The fall in economic activities and transport, which account for two-thirds of the oil demand, is believed to have seriously affected the oil demand. This reduction in the transport, production, and economic activities significantly reduces the natural resource commodity demand in the global market, which decreases the prices of that commodity across the global natural resource commodity market. (Wang and Sun, 2018).

Additionally, workers and their dependents have been generally excluded from the national and compulsory social security systems, which can be a challenge during times of crisis. (Cuesta et al., 2018). This means these workers and their families are not provided government support during difficult times, such as during and after natural disasters. This also makes it difficult for hospitals to provide the necessary resources to care for their patients. During typhoons, prices of essential items such as meat, fish, and vegetables, which are sourced from outside the province, tend to rise. This price inflation can put additional financial pressure on residents already dealing with the challenges of the typhoon.

Explicit limitations on fare pricing during disasters, careful planning, a robust transportation infrastructure, and close coordination between transportation providers and emergency response organizations are frequently necessary to address these difficulties. It is an essential part of planning for and managing disasters.

Challenges in Staffing and Schedule

The study found challenges related to staffing and schedule issues caused by a typhoon. Healthcare staffing is a crucial aspect of maintaining top-notch healthcare services. It involves activities that ensure that healthcare facilities have the right personnel to deliver high-quality healthcare services. However, staffing nurses during a typhoon can be challenging for healthcare facilities due to the limited availability of personnel.

Healthcare staffing involves comprehensive activities to ensure healthcare facilities have the right personnel to deliver high-quality healthcare services. Staffing nurses during a typhoon can be challenging for healthcare facilities due to staffing availability, increased patient load, fatigue, and limited relief staff. Healthcare staffing is a critical component of the healthcare industry, as the quality of care provided often depends on the skills and availability of healthcare personnel.

Extended working hours occur when nurses face extended working hours and shifts due to the need for continuous patient care during and after a typhoon (Cueto and Agaton, 2021). Perhaps one of the most critical challenges is the potential for staffing shortages (Sprung et al, 2019).

Additionally, if a surge of injured individuals overwhelms the healthcare system, the existing hospital staff may become overburdened, further exacerbating the absences of personnel. Participant Ondoy added, “*Since madami ang patient na pumapasok at kunti ang pumasok na staff ma ooverwhlem ka talaga... super stress*” (Since more patients are coming to the hospital due to the typhoon and there is a limited staff that reported for duty, we are overwhelmed and stressed). Additionally, the current hospital staff may be overworked if a wave of injured people overwhelms the healthcare system, especially when staff are also sick, which would worsen the staff shortages. (Almukhlifi et al, 2020).

According to Sprung (2019b), addressing these challenges requires improvements in the coordination and development of the prehospital care system and enhancing the capacities, resources, and planning of hospitals to ensure effective disaster response and support for nurses in fulfilling their roles.

Healthcare staffing is a complex process involving various activities to ensure that healthcare facilities have the right personnel to deliver high-quality healthcare services (Karimi et al, 2021). However, staffing nurses during a natural disaster such as a typhoon can be arduous due to several factors. These factors include staffing availability, increased patient load, fatigue, and limited relief staff. According to Su et al. (2022), staffing availability during a natural disaster is a significant concern for healthcare facilities. The researchers noted that many healthcare professionals may be unable to report to work due to transportation issues or personal reasons. This leads to a shortage of personnel, which can impact the quality of healthcare services provided during the disaster.

Challenges related to Transportation and Board and Lodging

One significant sub-theme that evolved is challenges in Transportation and board and lodging. Due to the unexpected increases in demand for Transportation and fares during disasters, some individuals and transportation providers may take advantage of the high demand during disasters by charging exorbitant fares, which can lead to exploitation and difficulties for those in need.

Many commuters find themselves stranded during natural disasters like typhoons, and road sections become heavily congested. In the Tokai region in Japan, many road sections become heavily congested during typhoons, with some commuters reporting homebound trips taking more than four times longer than usual because of road flooding at several locations. (Wolf, 2019). Participant Glenda narrated: *"Transportation will be the first on my list. It is always hard for me to go to work due to floodings or, worst, no available mode of Transportation, and the challenge of getting wet is unavoidable."*

Participant Betty said, *"Because there is no mode of transportation, it is difficult to go home; the next problem is where to stay and have rest and sleep."* Floods caused by typhoons directly affect transportation networks through physical damage to infrastructure and indirect effects resulting from a cascade of adverse effects that can severely impact critical infrastructure (e.g., energy-related infrastructure). They can lead to the failure of a city's infrastructure and economy (Serre and Heinzlef, 2018).

Participant Lando narrated: *"I always expect difficulties where to stay when times that I can't go home because there's no transportation due to no passable roads'..."* Transportation systems are integral to the daily functioning of society and play a significant role in maintaining a certain standard of living.

The difficulty of Transportation also affects their ability to provide prompt patient care and can lead to embarrassment when they have to endorse their duties. Therefore, it is crucial to provide solutions addressing the transportation challenges nurses face during typhoons to ensure they can continue providing essential care to their patients.

The transportation network and where to stay safe is one of the most crucial parts of the vital services and infrastructure during a crisis. Getting rescuers and assistance into the afflicted region or getting people out of harm's path is only possible with a transportation infrastructure. During an emergency or catastrophe, the transportation system bears a considerable duty, particularly in the relief operation of nurses. Transportation funding is seldom the first thing that is prioritized when assessing requirements before, during, and after catastrophes (Center for Disaster Philanthropy, 2022).

Challenges of Risk and Hazards

According to Chimed-Ochir et al. (2022), nurses' ability to become organized and to emotionally distance themselves while at the same time remaining flexible and able to adapt also helped during disasters. The health impacts of a natural disaster depend not only on the type and scale of the disaster but also on a variety of factors such as geography and weather conditions, patterns of exposure, community infrastructure including hygiene setting, emergency preparedness, underlying vulnerability, and culture of the population.

As stated by Participant Rolly, *"Challenges encountered in responding during a typhoon are challenging, I can hardly see and assess the patient because of the heavy rain and there are patients who are difficult to respond to since most of them are drunk and the safety during dispatch, sometimes the road is not visible due to high water level, visibility due to intense rain and wind"* Challenges identified include the difficulty in assessing and responding to patients due to heavy rain and limited visibility; dealing with intoxicated patients, which can complicate the response and; challenging dispatch conditions, including roads being submerged by floodwater and poor visibility due to heavy rain and wind this is a risk to their safety and security.

Participant Ompong said , *"There is danger, especially when the typhoon has brought heavy rains and flooding; this may cause accidents while we are responding or on our way to duty; an accident is very prone."* The risks and dangers associated with heavy rains, flooding, and typhoon accidents can result in significant damage and loss of lives. Tropical cyclones, typhoons, or hurricanes are among the most violent weather events, causing high costs and losses in any area. The Philippines is one of the most typhoon-impacted countries globally, with about 20 tropical cyclones traversing the country's area of responsibility each year (Delfino et al, 2023).

According to Participant Kabayan, *"Another challenge that I encountered during a typhoon is the flood caused by the typhoon because during typhoon season many roads have been flooded with heavy rains, it is not always possible for me to go through a flood, my safety is still important, and there are also flying objects that may cause injuries."* It is evident from the participants' responses that responding to emergencies during a typhoon can be challenging and risky. Overall, the responses illustrate the multifaceted risks and dangers that emergency responders face during typhoons, including issues related to patient care, weather conditions, and transportation challenges. Safety considerations are paramount in such situations.

It is essential to address these risks and dangers through proper disaster preparedness, response, and recovery strategies. This may involve evacuation plans, early warning systems, disaster-resilient infrastructure, and community education to mitigate the impacts of typhoons and enhance safety.

Challenges to Property and Financial Loss

The devastating experience of the participants on typhoons that may affect their properties and source of income is presented in this subtheme. According to Participant Odette, *"I am working as a contract of service, in times I need to apply for sick or emergency leave, then expect deductions in salary."* Contract-of-service workers are usually paid by the hour and are not entitled to any benefits or paid vacation. Any sick or emergency leave they take will be deducted from their salary. In some provinces, nurses in government hospitals are only given 65% of what they should earn. "Almost fifty percent of the country's nurses in government institutions are contractual workers (Valmonte, 2022). This means that some nurses in government hospitals are not entitled to benefits such as paid and medical leave.

These nurses are also not eligible for salary increases and bonuses, which are typical for other workers. This means they have no choice but to accept lower wages and fewer benefits, making it difficult to make ends meet. Although industries do not usually control or can condition the way their employees commute or travel, they can stimulate and promote a more sustainable culture through incentives for the use of public Transportation or active modes, promoting the use of less polluting individual motorized vehicles, or even through more current and innovative measures that involve ridesharing or pooling and restricting the use of cars with combustion engines (diesel and gasoline), particularly those with meager occupancy rates (Santos, Ribeiro, & Bento, 2023).

Participant Betty added, *"Basically, no work, no pay, so If our area is isolated and not passable, I cannot go to work for days, which will result in me not having enough salary."* Job order and contractual nurses in the Philippines faced challenges such as job insecurity and limited benefits compared to regular employees. A study by Opiniano et al (2018) highlighted the precarious nature of contractual employment in the healthcare sector, including nursing. The lack of security and comprehensive benefits for contractual nurses can impact their job satisfaction and overall well-being.

As participant Ompong added, *"It is also difficult during typhoons, property are destroyed due to the typhoon and its very challenging, it will add on the expenses and worst if it is destroyed like our car and our farm"*. Property loss during typhoons can vary widely based on factors such as the storm's intensity, preparedness measures, and local infrastructure. According to Chester et al (2020), typhoons can result in significant property damage, with coastal areas particularly vulnerable. Another source, the World Bank report on "Natural Disaster Hotspots," indicates that East Asia, including countries like Japan and the Philippines, experiences substantial economic losses due to typhoons.

Research has shown that property loss during typhoons significantly impacts individuals, encompassing economic, psychological, and social dimensions. According to Laurito (2018), the economic consequences of property loss include the financial strain of rebuilding, potential job loss, and decreased income for affected individuals. Psychologically, the loss of homes and personal belongings can lead to post-traumatic stress disorder (PTSD) symptoms and other mental health challenges.

The "Journal of Family Medicine and Primary care" (Makawana, 2019, p. 3090-3095) emphasizes the enduring psychological impact of natural disasters, including the loss of property. Moreover, the social fabric of communities can be severely affected. The displacement caused by property loss can lead to the breakdown of social networks and community ties. It also mentioned the social consequences of disasters, emphasizing the importance of community support in mitigating the impacts on individuals. In addressing these challenges, effective disaster management strategies, community resilience programs, and mental health support services are

crucial for helping individuals cope with the multifaceted impacts of property loss during typhoons.

Challenges to Health and Self-care

A significant subtheme that surfaced in the study is the challenges related to their health and self-care during typhoons. Following a natural disaster or when confronted with a crisis, it is expected to have heightened stress, sleep problems, irritability, and occasionally angry outbursts. Several variables can be ascribed, including first-hand involvement with the event, direct exposure to its detrimental effects, and cumulative stress from hearing survivors' accounts repeatedly.

Participant Ulysses said, "*Getting sick after being soaked under the heavy downpour/rain and being exposed to flood-related illnesses/water-borne diseases high-risk din sa ubo at sipon dahil sa pabago-bagong panahon (cough and cold because of the changing weather)*" *Sometimes I experience increased stress, sleep disturbances, irritabilities, and sometimes anger outbursts*." Individuals soaked in heavy rainfall and exposed to flood-related illnesses and water-borne diseases face an increased risk of getting sick. It aims to raise awareness of the physical health risks and emotional strain from exposure to severe weather conditions and water-related health hazards. It underscores the importance of preparedness, self-care, and seeking support when facing these challenges.

Fatigue after work is commonly experienced by workers engaged in physical work and is defined as tiredness, lack of energy, and exhaustion. Fatigue can affect both physical and cognitive functioning. Physical work is inherently associated with more physical exertion than sedentary work. It has been associated with an increased risk of long-term sickness absence, premature exit from the labor market, and even earlier death (Branson, 2023).

Participant Glenda narrated: "*Exhaustion needing to be available 24 hours a day, enduring body pains especially in assisting outdoor emergencies I do not have time to care for myself.*" Responding to outdoor emergencies can affect a person's well-being, leading to exhaustion and physical discomfort. This highlights the sacrifices and challenges individuals in roles requiring constant availability may face.

Participant Pablo said, "*Because of the workload we are unable to care for ourselves as well, stress and burnout are experienced.*" the strenuous and sometimes hazardous conditions that some individuals, such as healthcare workers or first responders, face when working in flood-affected areas and the importance of appropriate safety precautions and emphasizes the personal costs associated with weariness and long hours. A study conducted by Tung et al. (2019) highlighted the verbatims shared by the nurses, as they mentioned that the challenges of double shifting during typhoons increase the possibility of them getting sick.

In the context of disaster response, the pressure to fulfill work responsibilities during and after a typhoon may hinder individuals from prioritizing their safety and self-care. Moreover, a

study by Farokhzadian et al (2024a) underscores the importance of managing occupational stress, as prolonged exposure to high workloads without adequate breaks can result in adverse health outcomes. During typhoons, individuals with demanding workloads, such as emergency responders, may face challenges balancing professional responsibilities with personal well-being. Organizations and authorities involved in disaster management should consider implementing policies and practices that address employee workloads, ensuring that individuals have the time and resources to properly self-care during and after typhoons.

Challenges related to Communication

Effective communication is crucial to human interaction and vital in personal and professional relationships. Communication struggles during typhoons are a pressing concern for nurses and healthcare systems.

Participant Ondoy stated, “*Ang hirap talaga pag may bagyo kasi paputol-putol yung signal tas mahirap pang makipag communicate sa mga doctor nila dahil sa hina ng signal matagal magsend yung mga messages sa kanila lalo na pag mag rereley ka ng complaint ng pasyente*”. (It is difficult when there is a typhoon because the signal keeps getting interrupted, and it is also challenging to communicate with their doctors due to the weak signal. It takes a long time for messages to reach them, especially when you are relaying a patient's complaint.)

While Participant Rolly verbally expressed, “*Noong may bagyo hirap ngay kaming makacontact sa mga supervisor namin para iupdate rin sana sila if makakapasok kami or hindi sa work*”. (During the typhoon, it was difficult for us to contact our supervisors to update them on whether we could go to work or not.)

Participant Betty revealed, “*ang kakulangan ng komunikasyon ay maaaring magdulot ng pag-aalala tungkol sa paglunas ng mga pasyente kapag natatapat kami sa sitwasyon kung saan kinakailangang konsultahin ang ibang doktor o eksperto*”. (A lack of communication can lead to concerns about the treatment of patients when we find ourselves in situations where it's necessary to consult other doctors or experts.)

Based on verbatims, they highlight the importance of effective communication in healthcare, especially during typhoon seasons, and the challenges faced by nurses during typhoons regarding communication are significant and should not be overlooked. It is crucial for patient safety, decision-making, and care coordination. The interviews revealed that communication struggles during typhoons are a pressing concern for nurses and healthcare systems. According to a study by Curado et al. (2022), communication difficulties during typhoons can lead to decision-making and care coordination delays, resulting in compromised patient safety.

Another verbatim from Participant Ulysses shared: “*Phone signals and power interruption during typhoon there is a tendency that the signals are weak and sometimes the connection is not present. For that, you cannot make a call to send messages to check on your family*”. The safety

of nurses from workplace-induced injuries and illnesses is essential to nurses and the patients they serve. Pressures within organizations to downsize, use nurses employed under alternative arrangements (*pool and traveling staff*), and the turnaround time for patient care (*early discharge, higher patient loads*) are examples of factors that are determined at an organizational level. (Labrague and de los Santos, 2020).

Communication issues are not limited to the doctor-nurse relationship; they also affect supervisor coordination. During a typhoon, nurses must keep their supervisors informed about their availability and ability to come to work. Supervisors can make informed decisions regarding staffing and patient care with effective communication. Signal issues during typhoons can lead to a breakdown in communication between healthcare workers, which can have severe consequences for patient care" (Raza et al, 2020). These signal issues can be a matter of life and death, as timely communication is essential for patient care. The challenges nurses face in communication during typhoons are multifaceted and can profoundly impact patient care and healthcare operations.

Challenges on Additional Workload

Another challenge that our nurses face during typhoons is the overload of work. They have pointed out that nurses are doing more work during typhoons because other hospital staff are unable to go to work because of the typhoon. Increased Patient Volume is challenging. During typhoons, hospitals often experience a surge in patients, increasing the workload for nurses. Resource Constraints may also happen at these times because limited resources, including staff shortages and disrupted supply chains, contribute to the heightened workload for nurses during and after typhoons (Farokhzadian et al, 2024b).

As participant Odette narrated: "*Mas madami ang trabaho tuwing may bagyo, nakaka windang kasi kahit hindi mo trabaho kailangan mung trabahuin kagaya ng pag bill out, or pag ayos sa mga sirang gamit kasi walang gagawa hindi sila naka pasok*" (There are additional workload during typhoons, its overwhelming because even if it is not your job like bill out an fixing thing you need to do it because the ones who should do that is unable to come to work because of the typhoons).

Another participant narrated: "*Mas dumadagsa ang mga pasyente kasi nawawalan ng kuryente at wala silang pang nebulize kunwari sa mga asthmatic patients and hospitals lang ang may kuryente, on top of that ikaw pa ang gagawa ng trabaho ng ibang walang empliado kasi hindi sila makaka pasok*" (During typhoons patients are coming to the hospital because there are no electricity and they need to nebulize for example for those who are asthmatic patient and on top of that you need to do the job of other staff that is un able to come to work because of the typhoon).

Various studies show that significant occupational stress for nurses during disasters is excessive work demands, concern for their own, and patient safety. Conflict between personal and professional concerns was present in health staff, making it difficult for them to prioritize work. Feeling unsafe was a shared experience among health staff, which influenced attendance at the

hospital. Including temporary housing for staff and relatives close to the hospital can improve the extensive disaster risk during the typhoon season. In addition, established communication channels should be prioritized for staff on duty to find out about family members' well-being. We recommend faith and commitment to serve patients to be included in the preparedness programs in this setting (Gil et al., 2018).

Second Theme: Phalanx of Protection (The Participants' Way of Coping)

2A. Active Coping (AC)

2B. Mental Disengagement (MD)

2C. Seeking Social Support for Emotional Reasons (SSSER)

The second theme that emerged from this study was the participants way of coping. In ancient Greek warfare tactics, the phalanx was a battle formation that the soldiers used to protect one another. It is a tactical formation consisting of a block of heavily armed infantry standing shoulder to shoulder with their armors to protect each other. In this research, the phalanx of protection is interpreted as the way nurses cope with challenges; these are their ways to protect themselves from burnout and stress. Coping strategies refer to the specific behavioral and psychological efforts that people employ to master, tolerate, reduce, or minimize stressful events. In this study, the emerging coping strategies are classified based on the framework used by Padhan and Madheswaran (2023).

This theme explores the coping mechanisms that the participants use to overcome their challenges. The idea of developing a dynamic and emotionally expressive approach to overcoming life's obstacles is conveyed through its metaphorical usage. It recommends assembling a variety of flexible and accessible form coping mechanisms.

Active Coping (AC)

AC, Kimbro (2022) mean activities done by the participants that involve improving their physical health, such as exercising and sleeping. Common AC strategies mentioned by the participants include "resting," "sleeping," and "eating." The participants, however, consider sleeping as their greatest need.

Linguistic patterns used by the participants include "sleeping a lot" and the repetition of the word sleep: "I sleep, sleep and sleep." *Tulog lang po sapat na* (Sleep is already enough for me.). This emphasizes the participants' need for sleep.

Next to sleeping is resting. The participants highlighted the need to rest: "Even if the typhoon is still there, the sound of raindrops makes it soothing to sleep." In addition, they resort to eating. One participant admitted she is "gaining weight" because she is a stress eater. Primarily, she eats "sweets".

These highlights creating a dynamic and expressive composition of coping strategies to navigate difficulties and challenges. Promoting mental well-being among nurses is crucial to addressing issues that may arise from their burnout and psychological distress (Watson et al, 2023).

Mental Disengagement (MD)

Also common among the verbalized coping strategies involve mental disengagement. Mental disengagement means using alternative activities such as games and listening to music to take one's mind off the problem. MD activities mentioned by the participants come in the form of recreational activities and spiritual activities.

Common recreational activities mentioned by the participants are bonding with family. They do activities like playing, drinking coffee, eating, listening to music, or simply talking and laughing with their family. One participant expressed: "I listen to music, especially love and sad songs, and remember my life and experiences it goes with the typhoon." One can see that listening to music is one of their means to escape reality, meaning their stressful life during typhoons.

Another participant mentioned that "showering in the rain is refreshing." Another mind disengagement activity mentioned was working at home doing household chores because there are many things to do during typhoons. In doing household chores, the participants temporarily take off their minds or focus from thoughts of their work in the hospital.

Among the spiritual type of Mental Disengagement activities, the participants include doing "Bible studies." One participant explained that doing a Bible study is a means for her to feed and refresh her soul and take away her worries during typhoons. Another spiritual MD is praying. One participant attributed her courage and strength to praying and focusing on God during disasters like typhoons.

Many studies have investigated the relationship between spirituality and healthcare, exploring how belief in a higher power may influence patient outcomes and healthcare staff's well-being. The literature on healthcare ethics discusses the moral ramifications of praying for patients, facing mortality, and juggling professional obligations with personal religious beliefs. Healthcare practitioners' personal experiences and reflections on similar challenges provide a first-hand understanding of the emotional and spiritual aspects of patient care. (Vieten et al, 2023).

Seeking Social Support for Emotional Reasons (SSSER)

SSSER means getting moral support, sympathy, or understanding of a problem at hand.

The participants also emphasized the help and support they receive from their family and friends through moral support. One participant heartily narrated: I am blessed to have a supportive family that supports me psychologically/mentally and financially. My son understands when I need to go to work.

Another participant is thankful that her family understands whenever she goes home late because of her work, especially during typhoons. Still another shared: My family is my inspiration; they support me and always believe that I can do things by God's Guidance. Furthermore, one was teary-eyed, narrating: I receive emotional support and prayers from my family and loved ones, especially during disaster times.

Whenever I am down and tired, they encourage me. They constantly pushed me and always believed that I could help others. My family is my inspiration in my undertakings and my hard work. Support from nurses' working institutions and governments was identified as an essential external influencing factor. Implementing a disaster policy, providing tools, resources, and funds, and inter-collaborative practice training help nurses provide good health services during a disaster. Other support needed includes psychological health services for nurses after working in a disaster situation to help them recover from trauma (Maleki et al., 2018).

Emotional Regulation involves coping emotional Regulation to handle fear and anxiety during typhoons. Our participants also did Social Support by seeking and receiving social support from family, friends, and community members, a common coping mechanism during disasters. Another is religious and spiritual Coping, where engaging in religious or spiritual practices helps individuals find meaning and strength during difficult times. While these coping strategies are drawn from general disaster literature, they apply to the context of typhoons. Individuals often combine these approaches to navigate the challenges of such natural disasters effectively (Harthi et al, 2020b).

Third Theme: The Gladius (*The Participants Desires*)

3A. Desires for Training

3B. Organizational Support during Typhoons

The third theme that emerged in this study was the desire of the participants for a better working condition. The extended texts also show the participants' desires to help improve their plight as clinical nurses facing disasters like typhoons. Their desires include 1) training and 2) organizational support during disasters. In the ancient battle, the "Gladius" was an 18-inch-long sword used for thrusting from behind a shield wall into the enemy soldiers beyond. In this study, it is equated to the training and support provided to the nurses to face their battle during typhoons. The training that will equip them better and the support such as broad and lodging and additional manpower will serve as their gladius in facing the challenges during typhoons and other disasters.

A Desire for more Disaster Training

The participants commonly expressed their desire for more disaster training. Few are sent to disaster training because of limited slots and funding. Unfortunately, job orders and contracts

are not sent to intensive training for disaster. When this continues, nurses may not acquire knowledge and skills in disaster management.

Nurses are crucial to disaster relief planning, response, and recovery, and further exploration of their experiences is needed to inform future practice. A significant call is for increased disaster nursing education to improve critical thinking skills and response readiness (Veenema 2018a).

According to (Said and Chiang, 2019). As first responders to disasters, nurses have to care for people with different types and levels of trauma. People with lower psychological preparedness tend to have higher anxiety and avoidance. Hence, psychological factors related to preparedness should be considered to mitigate the adverse effects of disasters. Participant Ompong added, "*We need them to provide us training on nurses, especially mental health...but only a few are sent to training, and contractual nurses are not entitled to this training*". It highlights the necessity of strategic planning and assistance to maximize the healthcare system's response in a crisis.

Participant Kabayan said, "*Aside from being far from hospital facilities, we are unprepared, lacking training and knowledge during rescue...*" The nurses who are not trained adequately and lack the necessary knowledge may be unable to provide the same level of care as those trained and familiar with the protocols. Furthermore, if the nurses are too far from the hospital, they may not be able to get there in time to provide the necessary assistance.

Disasters can impair the functioning of affected organizations. Some organizations, especially those with emergency workers and other healthcare professionals, require their staff to continue functioning and carrying out their role, managing the increasing need for their services and information while dealing with their situations and emotions. It is essential for organizations to create a healthy work ethos and environment during crises and to have systems in place to deal with subsequent distress and disorder. (Hugelius, 2021).

Desire for Organizational Support

The expressed desires of the participants from their organization include 1) Transportation, 2) Presence of board and lodging, and 3) additional staff.

Participant Pedring wishes, "*Mas maganda sana kung ma-implement ng hospital and support for nurses' Transportation, Food allowance, and vitamins during duties*" (it would be better if hospitals could implement support for nurses' Transportation, food allowance and provide vitamins during their duties). Sharing the lessons from recent first-hand experiences will improve the public transit industry's emergency preparedness, response, and recovery activities (Hugelius, & Adolfsson, 2019). Participant 3: "*I want to ask for support in Transportation during a typhoon to be provided by the hospital staff. For staff or people experiencing psychological stress, a support group can be established either within their hospital or online to help alleviate the stress felt by affected individuals*". The following actions address the unique problems that typhoons

present, especially in hospital settings. In order to continue providing crucial healthcare services during extreme weather events, they place a high priority on safety, well-being, and resilience.

This study examined barriers and facilitators that hospital staff encountered following a major natural disaster from the management perspective. Our findings suggest that proactively addressing staff needs and concerns can help mitigate barriers, strengthen professional duty, and increase willingness to report. In addition, improving workplace and personal preparedness efforts can help ensure adequate staffing to mount an effective response when a disaster occurs. (Kimin et al, 2022). Adequate nurse staffing is essential for providing high-quality patient care, reducing healthcare costs, and ensuring legal compliance. Focused Staffing Group, a healthcare staffing agency, can help hospitals and healthcare facilities maintain optimal staffing levels and improve patient care. By partnering with Focused Staffing Group, facilities can rest assured that they have a reliable and experienced team of nurses on staff to meet their patients' needs. (Graveline and Germain, 2022). Participant Yolanda said: *“Increasing the number of responsible staff and experienced managers to lead them in hospitals will improve the services and health of people. With these, other services can be planned and provided to people.”* The verbatim emphasizes how crucial it is to staff hospitals and rural health facilities with capable workers and knowledgeable administrators. This is a technique to improve local healthcare services and population health. It also suggests that a team of healthcare professionals with the right tools might think beyond the fundamentals and plan for more services, perhaps meeting the neighborhood's broader spectrum of health needs.

During disasters, the importance of board and lodging for hospital workers becomes crucial for maintaining their well-being and ensuring the continuity of healthcare services. Su et al (2022) emphasizes that aside from skills development providing suitable accommodations for healthcare professionals during crises is essential to sustain their physical and mental health. Sanjaya (2022) also highlights that access to secure and comfortable lodging enables hospital staff to remain close to their workplaces, reducing response time and enhancing overall disaster preparedness. In times of crisis, ensuring that hospital workers have adequate board and lodging is not only a matter of convenience but also a strategic approach to optimize the effectiveness of the healthcare system.

Fourth Theme: King of the Hill (The Participants' Realizations)

The last theme that emerged in this phenomenological inquiry was their realizations. A King of the Hill is much like a game where the objective is to remain on top of a hill against challengers. When it comes to accepting and understanding people, nurses who have realized who they are more mature than those who have not. They can express their emotions honestly and candidly

Nurses exhibit exceptional bravery and assistance during calamities, playing a pivotal role in disaster response. Yu et al (2023) underscores the courage displayed by nurses in challenging situations, highlighting their commitment to patient care even in the face of adversity. Moreover,

a study published in the Journal of Trauma Nursing (Wolf et al., 2019, p. 38-49) emphasizes the selflessness of nurses during calamities, detailing their tireless efforts to provide care, comfort, and support to those affected. This underlines the crucial humanitarian role that nurses play in times of crisis.

According to Banks (2023), a higher frequency of disasters challenges every country to develop appropriate strategies to reduce the impacts of disasters. In short, a disaster is a condition in which the destructive effects of an event provoked by nature or human beings surpass the resources required by a community or region. Participant Yolanda shared: *“I’ve realized that preparation and training of the nursing staff significantly impacts our ability to care for and protect the most vulnerable people. But despite our struggles it is fulfilling to do our job, I am proud to be a nurse and I will continue to do my best and help people.”*

Participant Ompong also added, *“dito ko napagtanto na parang nakahukay ang isa nating mga paa bilang mga nasa frontline dahil anumang trahedya ang dumating, kailangan pa rin nila ang tulong natin. Nakakatakot ako pero napamahal na ako sa trabaho bilang nurse kaya lalaban pa rin hanggang dulo makapagbigay lamang ng serbisyong tapat. Isang ngiti lang mula mga pasyenteng gumaling, isang pagkumusta at pagpapasalamat ay napakalaking bagay na tagos sa puso na kailanman ay di matutumbasan ng ano mang bagay. Ako ay isang nars, iaalay ang aking buhay, makadugtong lamang ng isa pang buhay”*. (I've realized that it's as if we have dug deep with one of our feet as frontline workers because no matter what tragedy comes, they still need our help. I'm scared, but I've grown fond of my job as a nurse, so I will keep fighting until the end to provide sincere service. Just one smile from a recovering patient, a simple "how are you?," and a thank you mean so much and touch the heart, and it can never be replaced by anything. I am a nurse, dedicating my life to saving another life).

Disasters are catastrophic events that often result in extensive property damage and loss of life. Extreme devastation can occur from both man-made and natural disasters. Nurses play a significant role in responding to disasters to help ensure the best possible outcomes. They usually desire to help but only sometimes know where to start. If inadequately prepared, a nurse can be more of a hindrance than a help in disaster relief efforts. The best time to prepare for a disaster is before it occurs. (Hassan, 2019, p. 16-17).

Moreover, (Sofyana et al., 2022) discusses how nurses' adaptability and quick decision-making skills contribute significantly to effective disaster response. Their ability to remain calm under pressure and prioritize patient well-being demonstrates their indispensable role in mitigating the impact of calamities. In summary, the bravery and helpfulness of nurses during calamities are well-documented, showcasing their unwavering dedication to patient care and community well-being in the face of challenging circumstances.

To sum up, one can see from the accounts of the participants that they had fears, worries, and challenges, but they were able to overcome them as they had various coping mechanisms and

reasons to do their jobs. Despite the many challenges they encounter along the way, they are also very determined to keep going, overcome their challenges, and continue their job as a nurse who works every day to save lives, especially during disasters that include typhoons.

The four major themes that emerged from this phenomenological study are captured in Figure 7. Figure 7 shows the eidetic symbol of the study: A valiant white patriot, it exemplifies the nurses' different experiences while performing their duties during typhoons. Theme One: "An Uphill Climb" talked about their worries and challenges with nine sub-themes, and these are: *their fears and worries; their challenges with finances; staffing and schedules; transportation and lodging; risk and hazards; property and financial loss; their health and self-care; communication; and overwork.*

They also have their means of coping that were discussed on the major theme two: "Phalanx of Protection", They are able to cope, and they forwarded active *coping (AC)*, *mental disengagement (MD)*, and *seeking social support for emotional reasons (SSSER) as means of coping with the challenge.*

Theme three: "The Gladius" talked about their desires, which include more disaster training and organizational support. This will serve as their weapon in facing challenges and difficult times during typhoons.

The final theme is called "King of the Hill," and it discusses the realizations that they have been having. They will choose to continue the fight to save lives and assist those who are in desperate need of medical care and assistance, particularly during natural disasters such as typhoons, despite the difficulties and obstacles that they face. Even if it puts their lives in jeopardy, they are steadfast in their commitment to the oath they took as public servants and, more importantly, as nurses.

Nurses often come to a profound realization about the significance and immense challenges of their role during typhoons and disasters. The urgency to provide care intensifies as they face adverse conditions, including limited resources, disrupted infrastructure, and heightened risks. The gravity of their responsibility becomes even more apparent as they navigate through unpredictable circumstances to deliver essential medical assistance. Despite the difficulties, this realization reinforces their dedication, highlighting the vital role nurses play in ensuring the health and well-being of communities in the face of natural disasters.

IV. Conclusion

Based on the findings, the conclusions below are derived:

Nurses, like other professionals, are essential in the delivery of services, especially during disasters. They met challenges along the way but also had a means of coping. As nurses, they have seen the challenging conditions of nurses during typhoons, and they desire to improve the same. Finally, to help uplift the situations of nurses, they are all very much determined and committed to serving and saving lives, even if it endangers their own lives. Achieving their resilience is important especially during disasters.

Nurses are vital during typhoons and disasters, providing essential healthcare and support. Their expertise in emergency care, triage, and rapid response is crucial in managing injuries and illnesses. Additionally, their ability to adapt to challenging environments ensures continuity of care, offering comfort and relief to affected individuals. In disaster situations, nurses are indispensable in coordinating medical efforts, promoting public health, and contributing to the overall resilience of communities.

V. Recommendations

The following recommendations are also forwarded:

1. A positive perception and understanding of the importance of acquiring disaster training should be instilled and implemented among nurses to equip them in times of disaster.
2. The implementation of comprehensive training programs specialized in disaster training programs that cover various scenarios, emphasizing skills such as triage, crisis communication, and resource management that will be available for all nurses regardless of their job status, should be done by hospitals or their organizations to ensure resilience.
3. Continuous Education is essential to have. Hospitals and organizations should establish a framework for ongoing Education and skill development, keeping nurses updated on the latest advancements in disaster management, technology, and healthcare practices.
4. Support and encouragement from the supervisors, colleagues, the organization, and the family of nurses should be made available to help them properly cope in times of disaster.
5. Constant motivation extended to the nurses is a need as it will help them overcome challenges, they encounter both in their work at the hospital and in their personal lives.
6. Nurse-patient ratio, job status, due compensation, and policies should be given attention as these will help alleviate the condition of nurses.

7. Hospitals and Organizations must provide temporary housing solutions for nurses during disasters, ensuring their proximity to healthcare facilities to minimize commute times and allow for continuous care.
8. Organizations must effectively implement well-managed rotation schedules to prevent burnout and exhaustion, allowing nurses to rest adequately during prolonged disaster responses.
9. Hospitals should have an enhanced communication infrastructure. An improved communication system ensures seamless connectivity between nurses, healthcare facilities, and emergency response teams, promoting efficient coordination and information exchange.
10. Organizations should implement Health and Wellness Programs. Implementation of health and wellness initiatives, including regular check-ups, fitness programs, and nutrition support, to maintain nurses' overall well-being and resilience.
11. Organizations/ hospitals should have financial support mechanisms. They should establish financial support systems to assist nurses facing economic challenges during and after disasters, recognizing the potential financial strain caused by disruptions in their personal and professional lives.
12. Hospitals where nurses are, should have recognition and appreciation for the complex work of nurses. Acknowledge and appreciate the efforts of nurses during and after disasters through public recognition, incentives, and support programs, fostering a sense of pride and motivation in their critical roles.
13. The findings from this study can be used not only as a blueprint for further research in this field but also as a catalyst for discussing policy to help improve the conditions of nurses in the Philippines, especially during disasters like typhoons.
14. Further research should shed light on other issues concerning nurses, especially in the clinical workforce.

REFERENCES

- [1] Alameddine M, Clinton M, Bou-Karroum K, Richa N, & Doumit MAA (2021). Factors Associated with the Resilience of Nurses During the COVID-19 Pandemic. *Worldviews Evid Based Nurse* Dec;18(6):320-331. doi: 10.1111/wvn.12544. Epub 2021 November 5. PMID: 34738308; PMCID: PMC8661653.
- [2] Alan, H., Eskici, G. T., Sen, H. T., & Bacaksiz, F. E. (2022). Nurses' disaster core competencies and resilience during the COVID-19 pandemic: A cross-sectional study from Turkey. *Journal of Nursing Management*, 30(3), 622-632. <https://doi.org/10.1111/jonm.13552>

- [3] Alibudbud, R. (2023). Addressing the Burnout and Shortage of Nurses in the Philippines. SAGE Open Nursing. <https://doi.org/10.1177/23779608231195737>
- [4] Almukhlifi, Y., Crowfoot, G., Wilson, A., & Hutton, A., (2020). Emergency healthcare workers' preparedness for disaster management: An integrative review. *Journal of Clinical Nursing*. <https://doi.org/10.1111/jocn.15965>
- [5] Al Harthi, M., Al Thobaity, A., Al Ahmari, W., & Almalki, M. (2020). Challenges for Nurses in Disaster Management: A Scoping Review. *Risk management and healthcare policy*, 13, 2627–2634. <https://doi.org/10.2147/RMHP.S279513>
- [6] Alan, H., Eskin Bacaksiz, F., Tiryaki Sen, H., Taskiran Eskici, G., Gumus, E., & Harmanci Seren, A. K. (2021). "I'm a hero, but ...": An evaluation of depression, anxiety, and stress levels of frontline healthcare professionals during the COVID-19 pandemic in Turkey. *Perspectives in Psychiatric Care*, 57, 1126–1136.
- [7] Al-Qbelat RM, Subih MM, Malak MZ., (2022). Effect of Educational Program on Knowledge, Skills, and Personal Preparedness for Disasters Among Emergency Nurses: A Quasi-Experimental Study. *Inquiry*. 2022 Jan-Dec; 59:469580221130881. doi: 10.1177/00469580221130881. PMID: 36281566; PMCID: PMC9608037.
- [8] Arab, M. A., Khankeh, H. R., Mosadeghrad, A. M., & Farrokhi, M. (2019). Developing a Hospital Disaster Risk Management Evaluation Model. *Risk Management and Healthcare Policy*, 12, 287-296. <https://doi.org/10.2147/RMHP.S215444>
- [9] Arkin, Monica., (2021) "Religious Coping After Natural Disaster: Predicting Long-Term Mental and Physical Health in Survivors of Hurricane Katrina". Graduate Masters Theses. 705. https://scholarworks.umb.edu/masters_theses/705
- [10] Banks, Sarah (2023), "Chaos is Not Rational: Nursing Leadership and Intuition in Disaster Preparedness and Response" (2023). Dissertations. 2105. <https://aquila.usm.edu/dissertations/2105>
- [11] Beauchemin, É., Côté, L.P., Drolet, M.J. and Williams-Jones, B. (2021), "Conceptualizing ethical issues in the conduct of research: results from a critical and systematic literature review", *Journal of Academic Ethics*, Vol. 20 No. 3, pp. 335-358, doi: 10.1007/s10805-021-09411-7.
- [12] Bhattacharya, S., Singh, A., Semwal, J., Marzo, R. R., Sharma, N., Goyal, M., Vyas, S., & Srivastava, A. (2020). Impact of a training program on disaster preparedness among paramedic students of a tertiary care hospital of North India: A single-group, before-after intervention study. *Journal of education and health promotion*, 9, 5. https://doi.org/10.4103/jehp.jehp_423_19
- [13] Bolas T, Werner K, Alkenbrack S, Uribe MV, Wang M, Risko N. The economic value of personal protective equipment for healthcare workers. *PLOS Glob Public Health*. 2023 Jun 22;3(6):e0002043. doi: 10.1371/journal.pgph.0002043. PMID: 37347760; PMCID: PMC10286963.
- [14] Bollettino, Vincenzo., Alcayna, Tilly., Enriquez, Krish, and Vinck, Patrick (2018). Perceptions of Disaster Resilience and Preparedness in the Philippines. Harvard Humanitarian Initiative.
- [15] Bouchard, I. (2021). Building Damage Assessment After a Natural Disaster in Emergency Contexts: A Deep Learning Approach [Master's thesis, Polytechnique Montréal]. PolyPublie. <https://publications.polymtl.ca/9470/>

- [16] Branson, Amy C.,(2023) "Self-Care in Mental Health: A Study on the Effectiveness of Self Care for Overall Mental Wellbeing" . Honors College Theses. 884. <https://digitalcommons.georgiasouthern.edu/honors-theses/884>
- [17] Brooks SK, Rubin GJ, Greenberg N. (2019). Traumatic stress within disaster-exposed occupations: overview of the literature and suggestions for the management of traumatic stress in the workplace. *Br Med Bull.* 2019 Mar 1;129(1):25-34. doi: 10.1093/bmb/ldy040. PMID: 30544131.
- [18] Carroll, C. D., Slacalek, J., & Tokuoka, K. (2018). The distribution of wealth and the marginal propensity to consume. *The Quarterly Journal of Economics*, 132*(2), 1071–1119. DOI: 10.1093/qje/qjx007
- [19] Catton, H. (2020). Global challenges in health and health care for nurses and midwives everywhere. *International Nursing Review*, 67(1), 4–6.
- [20] Center for Disaster Philanthropy (2022). CDP Atlantic hurricane season recovery fund. <https://disasterphilanthropy.org/funds/cdp-atlantic-hurricane-season-recovery-fund/>
- [21] Centre for Research on the Epidemiology of Disasters (CRED) (2019). *Natural Disasters 2019*. Brussels: Institute Health and Society UCLouvain.
- [22] Chegini, Z., Arab-Zozani, M., Kakemam, E., Lotfi, M., Nobakht, A., & Karkan, H. A. (2022). Disaster preparedness and core competencies among emergency nurses: A cross-sectional study. *Nursing Open*, 9(2), 1294-1302. <https://doi.org/10.1002/nop2.1172>
- [23] Chen, Y and Ji, W (2021). Rapid Damage Assessment Following Natural Disasters through Information Integration.
- [24] Chester, M., El Asmar, M., Hayes, S., & Desha, C. (2020). Post-Disaster Infrastructure Delivery for Resilience. *Sustainability*, 13(6), 3458. <https://doi.org/10.3390/su13063458>
- [25] Chimed-Ochir O, Yumiya Y, Taji A, Kishita E, Kondo H, Wakai A, Akahoshi K, Chishima K, Toyokuni Y, Koido Y, Kubo T. (2022) Emergency Medical Teams' responses during the West Japan heavy rain : J-SPEED data analysis. *Prehosp Disaster Med.* 2022;37(2):205–211.
- [26] Cho, M., Kim, O., Pang, Y., Kim, B., Jeong, H., Lee, J., Jung, H., Jeong, S. Y., Park, H. Y., Choi, H., & Dan, H. (2021). Factors affecting frontline Korean nurses' mental health during the COVID-19 pandemic. *International Nursing Review*, 68(2), 256–265.
- [27] Choi, J. (2022). A simulation-based nursing education of psychological first aid for adolescents exposed to hazardous chemical disasters. *BMC Medical Education*, 22. <https://doi.org/10.1186/s12909-022-03164-6>
- [28] Choi WS, Hyun SY, Oh H., (2022). Perceived Disaster Preparedness and Willingness to Respond among Emergency Nurses in South Korea: A Cross-Sectional Study. *Int J Environ Res Public Health.* 2022 Sep 19;19(18):11812. doi: 10.3390/ijerph191811812. PMID: 36142081; PMCID: PMC9517192.
- [29] Commission on Audit (COA) (2020). *Disaster Management Practices in the Philippines: An Assessment* p. 39 & 40. https://www.coa.gov.ph/disaster_audit/doc/National.pdf (Accessed 2.9.2020).
- [30] Cooper, Alannah., Brown, Janie., Rees, Clare., and Lelie, Gavin (2020). Nurse Resilience: A concept analysis. *International Journal of Mental Health Nursing*
- [31] Corcoran, C. M. (2020). Use of psychological first aid for nurses. *Nursing Economics*, 38(1), 26–32.
- [32] Creswell, J W (2018), *Research Design: Qualitative, Quantitative and Mixed Method Approaches* (4th edn), Sage, Thousand Oaks (CA).

- [33] Creswell J. and Poth, C. (2018). *Qualitative Inquiry and Research Design. Choosing among five approaches*. Fourth Edition. SAGE Publishing.
- [34] Crossman, A. (2020). *Understanding Purposive Sampling. An Overview of the Methods and Its Applications*. <https://www.thoughtco.com/purposive-sampling-3026727>
- [35] Cudjoe, E. (2023). *Making Sense of Husserlian Phenomenological Philosophy in Empirical Research*. *International Journal of Qualitative Methods*. https://doi.org/10.1177_16094069231171099
- [36] Cuesta, J., van Loenhout, J. A., L., M., Isiderio, J. M., & Aujoulat, I. (2018). *The Impact of Typhoon Haiyan on Health Staff: A Qualitative Study in Two Hospitals in Eastern Visayas, The Philippines*. *Frontiers in Public Health*, 6, 385451. <https://doi.org/10.3389/fpubh.2018.00208>
- [37] Cueto, L. J., & Agaton, C. B. (2021). *Pandemic and Typhoon: Positive Impacts of a Double Disaster on Mental Health of Female Students in the Philippines*. *Behavioral Sciences*, 11(5), 64. <https://doi.org/10.3390/bs11050064>
- [38] Cullman, J. et al., (2020). *State of Climate Services: Risk Information and Early Warning Signs*, Geneva: World Meteorological Organization.
- [39] Curado, C., Henriques, P. L., Jerónimo, H. M., & Azevedo, J. (2022). *The Contribution of Communication to Employee Satisfaction in Service Firms: A Causal Configurational Analysis*. *Vision*. <https://doi.org/10.1177/09722629221101157>
- [40] Dąbrowska, J., Menéndez Orellana, A. E., Kilian, W., Moryl, A., Cielecka, N., Michałowska, K., Policht-Latawiec, A., Michalski, A., Bednarek, A., & Włóka, A. (2023). *Between flood and drought: How cities are facing water surplus and scarcity*. *Journal of Environmental Management*, 345, 118557. <https://doi.org/10.1016/j.jenvman.2023.118557>
- [41] Dela Pena, K. (2023). *World Economic Forum projection: Debt, inflation biggest threats to the Philippines*. *Asia News Network*. Retrieved from <https://asianews.network/world-economic-forum-projection-debt-inflation-biggest-threats-to-philippines/>
- [42] DeLia, D., & Young, G. J. (2019). *Hospital evacuation planning in the United States: Challenges and opportunities*. *Prehospital and Disaster Medicine*, 34*(2), 192-198. DOI: 10.1017/S1049023X18001260
- [43] Delfino RJP, Bagtasa G, Vidale PLV, Hodges K (2022a) *Sensitivity of simulating Typhoon Haiyan (2013) using WRF: the role of cumulus convection surface flux parameterizations spectral nudging and initial and boundary conditions*. *Nat Hazards Earth Syst Sci* 22:3285–3307
- [44] Delfino, R.J., Vidale, P.L., Bagtasa, G. et al. *Response of damaging Philippines tropical cyclones to a warming climate using the pseudo global warming approach*. *Clim Dyn* 61, 3499–3523 (2023). <https://doi.org/10.1007/s00382-023-06742-6>
- [45] Denning, Lauren Marie (2022). *"A historical analysis of the U.S. Federal Emergency Management Agencies (FEMA) response and recovery to Gulf Coast hurricane and other weather-related disasters"*. *Graduate Research Papers*. 2476.
- [46] *Disaster and Emergency Management Presidency*. (2020). *Overview of 2019 within the scope of disaster management and statistics on natural events*.
- [47] DiTirro, Lindsey J.,(2018) *"Conceptualizing Individual Disaster Resilience: Benchmarking Tools for Individual and Social Coping Capacity for a Disaster Resilient Society"* (2018). *Open Access Dissertations*. 1716.
- [48] https://docs.lib.purdue.edu/open_access_dissertations/1716

- [49] Eid-Heberle, K. (2023). Ethical Considerations for Nurses Conducting Post-disaster Research. *Journal of Radiology Nursing*, 42(1), 26-33. <https://doi.org/10.1016/j.jradnu.2022.09.008>
- [50] Farokhzadian, J., Farahmandnia, H., Tavan (2023), A. et al. Effectiveness of an online training program for improving nurses' competencies in disaster risk management. *BMC Nurs* 22, 334 (2023). <https://doi.org/10.1186/s12912-023-01497-1>
- [51] Farokhzadian, J., Mangolian Shahrabaki, P., Farahmandnia, H. et al.(2024). Nurses' challenges for disaster response: a qualitative study. *BMC Emerg Med* 24, 1 (2024). <https://doi.org/10.1186/s12873-023-00921-8>
- [52] Fernandez, J. P. Q. (2019). Disaster preparedness among senior nurses in selected hospitals in Kalibo, Aklan (Unpublished Master's thesis). Central Philippine University, Jaro, Iloilo City.
- [53] Firestone, S. (2020). *Biblical principles of crisis leadership*. Springer International Publishing.
- [54] Firouzkouhi, M., Kako, M., Abdollahimohammad, A., Balouchi, A., & Farzi, J. (2021). Nurses' Roles in Nursing Disaster Model: A Systematic Scoping Review. *Iranian Journal of Public Health*, 50(5), 879-887. <https://doi.org/10.18502/ijph.v50i5.6105Copy>
- [55] Flaubert JL, Le Menestrel S, Williams DR, et al., (2021). National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on the Future of Nursing 2020–2030; Washington (DC): National Academies Press (US); 2021 May 11.
- [56] Folkman, S., Greer, S., & Promislow, S. (2018). Stress, coping, and hope. *Psycho-Oncology*, 27(6), 1438-1444.
- [57] Forero, R., Nahidi, S., De Costa, J., Mohsin, M., Fitzgerald, G., Gibson, N., Aboagye-Sarfo, P. (2018). Application of four-dimension criteria to assess the rigor of qualitative research in emergency medicine. *B.M.C. Health Services Research*, 18(1). <https://doi.org/10.1186/s12913-018-2915-2>
- [58] Gallup Poll. (2019). Most Trusted Profession. *Ethics*.
- [59] Gray, L., Becker, J. S., MacDonald, C., & Johnston, D. (2022). Sizing up disaster risk reduction: A qualitative study of the voices of big bodied people in Aotearoa New Zealand. *International Journal of Disaster Risk Reduction*, 74, 102922. <https://doi.org/10.1016/j.ijdrr.2022.102922>
- [60] Gil Cuesta J, van Loenhout JAF, de Lara-Banquesio ML, Isiderio JM, Aujoulat I and Guha-Sapir D (2018). The Impact of Typhoon Haiyan on Health Staff: A Qualitative Study in Two Hospitals in Eastern Visayas, The Philippines. *Front. Public Health* 6:208. Doi: 10.3389/fpubh.2018.00208
- [61] George, J., (2019). The Role of Resilience and Preparedness in Nurses Working During Hurricane Disasters. *Nursing Theses and Dissertations*. Paper 99.
- [62] Global Risk Index Result (INFORM) (2021). Available at: <https://drmkc.jrc.ec.europa.eu/informindex/Portals/0/InfoRM/2021/INFORM%20Annual%20Report%202021.pdf> (accessed August 17, 2021).
- [63] Godsey, J. A., Houghton, D. M., & Hayes, T. (2020). Registered nurse perceptions of factors contributing to the inconsistent brand image of the nursing profession. *Nursing Outlook*, 68(6), 808-821. <https://doi.org/10.1016/j.outlook.2020.06.005>
- [64] Goodwin, D., Mays, N., & Pope, C. Ethical Issues in Qualitative Research. 27–41. <https://doi.org/10.1002/9781119410867.ch3>

- [65] Gottlieb, M., Caretta-Weyer, H., Chan, T. M., & Humphrey-Murto, S. (2023). Educator's blueprint: A primer on consensus methods in medical education research. *AEM Education and Training*, 7(4), e10891. <https://doi.org/10.1002/aet2.10891>
- [66] Government of the Philippines (GOVPH), 2020. Climate of the Philippines <http://bagong.pagasa.dost.gov.ph/information/climate-philippines> (Accessed 10.9.2020)
- [67] Grande, R. A. N., Berdida, D. J. E., Villagrancia, H. N., Cornejo, L. T. O., Villacorte, L. M., & Borja, M. V. F. (2021). Association between perceived resilience and mental well-being of Saudi nursing students during COVID-19 pandemic: A cross-sectional study. *Journal of Holistic Nursing*,
- [68] Graveline, MH., Germain, D. Disaster Risk Resilience: Conceptual Evolution, Key Issues, and Opportunities. *Int J Disaster Risk Sci* 13, 330–341 (2022). <https://doi.org/10.1007/s13753-022-00419-0>
- [69] Grimes, A., Sparke, V., Rouen, C., & West, C. (2020). Preparedness and resilience of student nurses in Northern Queensland Australia for disasters. *International Journal of Disaster Risk Reduction*, 48, 101585.
- [70] Guillasper, J. N., Oducado, R. M. F., & Soriano, G. P. (2021). The protective role of resilience on COVID-19 impacts the quality of life of nursing students in the Philippines. *Belitung Nursing Journal*, 7(1), 43–49. <https://doi.org/10.33546/bnj.1297>
- [71] Guo, Y. F., Plummer, V., Lam, L., Wang, Y., Cross, W., & Zhang, J. P. (2019). The effects of resilience and turnover intention on nurses' burnout: Findings from a comparative cross-sectional study. *Journal of Clinical Nursing*, 28(3–4), pp. 499–508.
- [72] Han, P., Duan, X., Jiang, J., Zeng, L., Zhang, P., & Zhao, S. (2023). Experience in the development of nurses' personal resilience: A meta-synthesis. *Nursing Open*, 10(5), 2780–2792. <https://doi.org/10.1002/nop2.1556>
- [73] Hasan, Md. T. et al. (2021). COVID-19 in Bangladesh: An Especially Difficult Time for an Invisible Population. *Disability & Society*, 36, 1362–1367.
- [74] <https://doi.org/10.1080/09687599.2021.1929080>
- [75] Hassan, I. (2019). The American Red Cross' Disaster Protocol:: The Delaware Chapter. *Delaware Journal of Public Health*, 5(4), 16–17. <https://doi.org/10.32481/djph.2019.10.006>
- [76] Harthi, M. A., Thobaity, A. A., Ahmari, W. A., & Almalki, M. (2020). Challenges for Nurses in Disaster Management: A Scoping Review. *Risk Management and Healthcare Policy*, 13, 2627–2634. <https://doi.org/10.2147/RMHP.S279513>
- [77] Hidalgo, J and Baez, AA (2019). Natural Disasters. *Crit Care Clin*. 2019 Oct;35(4):591-607. doi: 10.1016/j.ccc.2019.05.001. Epub 2019 July 15. PMID: 31445607.
- [78] Hiltz, S. R., & Tapia, A. H. (2019). Information, technology, and coordination in disasters: How crisis informatics can enhance collective action in the face of escalating emergencies. In *Crisis Information Management* (pp. 29–46). Springer.
- [79] Hugelius K (2021). Disaster nursing research: A scoping review of the nature, content, and trends of studies published during 2011–2020. *Int Emerg Nurs*. 2021 Nov;59:101107. doi: 10.1016/j.ienj.2021.101107. Epub 2021 Nov 2. PMID: 34740117; PMCID: PMC8563058.
- [80] Hugelius, K., & Adolfsson, A. (2019). The HOPE model for disaster nursing – A systematic literature review. *International Emergency Nursing*, 45, 1–9. <https://doi.org/10.1016/j.ienj.2019.03.007>
- [81] Hsu, Chia-Chien and Sandford, Brian A. (2019) "The Delphi Technique: Making Sense of Consensus," *Practical Assessment, Research, and Evaluation*: Vol. 12, Article 10. DOI:

<https://doi.org/10.7275/pdz9-th90> Available at:
<https://scholarworks.umass.edu/pare/vol12/iss1/10>

- [82] Intergovernmental Panel on Climate Change (IPCC) (2018). Special Report on Global Warming of 1.5°C.
- [83] International Council of Nursing (ICN). (2019). Core competencies in Disaster Nursing Version 2.0. International Council of Nursing: Geneva, Switzerland.
- [84] International Federation of Red Cross and Red Crescent [IFRC]. (2020). World Disasters Report 2020: Heat or high water- tackling the humanitarian impacts of the climate crisis together. International Federation of Red Cross and Red Crescent Societies, Geneva. https://media.ifrc.org/ifrc/wp-content/uploads/2020/11/20201116_WorldDisasters
- [85] International Federation of the Red Cross and Red Crescent Societies World Disasters Report (2020). Come Heat or High Water. Geneva, Switzerland.
- [86] Jaeger, Justine; Burnett, Harvey J. Jr.; and Witzel, Kristen R.,(2021) "Spiritual Well-Being - A Proactive Resilience Component: Exploring Its Relationship with Practices, Themes, and Other Psychological Well-Being Factors during the COVID-19 Pandemic in CISM-Trained First Responders". Faculty Publications. 4226.
- [87] Janitra FE, Jen HJ, Chu H, Chen R, Pien LC, Liu D, Lai YJ, Banda KJ, Lee TY, Lin HC, Chang CY, Chou KR., (2023). Global prevalence of low resilience among the general population and health professionals during the COVID-19 pandemic: A meta-analysis. *J Affect Disord.* 2023 July 1;332:29-46. doi: 10.1016/j.jad.2023.03.077. Epub 2023 March 31. PMID: 37004902; PMCID: PMC10063525.
- [88] Jang SJ, Cho S., (2023). Disaster nursing competencies of rural nurses during COVID-19: A cross-sectional study. *Collegian.* 2023 Apr;30(2):264-269. doi: 10.1016/j.colegn.2022.09.007. Epub 2022 September 16. PMID: 36128018;
- [89] Jang I., Kim J.S., Lee J., Seo Y., (2021). Educational needs and disaster response readiness: A cross-sectional study of clinical nurses. *Journal of Advanced Nursing.* 2021;77(1):189–197. doi: 10.1111/jan.14570. -
- [90] Johns Hopkins University & Medicine (2021). Coronavirus Resource Center 2021 [Available from: <https://coronavirus.jhu.edu/region/sweden>].
- [91] Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A Review of the Quality Indicators of Rigor in Qualitative Research. *American Journal of Pharmaceutical Education*, 84(1). <https://doi.org/10.5688/ajpe7120>
- [92] Jones, J. R. (2018). Delphi Study Identifying Future Technical Competencies for Architecture and Construction Educators. Graduate Theses and Dissertations Retrieved from <https://scholarworks.uark.edu/etd/3026>
- [93] Kaji, A. H., Lewis, R. J., Beavers-May, T. K., Berg, R. A., & Bulger, E. M. (2018). Summary of NIH Medical Center evacuation: Hurricane Katrina. *Southern Medical Journal*, 101*(10), 1028–1035. DOI: 10.14423/SMJ.0000000000000907
- [94] Kalanlar, B. (2018). Effects of disaster nursing education on nursing students' knowledge and Preparedness for disasters. *International Journal of Disaster Risk Reduction*, pp. 28, 475–480. <https://doi.org/10.1016/j.ijdr.2017.12.008>
- [95] Kam, J., Cui, Y., & Paschalidis, I. C. (2020). An artificial intelligence framework for disaster response optimization. *IEEE Transactions on Network Science and Engineering*, 7(4), 2643-2656.
- [96] Kamble, Z., (2022), "Reflections of a Qualitative Researcher: Structuring a Qualitative Research Methodology—An Illustration from a PhD Thesis", Okumus, F., Rasoolimanesh, S.M.

- and Jahani, S. (Ed.) Contemporary Research Methods in Hospitality and Tourism, Emerald Publishing Limited, Leeds, pp. 157-173. <https://doi.org/10.1108/978-1-80117-546-320221011>
- [97] Kamesyworu, K., & Haryanti, E. (2023). The Health Education Regarding Basic Life Support (BLS) According To AHA 2020 On The Level Of Knowledge And Skills Of Health Personnel. *Journal of Applied Nursing and Health*, 5(2), 300–306.
- [98] Kang J-Y, Choi Y-J (2021). Effects of a psychological first aid simulated training for pregnant flood victims on disaster relief worker’s knowledge, competence, and self-efficacy. *Appl Nurs Res*. 2021;57:151348. doi: 10.1016/j.apnr.2020.151348.
- [99] Karimi Dehkordi, N., Abbasi, A. F., Radmard Lord, M., Soleimanpour, S., & Goharinezhad, S. (2021). Interventions to Improve the Willingness to Work Among Health care Professionals in Times of Disaster: A Scoping Review. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*. https://doi.org/10.1177_00469580211059959
- [100] Kılıç N, Şimşek N., (2019). The effects of psychological first aid training on disaster preparedness perception and self-efficacy. *Nurse Educ Today*. 2019 Dec; 83:104203. doi: 10.1016/j.nedt.2019.104203. Epub 2019 September 6. PMID: 31683114.
- [101] Kim, Y., & Han, W. (2021). Development of Psychological First Aid Guidelines for People Who Have Experienced Disasters. *International Journal of Environmental Research and Public Health*, 18(20). <https://doi.org/10.3390/ijerph182010752> Copy
- [102] Kimbro, Grace Elizabeth, (2022). "The Use of Active Coping Compared to Self-Distracted to Reduce Perceived Stress in Upper Division Nursing Students" (2022). Honors Capstone Projects and Theses. 714. <https://louis.uah.edu/honors-capstones/714>
- [103] Kimin, A., Nurachmah, E., Lestari, F., & Gayatri, D. (2022). Factors Affecting Nurses’ Ability to Provide Effective Care in a Disaster Response: A Review. *Journal of Public Health Research*. <https://doi.org/10.4081/jphr.2021.2732>
- [104] Koca, B., & Arkan, G. (2020). The effect of the disaster management training program among nursing students. *Public Health Nursing*, 37(5), 769-777. <https://doi.org/10.1111/phn.12760>
- [105] Korstjens, Irene and Moser, Abine (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing, *European Journal of Genera*.
- [106] Kose, S., Akin, S., Mendi, O., & Goktas, S. (2019). The effectiveness of basic life support training on nursing students' knowledge and basic life support practices: a non-randomized quasi-experimental study. *African Health Sciences*, 19(2), 2252–2262. <https://doi.org/10.4314/ahs.v19i2.51Practice>, 24:1, 120 124, DOI: 10.1080/13814788.2017.1375092
- [107] Kourtit, K., Nijkamp, P., & Banica, A. (2023). An analysis of natural disasters’ effects – A global comparative study of ‘Blessing in Disguise’. *Socio-Economic Planning Sciences*, 88, 101599. <https://doi.org/10.1016/j.seps.2023.101599>
- [108] Kugum K G, Inal Onal E (2022). Nurses' Willingness and Competence to Work During Disasters and Their Related Factors: Case Study of a State Hospital in Turkey. *Health in Emergencies and Disasters Quarterly* 2022; 7 (4):215-226
- [109] Kwame, A., Petrucka, P.M., (2021). A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. *BMC Nurs* 20, 158. <https://doi.org/10.1186/s12912-021-00684-2>
- [110] Labrague, L. J., & de los Santos, J. A. A. (2020). COVID-19 anxiety among frontline nurses: Predictive role of organizational support, personal resilience, and social support. *Journal of Nursing Management*, 28(7), 1653–1661.

- [111]Laurito, Maria Marta (2018). Economic and Demographic Effects of Infrastructure Reconstruction After a Natural Disaster. Dissertation, Duke University. Retrieved from <https://hdl.handle.net/10161/16889>.
- [112]Leng, M., Xiu, H., Yu, P., Feng, J., Wei, Y., Cui, Y., Zhang, M., Zhou, Y., & Wei, H. (2020). Current state and influencing factors of nurse resilience and perceived job-related stressors. *The Journal of Continuing Education in Nursing*, 51(3), 132–137.
- [113]Li, W., Yang, Y., Liu, Z. H., Zhao, Y. J., Zhang, Q., Zhang, L., Cheung, T., & Xiang, Y. T. (2020). Progression of mental health services during the COVID-19 outbreak in China. *International Journal of Biological Sciences*, 16(10), 1732–1738.
- [114]Li, Y., Hockenberry, J.M., Chen, J. et al., (2022). Registered nurses: Can our supply meet the demand during a disaster? *B.M.C. Nurse* 21, 7 (2022). <https://doi.org/10.1186/s12912-021-00794-x>
- [115]Liu, Q., Jiang, M., Li, S., & Yang, Y. (2021). Social support, resilience, and self-esteem protect against common mental health problems in early adolescence: A nonrecursive analysis from a two-year longitudinal study. *Medicine*, 100(4).<https://doi.org/10.1097/MD.00000000000024334>
- [116]Liu, M., Vecchi, G. A., Smith, J. A., & Knutson, T R., (2019). Causes of significant projected increases in hurricane precipitation rates with global warming. *N.P.J. climate and atmospheric science*, 2(1), 38.
- [117]Lochmiller, C. R. (2021). Conducting Thematic Analysis with Qualitative Data. *The Qualitative Report*, 26(6), 2029-2044. <https://doi.org/10.46743/2160-3715/2021.5008>
- [118]Lorente, L., Vera, M., & Peiró, T. (2021). Nurses' stressors and psychological distress during the COVID-19 pandemic: The mediating role of coping and resilience. *Journal of Advanced Nursing*, 77(3), 1335–1344.
- [119]Lorenzoni, N., Stühlinger, V., Stummer, H., & Raich, M. (2020). Long-Term Impact of Disasters on the Public Health System: A Multi-Case Analysis. *International Journal of Environmental Research and Public Health*, 17(17), 6251. <https://doi.org/10.3390/ijerph17176251>
- [120]Maideen,H.K., Lupat, AA A., Nur-Diyana, S., H., R., H., N., Osman, A., Reduan, H. M., Busrah, N., & Idris, D. R. (2022). “Embracing the Inner Strength and Staying Strong”: Exploring Self-Care Preparedness among Nurses for Enhancing Their Psychological Well-Being against the Long-Term Effect of COVID-19 Pandemic in Brunei Darussalam. *International Journal of Environmental Research and Public Health*, 20(17), 6629. <https://doi.org/10.3390/ijerph20176629>
- [121]Makwana, N. (2019). Disaster and its impact on mental health: A narrative review. *Journal of Family Medicine and Primary Care*, 8(10), 3090-3095. https://doi.org/10.4103/jfmprc.jfmprc_893_19
- [122]Magalhães, L.M.C.A., Silva Costa, K.T., Capistrano, G.N. et al. (2022). A study on occupational health and safety. *B.M.C. Public Health* 22, 2186 (2022). <https://doi.org/10.1186/s12889-022-14584-w>
- [123]Maleki L, Moghadamnia MT, Porshikhian M, Kazemnejad E., (2018). Evaluation of the factors predicting nurses' attitude to the phase of Preparedness to respond to disasters. *Rev Latinoama Hipertens* 2018;13:538–43.
- [124]Mao, X., Fung, O. W. M., Hu, X., & Loke, A. Y. (2018). Psychological impacts of disaster on rescue workers: A review of the literature. *International Journal of Disaster Risk Reduction*, 27, 602–617.

- [125] Marjanovic, S., Altenhofer, M., Hocking, L., Chataway, J., & Ling, T. (2020). Innovating for improved healthcare: Sociotechnical and innovation systems perspectives and lessons from the NHS. *Science and Public Policy*, 47(2), 283-297. <https://doi.org/10.1093/scipol/scaa005>
- [126] Mashuri, S., Sarib, M., Alhabsyi, F., & Ruslin, R. (2022). Semi-structured Interview: A Methodological Reflection on the Development of a Qualitative Research. . . ResearchGate. https://www.researchgate.net/publication/358893176_Semi-structured_Interview_A_Methodological_Reflection_on_the_Development_of_a_Qualitative_Research_Instrument_in_Educational_Studies#fullTextFileContent
- [127] Maxtin, M (2021). Resiliency Can Be Taught: The Impact of an Evidence-Based Training on Nurse Resilience. P. 16. University of Texas at Tyler.
- [128] McMullin, C. (2023). Transcription and Qualitative Methods: Implications for Third Sector Research. *Voluntas* 34, 140–153.
- [129] Mendoza R.U. & Romano D.L. (2020). Disaster Preparedness in Philippine Nurses. The Philippines Anti-Terrorism Act: Who Guards the Guardians? The Diplomats. *the-philippines-anti-terrorism-act-who-guards-the-guardians*. (Accessed 20.9.2020).
- [130] Mideksa, S. (2021). Cognitive Factors as Determinants of Typhoon Preparedness among Public High School Students in the Philippines. *Ethiopian Journal of Health Sciences*, 31(4), 817-822. <https://doi.org/10.4314/ejhs.v31i4.16>
- [131] Mistretta, E.G., Davis, M.C.; Temkin, M.; Lorenz, C.; Darby, B.; Stonnington, C., (2018). Resilience Training for Work-Related Stress Among Health Care Workers: Results of a Randomized Clinical Trial Comparing In-Person and Smartphone-Delivered Interventions. *J. Occup. Environ. Med.* 2018, 60, 559–568.
- [132] Montgomery AP, Patrician PA., (2022). Work environment, resilience, burnout, intent to leave during COVID pandemic among nurse leaders: A cross-sectional study. *J Nurs Manag.* 2022 Nov;30(8):4015-4023. doi: 10.1111/jonm.13831. Epub 2022 October 14. PMID: 36190507; PMCID: PMC9874867.
- [133] Murphy, J. P. (2021). Disaster Response and Preparedness: Focus on Hospital Incident Command Groups and Emergency Department Registered Nurses. Karolinska Institutet, Stockholm, Sweden.
- [134] National Disaster Risk Reduction and Management Plan (NDRRMP) 2011-2028 Asia/documents/dm_information/Philippines. (Accessed 9.9.2020). Health, 8, 561103. <https://doi.org/10.3389/fpubh.2020.00457>
- [135] Naser, W.N., Saleem, H.B (2018). Emergency and disaster management training; knowledge and attitude of Yemeni health professionals- a cross-sectional study. *B.M.C. Emerg Med* 18, 23. <https://doi.org/10.1186/s12873-018-0174-5>
- [136] Newman, P. A., Guta, A., & Black, T. (2021). Ethical Considerations for Qualitative Research Methods During the COVID-19 Pandemic and Other Emergency Situations: Navigating the Virtual Field. *International Journal of Qualitative Methods*. https://doi.org/10.1177_16094069211047823
- [137] Niederberger M, Spranger J. Delphi Technique in Health Sciences: A Map. *Front Public Health.* 2020 Sep 22;8:457. doi: 10.3389/fpubh.2020.00457. PMID: 33072683; PMCID: PMC7536299.
- [138] Official Gazette (2020). THE PHILIPPINE PUBLIC STORM WARNING SIGNALS *the-philippine-public-storm-warning-signals/* (Accessed 6.9.2020)

- [139] Opiniano, Gina A. & Abrigo, Michael R.M. & Tam, Zhandra C., 2023. "Impact Evaluation of the Human Resource for Health Deployment Program (HRHDP)," Discussion Papers DP 2023-03, Philippine Institute for Development Studies.
- [140] Ou, X., Chen, Y., Liang, Z., Wen, S., Li, S., & Chen, Y. (2021). Resilience of nurses in isolation wards during the COVID-19 pandemic: A cross-sectional study. *Psychology, Health & Medicine*, 26(1), 98–106.
- [141] Padhan, N., & Madheswaran, S. (2023). Effectiveness of post-disaster coping strategies among the farming households in the coastal districts of Odisha, India. *Natural Hazards Research*, 3(1), 66-75. <https://doi.org/10.1016/j.nhres.2022.12.006>
- [142] Pant, G., Alka, Garlapati, D. et al. (2020). Air quality assessment among populous sites of major metropolitan cities in India during COVID-19 pandemic confinement. *Environ Sci Pollut Res* 27, 44629–44636 (2020). <https://doi.org/10.1007/s11356-020-11061-y>
- [143] Patel, R. K., Pamidimukkala, A., Kermanshachi, S., & Etminani-Ghasrodashti, R. (2023). Disaster Preparedness and Awareness among University Students: A Structural Equation Analysis. *International journal of environmental research and public health*, 20(5), 4447. <https://doi.org/10.3390/ijerph20054447>
- [144] Pouraghaei, M., Babaie, J., & Saeed, L. R. (2022). Challenges of Emergency Medical Services Response to Arasbaran Twin Earthquakes; a Content Analysis. *Archives of Academic Emergency Medicine*, 10(1). <https://doi.org/10.22037/aaem.v10i1.1571>
- [145] Pradhan, N. A., Najmi, R., & Fatmi, Z. (2022). District health systems capacity to maintain healthcare service delivery in Pakistan during floods: A qualitative study. *International Journal of Disaster Risk Reduction*, 78, 103092. <https://doi.org/10.1016/j.ijdr.2022.103092>
- [146] Priyadarshini, A. (2020). Conducting and analyzing semi-structured interviews: A study of open innovation in food firms in Ireland. *SAGE Research Methods*. doi:10.4135/9781529705546
- [147] Raza, M., Awais, M., Ali, K., Aslam, N., Paranthaman, V. V., Imran, M., & Ali, F. (2020). Establishing effective communications in disaster affected areas and artificial intelligence based detection using social media platform. *Future Generation Computer Systems*, 112, 1057-1069. <https://doi.org/10.1016/j.future.2020.06.040>
- [148] ReliefWeb. (2018). Post-disaster needs assessment PDNA - lessons from a decade of experience 2018 - world. <https://reliefweb.int/report/world/post-disaster-needs-assessment-pdna-lessons-decade-experience-2018>
- [149] Righi, E., Lauriola, P., Ghinoi, A., Giovannetti, E., & Soldati, M. (2021). Disaster risk reduction and interdisciplinary education and training. *Progress in DisasterScience*, 10, 100165. <https://doi.org/10.1016/j.pdisas.2021.100165>
- [150] Roostaie, S.; Nawari, N.; Kibert, C., (2019). Sustainability, and resilience: A review of definitions, relationships, and their integration into a combined building assessment framework. *Build. Environ.* 2019, 154, 132–144.
- [151] Ruiter, V. N. (2022). The Delphi technique: a tutorial, *Research in Hospitality Management*, 12:1, 91–97, DOI: 10.1080/22243534.2022.2080942
- [152] Sadang JM., (2020). The Lived Experience of Filipino Nurses' Work in COVID-19 Quarantine Facilities: A Descriptive Phenomenological Study. *PRIJNR [Internet]*. 2020 Dec. 8 [cited 2023 Aug. 20];25(1):154-6. Available from: <https://he02.tci-thaijo.org/index.php/PRIJNR/article/view/246371>

- [153] Said, N. B., & Chiang, V. C. (2019). The knowledge, skill competencies, and psychological Preparedness of nurses for disasters: A systematic review. *International Emergency Nursing*, 48, 100806.
- [154] Sanjaya, Waqid (2022), "The Effect of Self-Efficacy, Caring and Organizational Commitment on Disaster Preparedness of Nurses" in *The International Virtual Conference on Nursing*, KnE Life Sciences, pages 113–121. DOI 10.18502/kls.v7i2.10294
- [155] Santos, Julio César dos., Ribeiro, Paulo & Bento, Ricardo Jorge Silva (2023). "A Review of the Promotion of Sustainable Mobility of Workers by Industries," *Sustainability*, MDPI, vol. 15(11), pages 1-18, May.
- [156] Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, 52(4), 1893-1907. <https://doi.org/10.1007/s11135-017-0574-8>
- [157] Serre, D., Heinzlef C.(2018). Assessing and Mapping Urban Resilience to Floods with Respect to Cascading Effects through Critical Infrastructure Networks ». *International Journal of Disaster Risk Reduction*, 2018.<https://doi.org/10.1016/j.ijdr.2018.02.018>.
- [158] Sharma, M., Mindermann, S., Leech, G., Snodin, B., Ahuja, J., Sandbrink, J. B., Monrad, J. T., Altman, G., Dhaliwal, G., Finnveden, L., Norman, A. J., Oehm, S. B., Sandkühler, J. F., Aitchison, L., Gavenčiak, T., Mellan, T., Kulveit, J., Chindelevitch, L., Flaxman, S., . . . Brauner, J. M. (2021). Understanding the effectiveness of government interventions against the resurgence of COVID-19 in Europe. *Nature Communications*, 12(1), 1-13. <https://doi.org/10.1038/s41467-021-26013-4>
- [159] Sheikhi RA, Seyedin H, Qanizadeh G, Jahangiri K (2021). Role of Religious Institutions in Disaster Risk Management: A Systematic Review. *Disaster Medicine and Public Health Preparedness*. 2021;15(2):239-254. doi:10.1017/dmp.2019.145
- [160] Shi, W., Zhao, L., Liu, M., Hong, B., Jiang, L., & Jia, P. (2022). Resilience and mental health: A longitudinal cohort study of Chinese adolescents before and during COVID-19. *Frontiers in Psychiatry*, p. 13, 948036.<https://doi.org/10.3389/fpsy.2022.948036>
- [161] Singh S, Roy D, Sinha K, Parveen S, Sharma G, Joshi G., (2020). Impact of COVID-19 and lockdown on the mental health of children and adolescents: A narrative review with recommendations. *Psychiatry Res*. 2020 Nov;293:113429. doi: 10.1016/j.psychres.2020.113429. Epub 2020 August 24. PMID: 32882598; PMCID: PMC7444649.
- [162] Smarandache, Florentin; Jesús Estupiñán Ricardo; Erick González Caballero; Maikel Yelandi Leyva Vázquez; and Noel Batista Hernández., (2020). "Delphi method for evaluating scientific research proposals in a neutrosophic environment." *Neutrosophic Sets and Systems* 34, 1 (2020). https://digitalrepository.unm.edu/nss_journal/vol34/iss1/26
- [163] Sofyana H, Ibrahim K, Afriandi I, Herawati E, Wahito Nugroho HS. (2022). The Need for a Preparedness Training Model on Disaster Risk Reduction Based on Culturally Sensitive Public Health Nursing (PHN). *Int J Environ Res Public Health*. 2022;19(24):2022.
- [164] Spiess, Jody., (2020). "Community Health Nurse Educators and Disaster Nursing Education". *Dissertations*. 980. <https://irl.umsl.edu/dissertation/980>
- [165] Sprung, C. L., Devereaux, A. V., Ghazipura, M., Burry, L. D., Hossain, T., Hamele, M. T., Gist, R. E., Dempsey, T. M., Dichter, J. R., Henry, K. N., Niven, A. S., Alptunaer, T., Huffines, M., Bowden, K. R., O. Martland, A. M., Felzer, J. R., Mitchell, S. H., Tosh, P. K., Persoff, J., . . . Care Writing Group, M. C. *Critical Care Staffing in Pandemics and Disasters: A Consensus*

- Report From a Subcommittee of the Task Force for Mass Critical Care- Systems Strategies to Sustain the Health Care Workforce. *Chest*. <https://doi.org/10.1016/j.chest.2023.03.008>
- [166] Su Y, Wu XV, Ogawa N, Yuki M, Hu Y, Yang Y., (2022). Nursing skills required across natural and man-made disasters: A scoping review. *J Adv Nurs*. 2022 Oct;78(10):3141-3158. doi: 10.1111/jan.15337. Epub 2022 August 22. PMID: 35989672; PMCID: PMC9543669.
- [167] Sultan, M. A., Løwe Sørensen, J., Carlström, E., & Mortelmans, L. (2020). Emergency Healthcare Providers' Perceptions of Preparedness and Willingness to Work during Disasters and Public Health Emergencies. *Healthcare*, 8(4), 442. <https://doi.org/10.3390/healthcare8040442>
- [168] Suprayitno, Guruh, Ahsan, M., Koreono (2021). Preparedness of members of the Indonesian emergency and disaster nurses' association. *International Journal of Public Health Science (IJPHS)* Vol. 9, No. 4, December 2020, pp. 393~398 ISSN: 2252-8806, DOI: 10.11591/ijphs.v9i4.20500
- [169] Swedish Civil Contingencies Agency (2019). National Risk and Ability Assessment. Stockholm, Sweden: Swedish Civil Contingencies Agency.
- [170] Tanay Mary Anne, Quiambao-Udan Josie, Soriano Oliver, Aquino Genevieve, Valera Paula Melizza (2023). Filipino nurses' experiences and perceptions of the impact of climate change on healthcare delivery and cancer care in the Philippines: a qualitative exploratory survey *ecancer* 17 1622
- [171] Tariq, U.; Ahmed, I.; Bashir, A.K.; Shaukat, K. A (2023). Critical Cybersecurity Analysis and Future Research Directions for the Internet of Things: A Comprehensive Review. *Sensors* , 23, 4117. <https://doi.org/10.3390/s23084117>
- [172] Tas, F., & Cakir, M. (2022). Nurses' knowledge levels and preparedness for disasters: A systematic review. *International Journal of Disaster Risk Reduction*, 80, 103230. <https://doi.org/10.1016/j.ijdrr.2022.103230>
- [173] Taskiran, G., & Baykal, U. (2019). Nurses' disaster preparedness and core competencies in Turkey: A descriptive correlational design. *International Nursing Review*, 66(2), 165–175.
- [174] Tasri, E. S., Karimi, K., & Muslim, I. (2021). The effect of economic variables on natural disasters and the impact of disasters on economic variables. *Heliyon*, 8(1). <https://doi.org/10.1016/j.heliyon.2021.e08678>
- [175]
- [176] Tomaszewski, L. E., Zarestky, J., & Gonzalez, E.(2020). Planning Qualitative Research: Design and Decision Making for New Researchers. *International Journal of Qualitative Methods*. <https://doi.org/10.1177/1609406920967174> Copy
- [177] Torani, S., Majd, P. M., Maroufi, S. S., Dowlati, M., & Sheikhi, R. A. (2019). The importance of education on disasters and emergencies: A review article. *Journal of Education and Health Promotion*, 8. https://doi.org/10.4103/jehp.jehp_262_18
- [178] Umeda, M., Chiba, R., Sasaki, M., Agustini, E. N., & Mashino, S. (2020). A Literature Review on Psychosocial Support for Disaster Responders: Qualitative Synthesis with Recommended Actions for Protecting and Promoting the Mental Health of Responders. *International Journal of Environmental Research and Public Health*, 17(6). <https://doi.org/10.3390/ijerph17062011>
- [179] United Nations Office for Disaster Risk Reduction (UNDRR) (2022). GAR2022: Our World at Risk. [online] [Undrr.org](https://www.undrr.org/). Available at: 56 [Accessed 27 May 2022].
- [180] U.S. Embassy Philippines (2020). Disaster Preparedness. [Us embassy. disaster-preparednessphilippines](https://www.us-embassy-philippines.gov.ph/disaster-preparedness). (Accessed 20.8.2020)

- [181] Valmonte, Kaycee (2022). “No Shortage of Nurses but Low Pay, Lack of Tenure Driving Them Abroad”, *The Philippine Star*, June 21, 2022, <https://www.philstar.com/headlines/2022/06/21/2189974/no-shortage-nurses-low-pay-lack-tenure-driving-them-abroad>.
- [182] van Bavel B, Curtis DR, Dijkman J, et al. Effects of Disasters. In: *Disasters and History: The Vulnerability and Resilience of Past Societies*. Cambridge University Press; 2020:123-158.
- [183] Veenema T.G., (2018). *Disaster Nursing and Emergency Preparedness for Chemical, Biological, and Radiological Terrorism and Other Hazards*, fourth ed., Springer, New York.
- [184] Veenema TG (2020). Chapter commissioned by the Committee on the Future of Nursing 2020–2030. Washington, DC: National Academies of Sciences, Engineering, and Medicine; 2020. The role of nurses in disaster preparedness and response.
- [185] Vieten, C., Oxhandler, H.K., Pearce, M. et al. (2023). Mental health professionals’ perspectives on the relevance of religion and spirituality to mental health care. *BMC Psychol* 11, 439. <https://doi.org/10.1186/s40359-023-01466-y>
- [186] Wakefield, S., Kellett, S., Simmonds-Buckley, M., Stockton, D., Bradbury, A., & Delgadillo, J. (2021). Improving Access to Psychological Therapies (IAPT) in the United Kingdom: A systematic review and meta-analysis of 10-years of practice-based evidence. *British Journal of Clinical Psychology*, 60(1), 1–37. <https://doi.org/10.1111/bjc.12259>
- [187] Wang, L., Cui, S., Li, Y., Huang, H., Manandhar, B., Nitivattananon, V., Fang, X., & Huang, W. (2022). A review of the flood management: From flood control to flood resilience. *Heliyon*, 8(11), e11763. <https://doi.org/10.1016/j.heliyon.2022.e11763>
- [188] Wang, Q and Sun, X (2018) Exploring Chinese Design Business Owners’ Attitudes towards Intellectual Property Rights. *International Journal of Innovation Management*, November 2018.
- [189] Watson KH, Ciriegio AE, Pfalzer AC, Snow A, Hale L, Diehl S, McDonnell KE, Claassen DO, Compas BE. (2023). Intrapersonal and Interpersonal Disengagement Coping: Associations with Emotions of Youth At-Risk for Huntington's Disease. *J Huntingtons Dis.*;12(3):305-312. doi: 10.3233/JHD-230566. PMID: 37334612.
- [190] Wilson B.R & Woodrow, A. (2023). "Patient Safety in Emergency Medical Services," Chapters, in: Philip N. Salen & Stanislaw P. Stawicki (ed.), *Contemporary Topics in Patient Safety - Volume 2*, IntechOpen.
- [191] Wolf AT, White KR, Epstein EG, Enfield KB (2019). Palliative care and moral distress: An institutional survey of critical care nurses. *Critical Care Nurse*. ;39(5):38–49.
- [192] Wolff, M.; Abreu, C.; Caldas, M. A. F. (2019), “Evaluation of road transport: a literature review”, *Brazilian Journal of Operations & Production Management*, Vol. 16, No. 1, pp. 96-103, available from: <https://bjopm.emnuvens.com.br/bjopm/article/view/729> (access year month day).
- [193] World Health Organization (2020). Essential emergency and surgical care. [March 31, 2021]. https://www.who.int/surgery/challenges/esc_disasters_emergencies/en .
- [194] World Health Organization (2021). WHO Coronavirus (COVID-19) Dashboard 2021 [Available from: <https://covid19.who.int/>].
- [195] Yu, Q., Wang, H., Tian, Y., Wang, Q., Yang, L., Liu, Q., & Li, Y. (2023). Moral courage, job-esteem, and social responsibility in disaster relief nurses. *NursingEthics*. https://doi.org/10.1177_09697330231174540
- [196] Yörük, S., & Güler, D. (2021). The relationship between psychological resilience, burnout, stress, and sociodemographic factors with depression in nurses and midwives during the

COVID-19 pandemic: A cross-sectional study in Turkey. *Perspectives in Psychiatric Care*, 57(1), 390–398.

- [197]Zhang, Y., Zhu, L. L., Sheng, Y., Li, X. H., Xu, X. H., & Wang, Q. Y. (2018). Disaster nursing development in China and other countries: A bibliometric study. *Journal of Nursing Scholarship*, 50(5), 567–576.
- [198]Zhang J, Yang L, Cao X, Ren Y, Han X, Zang S, Cai F, Xu L, Qin L, Zhang P, Cheng Y., (2023). Assessment of disaster preparedness and related impact factors among emergency nurses in tertiary hospitals: a descriptive cross-sectional study from Henan Province of China. *Front Public Health*. 2023 May 4;11:1093959. doi: 10.3389/fpubh.2023.1093959. PMID: 37213610; PMCID: PMC10192630
- [199]Zhu, Z., Gou, L., Liu, S., & Peng, D. (2023). Effect of urban neighbourhood layout on the flood intrusion rate of residential buildings and associated risk for pedestrians. *Sustainable Cities and Society*, 92, 104485. <https://doi.org/10.1016/j.scs.2023.104485>