Integrated Disaster Nursing Response for Public Healthcare Settings in Pakistan: A Sequential Mixed Method Approach Study Protocol

Saleema Gulzar

Saleema.gulzar@aku.edu

Aga Khan University

Sumia Andaleeb

Aga Khan University

Zohra Jetha

Aga Khan University

Syeda Humera Qutb

Aga Khan University

Zulekha Saleem

Aga Khan University

Sharifa Lalani

Aga Khan University

Huba Atiq

Aga Khan University

Shah Muhammad

Aga Khan University

Rimsha Hirani

Aga Khan University

Ahad Salman

Aga Khan University

Tazeen Ali

Aga Khan University

Study protocol

Keywords: Disaster Response, Disaster Preparedness, Nursing Skills, Gender-Based Violence, Adolescent Health

Posted Date: January 3rd, 2024

DOI: https://doi.org/10.21203/rs.3.rs-3820643/v1

Additional Declarations: No competing interests reported.

Abstract

Background

Natural disasters such as floods, hurricanes, earthquakes, etc. are unforeseen circumstances that overwhelm and affect millions of people. Pakistan is one of the countries which is highly susceptible to getting affected by floods every year. Among the various cities of Pakistan Sanghar and Dadu are the low-lying areas making them vulnerable to being greatly affected by natural disasters. These calamities can cause large human and infrastructure losses, putting the healthcare system's ability to respond effectively at risk. The capacity of healthcare providers to cope with crisis circumstances and offer crucial medical aid is critical to saving lives and minimizing the long-term effects of catastrophic events on human life.

Methods

The study will employ a sequential mixed-method design approach with an embedded experimental component where quantitative and qualitative data are collected and analyzed in two distinct phases respectively. In Phase 1, a Quasi-experimental design will be utilized, consisting of pre-tests and post-tests. The study will be conducted on 310 healthcare providers (155 per district). A nursing post-disaster response capacity-building intervention will be integrated between the pre and post-tests. Phase 2 will involve a qualitative approach, where focus group interviews will be conducted from both areas. These will be analyzed through inductive thematic analysis.

Discussion

This project is anticipated to provide an intervention program to improve healthcare practitioners' disaster response capacities, as well as their ability to deal successfully with catastrophe victims. The role of nurses in disaster response is critical, making this study significant. The findings are expected to have a significant impact on nursing education and practice, particularly in terms of adding disaster nursing response into the nursing curriculum.

Introduction

A "disaster" or "catastrophe" is an unforeseen and frequently sudden event that causes catastrophic damage, devastation, and human suffering, overwhelming local capacity, and necessitates a call for national or global support(1). Over the past decade, natural disasters such as earthquakes, floods, hurricanes, and other natural calamities, have affected over 2.6 million people around the world (2). According to the 2020 Inform Risk Index, among the countries facing elevated disaster risk levels, Pakistan ranks 18th out of 191 countries. Pakistan is particularly susceptible to various types of flooding, including riverine, flash, and coastal, and it also faces some exposure to tropical cyclones and drought as

well as conflict-related emergencies (3). Amongst many of Pakistan's cities Sanghar and Dadu, situated in low-lying areas, are highly susceptible to devastating impacts from disasters such as floods (4). These disasters can result in significant human and infrastructural losses, severely impacting the healthcare system's capacity to respond effectively. The ability of healthcare providers to manage disaster situations and provide critical medical assistance is of utmost importance in saving lives and reducing the long-term consequences of these emergencies on human life.

Natural disasters threaten lives hence causing a lot of fear and psychological distress. Physical effects such as loss and destruction of properties and life are among the many consequences of natural disasters. Health workers in such circumstances are encountered with many issues which include psychological and physiological problems of survivors. Moreover, various populations that healthcare workers deal with adolescents and elderly people, and sensitive populations who are already undergoing many psychological and physiological changes and disasters may exacerbate their problems, making the situation challenging to be catered to healthcare workers(5). The impact of these natural disasters is homogeneous. Factors like age and gender also determine the impact of the disaster on victims. Studies have shown that women as compared to men are more likely to develop PTSD in response to natural disasters and calamities (10-14%) On the contrary the chances of men developing PTSD are 5-6%(5). Certain survivors of catastrophic events undergo Post Traumatic Stress Disorder (PTSD), which may also manifest as depression and anxiety. Yet additional challenges these people confront include sadness, helplessness, and hopelessness. According to(6), the aftermath of natural catastrophes can cause depression, anxiety, overall despair, distorted thinking patterns, panic, and a variety of health conditions. Disasters, according to(7), can leave victims in a state of profound despair and shock. This traumatic incident impacts the victims' fully functioning life of the victim, resulting in losses for families, communities, and individuals. Natural catastrophes can cause families to struggle with a loss of identity as a result of the disruption of their usual work. In the aftermath of the disaster, individuals also face a lack of optimism and a disruption in their roles within the community. The loss of resources, disruption to one's daily routine, loss of control over one's property, and loss of social support were all linked to heightened levels of acute psychological distress in the aftermath of a disaster. These mental health outcomes resulted in a variety of psychological symptoms, including severe stress following the traumatic experience, uncontrollable stress, feelings of grief and sadness for an extended period of time, substance abuse, and adjustment issues, all of which affect the proper functioning of the individual as well as the community, resulting in family conflicts(8). The risk of conflict and violence following a natural disaster frequently increases as populations struggle to meet basic needs. If a person is struggling to fulfill their basic physiological needs such as the need for food and shelter, the focus on psychological needs such as the need for belongingness, love, esteem, and self-actualization will be naturally quite less or nonexistent. Such is the case for victims of natural disasters. Their key focus is not on how to reduce fear, anxiety, and depression that come along with these calamities but rather on how to provide safety and security for themselves and their loved ones(5). The frustration caused by the not having needs met, and loss of identity and power may emerge with another notable challenge faced by

community health care providers and workers is the significant increase in gender-based violence in households as a result of natural and manmade disasters.

Gender-Based Violence

Data regarding the prevalence of Gender-based violence is alarmingly high(9). The literature on gender and disasters appears to indicate an increase in GBV in the aftermath of sudden-onset disasters. Typically, displacement situations, family member separation, and frustration resulting from the loss of family assets and income have been highlighted as the most prominent reasons for the increase in violence. Chaotic events and a lack of public safety, which frequently characterize the early stages of a disaster, can also contribute to increasing lawlessness and impunity, as well as feelings of fear and insecurity, creating the circumstances for GBV to emerge. Researchers from Aga Khan University have conducted interviews with frontline health workers from districts of Pakistan that were previously impacted by floods. These interviews have revealed a notable rise in gender-based violence (GBV) in those areas(10). GBV in disaster-affected areas, notably domestic and sexual violence. When a household is struggling with lost assets, housing, jobs, and so on, there is a likely increase in relationship stress. Men, in particular, may be frustrated by their inability to care for and protect their families and may resort to negative coping techniques such as drinking and substance abuse, while masculinity standards may limit their ability to seek assistance(11). In a separate study published in 2020, the results of interviews conducted with 20 women residing in flood-prone regions of Sindh, Pakistan, indicated that the majority of these women encountered multiple forms of violence. These acts of violence included both physical and emotional abuse, carried out by partners as well as strangers. It was observed that the frequency of such violence increased notably when women were displaced from their homes and were living in temporary shelter facilities during the aftermath of a disaster(12).

Resilience

Studies have looked at emotional aspects as an individual protective factor. Internal control may be strengthened by a person's willingness to control their emotional extremes, self-regulation of their emotions, instilling hope and courage, having a positive outlook and acceptance of the situation, caring about themselves and their family members, and having the capacity to mentally prepare for effects. They investigated the cognitive realm and focused on cognitions and their relatability to post-disaster intervention. The cognitive aspect assisted an individual in becoming more aware of and recollecting potential risks associated with previous disaster experiences(13). Coping with post-disaster experiences requires the use of supportive techniques, which include both material and emotional ones. Emotional supportive strategies include stress-reduction programs, transforming and modifying maladaptive behavior to socially acceptable behaviors, and educating people on how to react to emotionally stressful situations(13). Resilience is a key protective factor that fosters physical, social, and emotional well-being(14). Resilience is regarded as a critical component of positive psychology that significantly raises one's self-esteem and improves one's quality of life. Therefore, studying resilience, which is a dynamic

process of sustaining and recovering psychological well-being after adversity, is one of the fundamental strategies for preparing for future calamities.

Adolescents Health

In addition, during disasters and floods, the most vulnerable yet ignored population is adolescents. Adolescents are at a critical point in their biological, emotional, and social development, with various factors determining their well-being. Ross and colleagues (15) propose five domains for adolescents' well-being: good health and optimal nutrition; connectedness, positive values, and contribution to society; safety and a positive environment; learning, competence, education, skills, and employability; and agency and resilience. The climate crisis poses risks to all five domains and indeed threatens the fundamental rights of children and adolescents. A study conducted in Pakistan explored the effects of a flood on adolescents' mental health and found that girls experienced higher levels of depression and anxiety than boys. The study also highlighted the need for psychosocial interventions to support adolescents in coping with the aftermath of a flood(16). Similarly, a study by (17)in Bangladesh showed that adolescent girls affected by floods had poor knowledge about pubertal changes. The study suggested that interventions should focus on educating adolescents on the importance of seeking appropriate healthcare services. Another study by (18)in Kerala India found that adolescent girls affected by floods had limited knowledge about menstruation, which resulted in poor menstrual hygiene practices, health issues, and stress related to development changes in humanitarian settings. Another study from India showed that adolescents affected by floods had poor knowledge about sexual and reproductive health, which resulted in high rates of issues such as infections, stress, post-traumatic stress, lack of communication, and poor health-seeking behaviors. The study recommended that interventions should focus on educating adolescents about sexual and reproductive health and strengthening the quality of healthcare services for adolescents in humanitarian settings(19). Adolescents experience significant increases in rates of post-traumatic stress disorder (PTSD), anxiety, and depression following a climate-related disaster(20). These outcomes are major risk factors for suicide, the third leading cause of death in older adolescents aged 15-19(21, 22). Extreme weather events can also evoke negative feelings of distress, helplessness, and increased aggression and violence, as well as exacerbate psychotic illnesses, such as bipolar disorder and schizophrenia, illnesses which most commonly emerge in late adolescence. Furthermore, climate-induced forced migration can further amplify negative psychological impacts due to trauma and difficulties in adjustment(23).

Nursing Skills

Nursing is the most prominent of the healthcare professions. In the event of disasters and catastrophic conditions, emergency nurses are the first line of care, and these healthcare professionals are critical in limiting the aggravation of such conditions. Disaster nursing is a crucial specialty that nursing schools must consider training nurses with adequate knowledge and abilities to cope with disasters as well as effectively manage injuries. Nurses with the proper knowledge and skills in counseling, wound care,

administering medication, and emergency management can help to reduce the negative consequences of catastrophes and provide protection for their communities.

As a result, a need for a curriculum integrated with nursing skills, resilience, and gender-based violence response as well as catering the adolescent and pubertal health issues through participation in practical exercises in order to control unforeseen catastrophic circumstances. The current literature suggests that integrated post-disaster nursing capacity-building intervention can significantly improve the preparedness and response of healthcare providers during disasters (24). However, most of these studies have been conducted in different settings(25, 26), and little attention has been given to the specific needs and challenges faced by healthcare providers in regions like Sanghar and Dadu. The increasing frequency of natural and environmental disasters, along with public health emergencies, highlights the critical importance of having a nursing workforce prepared with the knowledge, skills, and abilities to respond in emergency situations. In Pakistan, where disaster-prone regions like Sanghar and Dadu face such challenges, an integrated post-disaster nursing response is crucial to strengthen healthcare providers' preparedness and response capabilities. The purpose is not only to psychoeducate the population in affected areas about the impact of disaster but also to provide them with the required skillset in order to combat the situation.

Our research will focus on the proposed integrated post-disaster nursing response curriculum and its implementation in the regions of Sanghar and Dadu in Pakistan. This project is part of a larger project in collaboration with the government of Sindh. This proposal outlines the methodology and objectives of the research, with a particular emphasis on enhancing the capabilities of healthcare providers in these areas through a comprehensive intervention that includes nursing skills (wound care, administering medication, and management of fractures), pubertal health for adolescents, gender-based violence, and resilience. Considering the past occurrences of disasters in these regions, which have undergone the strain of numerous calamities, it is crucial to establish a strong disaster preparedness and response strategy in the public healthcare facilities within these areas. s

Significance

Pakistan is vulnerable to a wide range of natural disasters, including earthquakes, floods, and droughts. Strengthening the capacity of the health system, especially the nursing workforce, in disaster preparedness and response can save lives and reduce the impact of disasters on public health. By focusing on integrated nursing disaster response, the health system can enhance its ability to deploy nursing personnel rapidly to affected areas, thereby saving lives, and reducing suffering.

Disasters can overwhelm healthcare facilities and disrupt regular health services. By investing in capacity building and integrating disaster response training into nursing education, the health system can become more resilient, maintaining essential health services even during challenging times. Disaster response requires seamless coordination between various healthcare professionals. Integrated nursing disaster response training fosters better collaboration between nurses, doctors, paramedics, and other healthcare

workers, leading to more effective and efficient disaster response. Nurses play a critical role in disaster response, as they are often the first point of contact for patients. Strengthening their capacity through training and education empowers them to handle emergencies confidently, which can positively impact their job satisfaction and performance. Integrated nursing disaster response training can extend beyond hospital settings to community outreach programs.

Trained nurses can educate communities on disaster preparedness, basic first aid, and infection control, creating a more informed and resilient population. Initiatives focusing on strengthening health system capacity in disaster response demonstrate the government's commitment to public health and its responsiveness to the needs of its citizens, particularly during times of crisis. By investing in integrated disaster nursing response, Pakistan can align its healthcare system with international standards, making collaborating-with other countries and organizations easier during cross-border emergencies. Capacity-building initiatives have a long-term impact on the healthcare system. As nurses acquire new skills and knowledge, this knowledge dissemination can lead to a more competent nursing workforce, benefiting the healthcare system beyond disaster response scenarios. Strengthening health system capacity building on integrated nursing disaster response in government health settings in Pakistan is crucial for saving lives, reducing suffering, and enhancing the overall resilience of the healthcare system in the face of disasters. It represents a proactive approach toward safeguarding public health and demonstrates the government's commitment to the well-being of its citizens.

Considering the above-mentioned problem statement, the identified research gap and the significance following the study aims, research questions, and objectives have been developed:

Study Aim

The proposed research aims to bridge the identified gap by developing and implementing a context-specific integrated disaster nursing response curriculum for healthcare providers in Sanghar and Dadu.

Research Questions

Based on the gap identified, the following research questions will be addressed through the study:

1. What is the difference in knowledge regarding integrated disaster nursing response among healthcare providers before and after the implementation of the Integrated disaster nursing response curriculum?
2. What is the difference in the perceived knowledge, attitude, and practice changes among healthcare providers who attended disaster nursing response capacity-building intervention?
3. How do master trainers perceive the effectiveness and relevance of the curriculum in preparing healthcare providers for disaster response?

4. How does the supervision and support provided by the research team influence the delivery of training sessions by trained healthcare providers to their peers?

Research Objectives

1. To estimate the mean difference in knowledge regarding integrated disaster nursing response among healthcare providers before and after the implementation of the Integrated disaster nursing response curriculum.
2. To explore the difference in the perceived knowledge, attitude, and practice changes among healthcare providers who attended disaster nursing response capacity-building intervention.
3. To discover master trainers' perceptions related to the effectiveness and relevance of the curriculum in preparing healthcare providers for disaster response.
4. To Evaluate how supervision and support provided by the research team influence the delivery of training sessions by trained healthcare providers to their peers.

Methodology

Study Design

The research will employ a sequential explanatory mixed methods approach with an embedded experimental component where quantitative and qualitative data are collected and analyzed in two distinct phases respectively. The sequential mixed-method design allows for a deeper exploration of the research questions, combining objective quantitative measurements with subjective qualitative insights to provide a holistic understanding of the integrated disaster nursing response in the public healthcare settings in Pakistan.

Combining both quantitative and qualitative data, the research seeks to provide a comprehensive evaluation of the integrated disaster nursing response curriculum's impact on the disaster preparedness and response capabilities of healthcare providers in Sanghar and Dadu. The findings of this study have the potential to inform future disaster preparedness initiatives and contribute to enhancing the overall disaster response strategies in Pakistan and other similar contexts.

Inclusion & Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
All healthcare providers who are working in Sanghar and Dadu at primary healthcare centers	Those who have been working for less than a year will not be part of this study

Sample and Procedure

Universal sampling will be used to recruit a representative sample of 155 healthcare providers from both settings i.e., Sanghar and Dadu to participate in the study. Using the confidence interval of 95% confidence level and hypothesized value for standard deviation that is 20 (since no previous evidence was available to the best of our search). We kept the margin of error of ± 5 units (E = 5). The following sample size has been achieved:

Sample Size (n) = (Z^2 * σ^2) / (E^2)

Sample Size (n) = (1.96^2 * 20^2) / (5^2)

Sample Size (n) = **310** (155 from Sanghar and 155 from Dadu)

Phase I: Quantitative Phase. The quantitative phase will consist of pre and post-tests. To assess the effectiveness of the curriculum, pre- and post-tests will be conducted. Pre-tests will be conducted to assess the preliminary knowledge of the healthcare providers which will be followed by the post-tests to assess the effectiveness of the curriculum, the knowledge gained, and the skills developed by healthcare providers after the training. Posttests will follow the training to evaluate knowledge improvement. This will allow the research team to measure the curriculum's impact on disaster preparedness and response capabilities.

Intervention. The research will begin by selecting a representative sample of 25–30 healthcare providers from both the regions i.e., Sanghar and Dadu, ensuring a diverse representation of the healthcare workforce. Before implementing the training, a pretest will be administered to both groups to assess their baseline knowledge and skills related to disaster nursing response, adolescents' pubertal health, gender-based violence, and resilience. A selected group of 25–30 healthcare providers from Sanghar and Dadu will undergo intensive training as potential master trainers. These individuals will receive specialized instruction on disaster nursing response and effective training techniques. A post-test will be administered to measure the knowledge gained and skills developed following the training.

Curriculum Development. The research team will collaborate with subject matter experts and stakeholders to design a comprehensive disaster nursing response curriculum. The curriculum will address key areas such as nursing skills, adolescents' pubertal health, gender-based violence, and resilience, which are identified in the initial assessment and are essential for handling disaster situations.

Nursing Skills

This part of the training will be purely based on demonstrations and hands-on practices. As per identified needs from those areas, nursing skills focused on the following. These nursing skills included three stations:

1. Wound Dressing
2. Medication Station (Intramuscular injections, Intra venous Injections, and oral)
3. Patient care with Fractures

Adolescent and Pubertal Health

Puberty is considered the sensitive developmental phase of an individual's life. When adolescents are placed into catastrophic scenarios, adolescence, which is recognized as a phase marked by rapid physical, emotional, and psychological changes, takes on a deeper complexity. Natural or man-made, such disasters not only disturb daily rhythms but also intensify the sensitive issues of the pubertal stage.

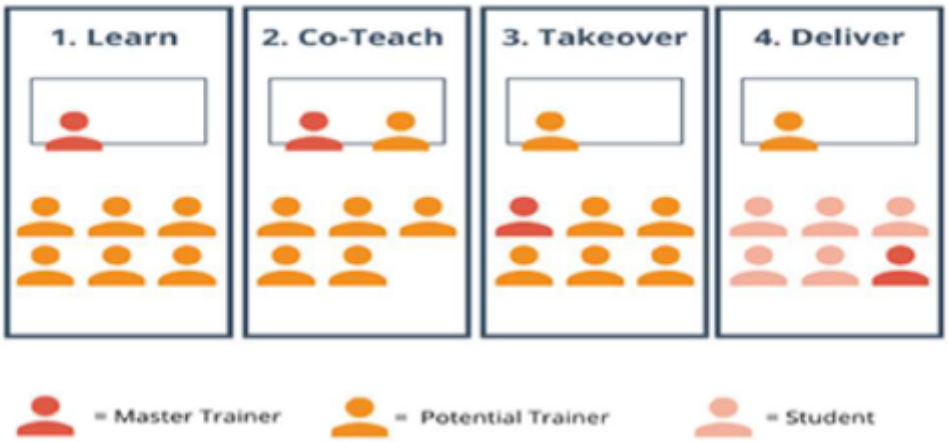
Hence, this component will focus on understanding the importance of addressing pubertal issues among adolescents in flood-affected areas identifying the common pubertal issues that affect adolescents in flood-affected areas, and developing strategies to address pubertal issues among adolescents in flood-affected areas. Moreover, it gives insight to healthcare providers about effective communication while dealing with adolescents.

Gender-Based Violence

Gender-based violence and natural disasters are current worldwide tragedies as well as long-term problems. They emphasized how climate change-related catastrophes might exacerbate community stress, leading to conservative patriarchal practices such as son preference, uneven nutrition, child marriage, and intimate partner violence. Gender-based violence has grown dramatically in recent years.

Hence, building capacity among healthcare providers to deal with such occurrences in disaster-affected areas is crucial, as they can play a role in building resilience in an individual/victim to overcome such adversity.

Capacity Building. The trained potential master trainers will then be assigned to conduct capacity-building workshops for 135 healthcare providers in both settings Sanghar and Dadu. The train the trainers model will consist of four sessions. The first session, Learning, will prepare 20 potential trainers. In the second session, Co-teach, the potential trainers will teach alongside the master trainer. In the third session, Takeover, the potential trainers will teach under the supervision of the master trainer to the rest of the potential healthcare providers. Finally, in the fourth session, Delivery, the prepared potential trainers will implement the curriculum with other students. The impact of the training will be evaluated through pre-and post-tests to measure the knowledge gained and skills developed.



Supervision and Support. The research team will provide ongoing supervision and trained healthcare providers while they deliver training sessions to their peers. This process will ensure the fidelity and quality of the training sessions.

Phase II: Qualitative Phase. To complement the quantitative findings, qualitative data will be gathered through in-depth interviews with the key stakeholders and focus group discussions with trained master trainers. The focus groups and interview protocol will be grounded in the statistical tests of the quantitative phase. These focus group discussions and in-depth interviews will provide a deeper understanding of the training's effectiveness, its relevance to the local context, and the challenges faced during its implementation which will help modify the capacity-building curriculum.

A purposive sampling technique will be used to collect the data. This technique will aid in the selection of information-rich cases for the most effective use. This will include the trained healthcare providers and key healthcare stakeholders of districts Sanghar and Dadu as they will have specialized knowledge about the integrated disaster nursing response curriculum.

For conducting the focus group discussions, 15–20 trained master trainers will be recruited. Two focus group discussions will be held in each district. For in-depth interviews, 5 key healthcare stakeholders including the people from district health officials and healthcare management will be selected. Informed Consent. In accordance with ethical principles, potential participants will be provided with comprehensive and understandable information about the research objectives, procedures, potential risks, and benefits prior to their participation in this study. There will be a clear explanation of their rights and the voluntary nature of their participation. Before any data is collected, each participant's written consent will be acquired. Their anonymity and confidentiality will be strictly protected during the study, and they will be told that they may withdraw at any time without consequence.

Ethical Considerations. To overcome ethical issues in the study, permission from the Ethical Review Committee (ERC) has been obtained from the ethical review committee of Aga Khan University 2023-9197-27010. The ethical principle of autonomy will be applied to get voluntary consent from the study

participants before data collection. The participants will be assured to withdraw from the study at any point in time. Confidentiality will be maintained by securing all the electronic data with a password and hard copies of the data will be kept locked. The anonymity of the participants will be assured by giving numbers or pseudonyms to them. All the participants will not get any direct benefit from participating in the study; however, they will get the opportunity to get knowledge and skills from the sessions and hands-on practice to improve their clinical skills.

Data Analysis

Phase I: Quantitative Data Analysis

This phase will compare the pretest and posttest scores of both groups using appropriate statistical methods (e.g., paired t-test or ANOVA) to determine the effectiveness of the training on disaster preparedness and response capabilities. Frequencies and percentages will be reported for categorical variables. Mean and standard deviation will be reported for continuous variables of the study. inferential statistics will be computed for pre and post-tests.

Phase II: Qualitative Data Analysis:

This research phase will explore the perceptions, experiences, and challenges related to implementing the integrated disaster nursing response curriculum through transcribing and analyzing the interviews and focus group discussions. Inductive Thematic Analysis or other appropriate qualitative analysis will be used to identify common themes, patterns, and insights related to research questions.

Phase III: Integration and Interpretation

This phase of data analysis will integrate the findings from the quantitative and qualitative phases to provide a comprehensive understanding of the effectiveness of the integrated disaster nursing response curriculum and its impact on disaster preparedness and response capabilities in Sanghar and Dadu health care professionals. A conclusion would be drawn based on results findings from both phases of the study.-

Quality Assurance

Quality assurance of the study will be comprised of the steps including the pre-testing of the study tools and training of data collectors before initiating the data collection to ensure the collection of data in a systemic and scientific approach. Data quality will be obtained assuring the implementation of the data collection protocol. Senior team members will be supervising the data collectors and field team on and off during the project.

Rigor

According to Lincoln and Guba, “the most common criteria used to evaluate rigor in

qualitative research studies are credibility, dependability, transferability, and confirmability”(27). In our study, we will ensure all four components by using multiple data sources quality checks, descriptions, consistency, reflexivity, and data saturation will be maintained.

The rigor of the study is assured with the prescribed curriculum developed by the team of experts in the field to ensure recent and best evidence-based content is included.

Discussion

This study is expected to provide an intervention program to enhance the healthcare providers' disaster preparedness and response capabilities and to effectively deal with disaster survivors. This study will help identify the existing level of knowledge among healthcare providers regarding disaster preparedness and response in public healthcare settings. Moreover, this study will be a milestone in preparing and implementing the curriculum based on capacity building of healthcare providers. This will also highlight the role of nurses in responding to disasters is crucial, making this study highly significant. The results are anticipated to have great value for nursing education and practice, especially regarding incorporating disaster nursing response into the nursing curriculum. Furthermore, the execution of this intervention and dissemination of the knowledge gained will contribute to the broader knowledge base and the development of evidence-based policy recommendations. Overall, the expected outcome of this intervention will aim to fortify the disaster preparedness and response in public healthcare settings creating more adaptive and resilient healthcare in Pakistan.

Implications

The findings of this research study will strengthen the disaster nursing response in public healthcare settings in Sangar and Dadoo, Pakistan, through a sequential explanatory mixed-method approach. By training master trainers and empowering them to conduct capacity building for other healthcare providers, the study will tend to enhance the disaster preparedness and response capabilities of the healthcare system in disaster-prone regions. The findings of this research can contribute to the development of effective disaster nursing response strategies in Pakistan and other similar contexts. Moreover, the findings of the study will contribute to modifying the curriculum and as well as implementing the curriculum in nursing programs.

Limitations

Firstly, the study is being conducted in only two districts, Sanghar and Dadu, which can be scaled up later to other districts as well. Secondly, acknowledging the fact that the participants from the Sanghar and Dadu may not be as trained and skilled as healthcare professionals are in Karachi. Thirdly, considering the mixed methods being robust and rigorous, it may be time and resource-consuming.

Declarations

Acknowledgments

We would like to thank the Centre of Excellence for Trauma and Emergencies and School of Nursing and Midwifery, Aga Khan University for granting this opportunity of research and providing assistance.

Authors' contributions

S.G led the design and conceptualization of the study with contributions from all authors. T.A facilitated and mentored throughout the preparation of proposals and study design. HA and SM are part of the wider project and facilitated the selection of study sites and integration of the research activities into the wider program of Integrated Disaster Response. S.G, S.A, Z.J, H.Q, Z.S, and S.L are leading the implementation and contributed to drafting the parts of the proposal such as S.G and S.A preparing the Adolescent and pubertal Health, Z.J and Z.S worked on nursing skills, S.L and H.Q prepared the Gender-Based Violence and Resilience parts. R.H contributed to the drafting and final review of the manuscript with input from all co-authors. A.S managed all the administrative work. All authors reviewed and approved the final manuscript.

Funding

This work is supported by the Centre of Excellence for Trauma and Emergencies, Aga Khan University

Availability of data and materials

Not applicable.

Ethics Approval and Consent to Participate

Ethics approval has been obtained for this study from the Office of Ethical Review Committee at the Aga Khan University 2023-9197-27010. Study aims, procedures, risks, and benefits including procedures to protect participant privacy and confidentiality will be explained at the time of recruitment, and all participants will provide written informed consent.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

References

1. Rodriguez J, Vos F, Below R, Guha-Sapir D. Annual disaster statistical review 2016: the numbers and trends. Centre for Research on the Epidemiology of Disasters Université Catholique de Louvain, Institut de Recherche Santé et Société. 2017:91.
2. Medicine, NAoSEa, Medicine, NAo. 2020–2030 CotFoN. Nurses in Disaster Preparedness and Public Health Emergency Response. In: Wakefield MK, William DR, Le Menestrel S, Flaubert JL, editors. The Future of Nursing 2020–2030: Charting a Path to Achieve Health Equity. Washington (DC): National Academies Press (US); 2021.
3. Bronkhorst BV, Bhandari P. Climate Risk Country Profile: Pakistan. The World Bank Group and the Asian Development; 2021.
4. Committee IR. Early Needs Identification Flood Disaster Sindh, Pakistan. 2021.
5. Nasir R, Zainah AZ, Khairudin R. Psychological Effects on Victims of the Johor Flood 2006/2007. Asian Social Science. 2012;8(8):126–33.
6. Norris F. Range, magnitude and duration of the effects of disasters on mental health: Review Update 2005. 2005.
7. Hackbarth M, Pavkov T, Wetchler J, Flannery M. Natural disasters: an assessment of family resiliency following Hurricane Katrina. J Marital Fam Ther. 2012;38(2):340–51.
8. Makwana N. Disaster and its impact on mental health: A narrative review. J Prim Med Gen Care. 2019;8(10):3090–5.
9. Sloand E, Killion C, Gary F, Dennis B, Glass N, Hassan M, et al. Barriers and Facilitators to Engaging Communities in Gender-Based Violence Prevention following a Natural Disaster. J Health Care Poor Underserved. 2015;26(4):1377–90.
10. Pradhan NA, Najmi R, Fatmi Z. District health systems capacity to maintain healthcare service delivery in Pakistan during floods: A qualitative study. Int J Disaster Risk Reduct. 2022;78:103092.
11. Parkinson D. Gender-Based Violence and Disaster. Oxford Research Encyclopedia of Natural Hazard Science; 2022.
12. Memon FS. Climate Change and Violence Against Women: Study of A Flood-Affected Population in The Rural Area of Sindh, Pakistan. akistan Journal of Women's Studies. Alam-E-Niswan. 2020;27(1):65–85.
13. Wachinger G, Renn O, Begg C, Kuhlicke C. The risk perception paradox–implications for governance and communication of natural hazards. Risk Anal. 2013;33(6):1049–65.
14. Bakic H, Ajdukovic D. Resilience after natural disasters: the process of harnessing resources in communities differentially exposed to a flood. Eur J Psychotraumatology. 2021;12(1).
15. Ross D, Hinton R, Melles-Brewer M, Engel D, Zeck W, Fagan L et al. Adolescent Well-Being: A Definition and Conceptual Framework. J Adolesc Health. 2020;67.

16. Ahmed R, Barkat W, Ahmed A, Tahir M, Nasir AM. The Impact of Flooding on Education of Children and Adolescents: Evidence from Pakistan. Water Econ Policy. 2022;8(3).
17. Hasnat GN, Kabir MH. Md. Major Environmental Issues and Problems of South Asia, Particularly Bangladesh. Handbook of Environmental Materials Management2018. p. 1–40.
18. Mathew G, Varghese AD, Sabu AM. Screening for post-traumatic stress disorder among adolescents following floods- a comparative study from private and public schools in Kerala, India. BMC Pediatr. 2021;20(1):462.
19. Desmennu A, Titiloye M, Owoaje E. Behavioural risk factors for sexually transmitted infections and health seeking behaviour of street youths in Ibadan, Nigeria. Afr Health Sci. 2018;18(1):180–7.
20. Garcia D, Sheehan M. Extreme Weather-driven Disasters and Children's Health. Int J Health Service. 2016;46(1):79–105.
21. Majeed H, Lee J. The impact of climate change on youth depression and mental health. Lancet Planet Health. 2017;1(3):e94–e5.
22. Thapar A, Collishaw S, Pine D, Thapar A. Depression in adolescence. Lancet. 2012;379(9820):1056–67.
23. Pfefferbaum B, Jacobs A, Jones R, Reyes G, Wyche K. A Skill Set for Supporting Displaced Children in Psychological Recovery After Disasters. Curr Psychiatry Rep. 2017;19(9):60.
24. Hugelius K. Disaster nursing research: A scoping review of the nature, content, and trends of studies published during 2011–2020. Int Emerg Nurs. 2021;59:101107.
25. Isangula K, Lyimo M, Ndungile Y, Robert E. Nurses' preparedness for disaster response in rural and urban primary healthcare settings. Rural Remote Health. 2023;23(7547).
26. Khilji FU, Raziq A, Shoaib M, Baloch NS, Raza S, Iqbal Z et al. Expecting the Unexpected: Nurses' Response and Preparedness of Terrorism-Related Disaster Events in Quetta City, Pakistan. Front Public Health. 2021;9(695143).
27. Lincoln Y, Guba EG. Naturalistic inquiry. Newbury Park: Sage; 1985.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- InformedConsentFinal.docx
- SampleFocusGroupInterviewGuide.docx
- SamplePrepostQuestions.docx