


# Disaster mental health preparedness in the community: A systematic review study

Health Psychology Open  
January-June 2017: 1–12  
© The Author(s) 2017  
Reprints and permissions:  
sagepub.com/journalsPermissions.nav  
DOI: 10.1177/205510291711307  
journals.sagepub.com/home/hpo  


Juliet Roudini<sup>1</sup>, Hamid Reza Khankeh<sup>2,3</sup> and Evelin Witruk<sup>1</sup>

## Abstract

The objective of this study was to perform a systematic review of articles that cover aspects of disaster mental health preparedness. This assessment was done by a thorough review and summary of the available studies which provided a considerable background and amplified the gaps in knowledge about community mental health preparedness. By this systematic review, we tried to identify available concept of community mental health preparedness and related tools that communities and individuals will need to prepare for natural disasters. We found there is a lack of mental health preparedness in the majority of countries; valid and reliable tools and context-bound programs should be developed based on the experiences and perceptions of the community.

## Keywords

community preparedness, disaster, mental health, systematic review

## Introduction

Many natural disasters such as earthquakes, cyclones, floods, droughts, and tsunami happen in just few seconds. Disasters are stressful events not only for individuals who suffer from personal loss but also for the community at large (Khankeh et al., 2011; Norris et al., 1999). During the past two decades, natural hazards have affected more than 3 million families around the world and from an economical perspective. The occurrence and human consequences of disasters have been increasing due to the increasing population (McFarlane and Williams, 2012). According to the report of the Annual Disaster Statistical Review from 2013, natural hazards killed a noteworthy number of individuals (21,610) but fortunately mostly below the annual average report between 2003 and 2012 (106,654) (Guha-Sapir et al., 2014).

In the Middle East, there are countries with major natural disasters such as Iran. Iran is the one of the most afflicted countries in the world for earthquakes in terms of frequency, intensity, and the number of victims (BBC reported). The city of Bam in southeast Iran was devastated completely by an earthquake in 2003: around 43,000 people were killed and more than 30,000 were injured (Fialko et al., 2005).

A growing body of evidence demonstrates that major depressive disorder, post-traumatic stress disorder (PTSD), depression, and anxiety undesirably and forcefully

influence quality of life and functioning (Fergusson et al., 2014; Kessler et al., 1995; Simmons et al., 2008). It is not entirely unexpected that the comorbidity of these disorders is great; around 50 percent of PTSD patients also meet the criteria for major depressive disorder (Goenjian et al., 2000; Kessler et al., 1995). Research also indicates that earlier substance abuse problems may relapse or be exacerbated (Keyes et al., 2011; North et al., 2011). Moreover, the research indicates that individuals with poor mental health are at a high risk (Clay et al., 2014). The experience of dealing with hazards such as tsunami has demonstrated that psychosocial characteristics and mental health are vital in disaster preparedness and management. Natural disaster funding also needs to include psychosocial retrieval, which is a crucial component of restoring individuals' and communities' well-being and mental health (Burke, 2014; Reser and Morrissey, 2009).

<sup>1</sup>Leipzig University, Germany

<sup>2</sup>University of Social Welfare and Rehabilitation Sciences, Iran

<sup>3</sup>Karolinska Institute, Sweden

## Corresponding author:

Hamid Reza Khankeh, Emergency and Disaster Health Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.  
Email: hamid.khankeh@ki.se



Disaster mental health preparedness is a significant reduction method to protect individuals from detrimental psychological effects arising from unexpected natural disasters.

Results of investigation by E.W. show that people with a strong belief in a just world believe the hazards to be a result of human failure, and this belief is an important factor when dealing with natural disasters (Witruk et al., 2014).

Psychological attitudes play a constitutional and an essential part in disaster research, particularly with regard to disaster response in trauma management to the people who are affected by natural disasters and also providing counseling and therapy services. It has only been in the past 50 years that psychologists have become more active as researchers and specialists in this field (Zulch et al., 2012). In addition, the need for mental health services is significant before and after the disaster. The research of H.R.K. revealed the essential basic needs that should be taken into consideration to deliver comprehensive recovery facilities. One of the basic needs includes the requirement of continuous mental health care in the community (Khankeh et al., 2013).

Considerable research on the mental consequences of disaster has been undertaken in several countries. Nevertheless, the existing investigations about disaster mental health preparedness are few in number. Since vulnerable countries from around the world are at high risk of natural catastrophe, disaster mental health preparedness plays a vital role. The research of Clay and his colleagues demonstrated a positive connection between disaster preparedness and mental health, and probability of the mental disorder following disasters is due to an absence of preparedness.

Psychological preparedness can help people to think logically and wisely, which in turn may decrease the risk of severe injury and loss of life. Therefore, individuals and communities need to prepare psychologically for confronting a disaster. People are not fully aware of disasters and the mental effects on human's health, so natural disaster mental health preparedness is frequently unnoticed due to the more immediate and basic physical needs in disaster situations. Therefore, additional research is needed to improve the concept of the mental preparedness for disaster based on international experience (Barron, 2004; Zulch et al., 2012). The main concern involved in the community mental health preparedness investigations is the lack of context-bound tools to evaluate this important issue based on a clear conceptual definition. Because of the above-mentioned reasons, we are going to explore different evidence regarding concept of community mental health preparedness, related tools, and its different aspects. This assessment was done by a thorough review and summary of the available studies which provided a considerable background and amplified the gaps in knowledge about community mental health preparedness.

## Methods

### *Eligibility criteria and search strategies*

**Search strategy.** This systematic review research was done according to the Preferred Reporting Item for Systematic Reviews and Meta-analyses (PRISMA) standard (Moher et al., 2009). A literature search was conducted in May 2015 to identify peer-reviewed, English-language literature providing evidence of community disaster mental health preparedness. We used an extensive collection of search methods in the literature review. The search plan was to use varied electronic databases and publications with a combination of subject titles and free text searching such as natural disasters, community mental health, mental health concepts and evidence, mental disorders, and community mental health services. Most of the investigations were to be found in MEDLINE through PubMed (196 citations), Psych INFO (350 citations), PILOTS (120 citations), Academic Search Premier (30 citations), Cochrane Database of Systematic Reviews (zero citations), and Google Scholar (114 citations). Additional literature was gathered through various institutional reports, books, and theses. The search yielded around 810 single articles. In the final analysis, after evaluation of all documents, 14 full text sources were selected. Figure 1 indicates the search strategy and process. The main limitation of the review was that only English-language documents are included. Therefore, we lost some of the related studies which were not in English.

### *Inclusion criteria*

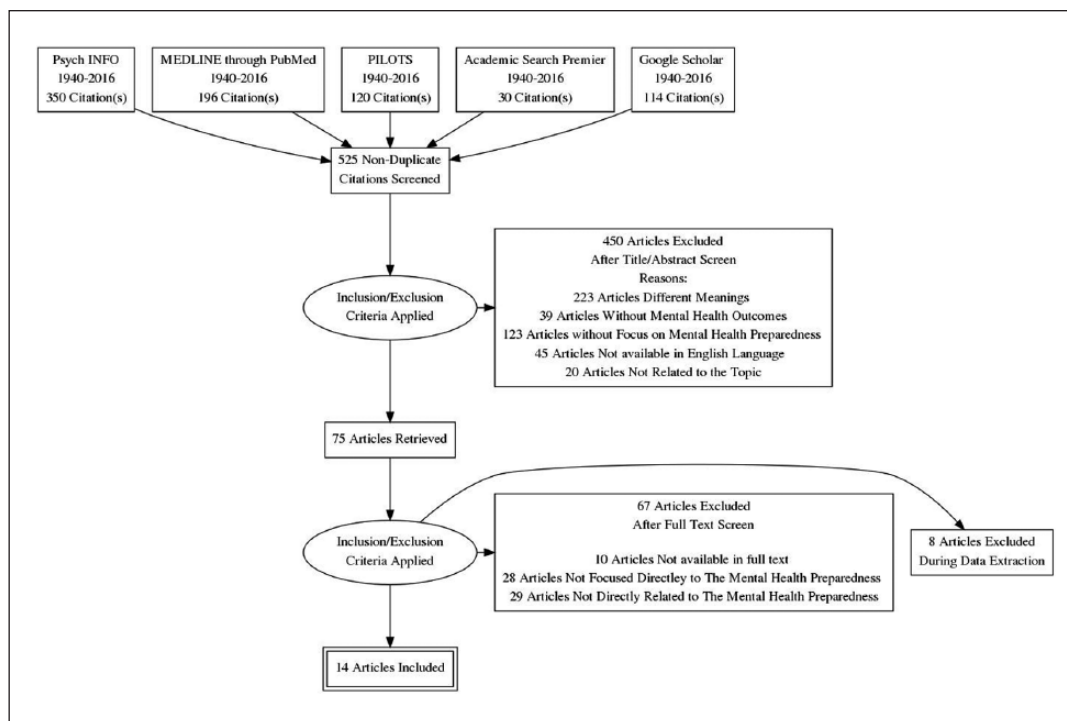
The protocol for this review was registered with the International Prospective Register of Systematic Reviews (PROSPERO; registration number CRD42016026844). We have included papers that described the concept of community mental health preparedness in natural disasters, the existing tools that were utilized to measure it, and the problems experienced regarding the lack of community mental health preparedness in different contexts.

This systematic search has been retrieved from articles published between 1940 and 2016. The term mental health appeared first in a paper that was published in the 1940s.

### *Exclusion criteria*

Papers were excluded if the focus was unrelated to the purpose of our systematic review for the following reasons:

- The analytical and interventional studies were not included because in this review, we are not considering the outcomes and the effects of exposure and intervention. In contrast, we explored the meaning, the measurement, and the related problems of community mental health preparedness in natural disaster.



**Figure 1.** PRISMA Flow Diagram

- Some articles which were considered as unreliable were also excluded from the final list either by the research team or according to the PRISMA model.
- Web-based sources are not included in the review.

### *Selection of articles and analysis*

In the beginning, articles were evaluated based on their titles and later based on their abstracts to eliminate the articles which did not meet the inclusion criteria. The related studies were reviewed completely and the articles without the inclusion criteria were omitted. In this systematic review, the information is derived from both quantitative and qualitative studies. The quantitative studies were discussed in terms of the total bias related to the different strategies with respect to the main research attention. The summary of the results, study design, and demographics were reviewed by the co-authors. Since one of our aims was to determine what had been written about community mental health preparedness and how mental preparedness in disaster was conceptualized in the literature, the primary search plan was to cast as widely as possible. In this way, free text searches using the terms “mental preparedness concepts” and “community preparedness meanings” were conducted in a variety of the mentioned databanks. Free text searches are an appropriate approach when the term is first-hand and perhaps has not yet been added to a dictionary.

### *Data extraction and management*

Data on authors, year of publication, method, target group, study design, study setting, study focus, and assessment tools used were extracted by the authors. Results from the selected papers were extracted and gathered in a summary. Included papers were grouped by subject, and fields were determined once the data were completely collected. All papers were appraised using the PRISMA guideline, and J.R., H.R.K., and E.W. agreed the amplitude by consensus.

### **Results**

A total of 810 relevant articles were identified through the search strategy. After further review of papers and abstracts, 525 articles were excluded due to the exclusion criteria or lack of coverage of evidence and concepts of disaster related to mental health and duplications. The concentrations of these research works were mostly on the influence of mental disorders and theories rather than community mental health preparedness concepts and context-bound programs. Many papers (450 papers) had another approach or were not focused on mental health preparedness. In the last phase, 65 articles out of 75 papers during data extraction were omitted due to not being available in full or not directly related to mental health preparedness. These articles were classified by the emphasis of the article on disaster mental health concepts and valid and reliable tools and context-bound programs and categorized by type (review,

**Table 1.** Type of Selected methods.

Type of methods	References	%	N
Quantitative methods	Choudhury et al. (2006), Malkina-Pykh and Pykh (2013), Morrissey and Reser (2003), Sharma et al. (2015), Udomratn (2008), and Zulch et al. (2012)	42	6
Qualitative methods	Panyayong (2006), Morrissey and Reser (2003), and Perry and Lindell (1978)	21	3
Mixed methods	McCabe et al. (2014)	9	1
Reviews	Barron (2004), Fox et al. (2012), Mangelsdorff (1985), McCabe et al. (2014), and Schonfeld and Gurwitch (2009)	28	4

**Table 2.** Characteristic of the disasters.

Characteristic of the disasters	References	%	N
Specific	Morrissey and Reser (2003)	13	2
General	Barron (2004), Fox et al. (2012), Malkina-Pykh and Pykh (2013), Mangelsdorff (1985), McCabe et al. (2014), Perry and Lindell (1978), Schonfeld and Gurwitch (2009), Sharma et al. (2015), Udomratn (2008), and Zulch et al. (2012)	86	12

**Table 3.** Research sources.

Research source	References	%	N
Developing countries	Panyayong (2006), Choudhury et al. (2006), Sharma et al. (2015), and Udomratn (2008)	35	5
Developed countries	Barron (2004), Fox et al. (2012), Malkina-Pykh and Pykh (2013), Mangelsdorff (1985), McCabe et al. (2014), Morrissey and Reser (2003), Perry and Lindell (1978), Schonfeld and Gurwitch (2009), and Zulch et al. (2012)	64	9

commentary, opinion, original research, and reports). In the last stage, 14 unique articles on disaster mental health preparedness were included in this review (Figure 1)

Tables 1 and 2 indicate a summary of the features of the involved papers. From 14 selected original articles, 6 of the documents (42%) used quantitative methods, 3 articles (21%) were qualitative studies dealing with mental health preparedness, 1 paper (9%) used mixed methods, and, finally, 4 review papers (28%) dealing with the effects of disaster on mental health were also involved. In Table 2, for characteristics of disasters, all types of disaster events such as earthquakes, tsunamis, and hurricanes are also investigated.

In total, 9 out of the 14 studies (64%) were conducted in developed countries, 5 of the 14 papers (35%) were focused on developing countries, and 2 papers (14%) were done on an international level (See Table 3). Regarding the demographics of the papers, 20 percent focused on children and adolescents, 74 percent on adults, and 6 percent of papers focused on women.

After a full reading of the papers, the descriptive analysis is designated in Table 4 to deliver a summary of the characteristics of the studies involved. The articles nominated for the systematic review were verified by title of

publication, the year of publication within the period 1940–2015, methods, target group, research sources, the summary of results of all selected studies, and the conclusion.

## Discussions

The main purpose of this review is to identify available concept and tools that communities and individuals will need to prepare themselves for natural disasters. The main study's results also show that there are currently no clear and comprehensive concept of community mental health preparedness and related tools to evaluate community mental health preparedness. This assessment carried out by means of a thorough review and summary of the studies provided considerable background and highlighted the gaps in knowledge about community mental health preparedness. In line with the research of Hannah R Zulch et al. (2012), and after a widespread review of the literature, an effective definition for mental health preparedness is suggested. In the context of a threatening situation, mental health preparedness should be a state of awareness and expectation of an individual's psychological reactions to the disaster warning. Furthermore, mental health preparedness will significantly support the ability to identify

**Table 4.** Included studies for final analysis.

Title	Year of publication	Methods	Target group	Research sources	Significant finding	Conclusion
Mental health and psychosocial aspects of disaster preparedness in Myanmar	2006	Qualitative	Whole community level	Developing country	Myanmar has established a National Disaster Preparedness plan. Actions were taken in the pre-disaster phase such as connecting the psychosocial section with the existing national structure and creating inter-ministerial management with Social Welfare, Home Ministry, and Department of Relief. They also conducted an advocacy for gathering psychosocial matters with policy makers. Developing a mobile training team and exchange visits to other countries to improve the knowledge regarding preparedness for disaster were also included in the pre-disaster phase.	This research demonstrated that mental health facilities should be improved to have a fortified community mental health structure and be part of the routine of health care system.
Evaluating the effectiveness of psychological preparedness advice in community cyclone preparedness materials	2003	Qualitative	Households	Developed country	The study delivers persuasive support for the efficiency of a modified stress inoculation intervention in a real cyclone threat situation. The research results show that the pre-disaster situation is a critically significant time for prevention and mitigation. Psychological factors and procedures during this threat period are of considerable importance for effective coping and adaptive reacting.	The aim of the research was to test, evaluate, and improve a pioneering natural disaster public education and warning communication intervention with focus on tropical cyclone preparation and response. In this research, the material was derived from "Stress Inoculation Theory." Avoidance coping, previous traumatic experience, and anxiousness were found to often co-exist in mental health context.
Disaster preparedness among women, the invisible force of resilience: a study from Delhi, India	2015	Qualitative	Women and children	Developing country	The result of this study showed that the majority (455) of woman (60.3%) that were asked about how well-prepared they were to handle a big disaster were not at all prepared. However, on the other hand, it showed that most of the women mentioned that they are interested in participating in disaster preparedness training by public authorities.	This study of disaster preparedness among women revealed several gaps in their knowledge and preparedness. The research brought up some noticeable results that can be useful for outlining public health plans for the vital objective of increasing public disaster preparedness particularly among women and children.
The psychological consequences of natural disaster: a review of research on American communities Allen H Barton	1978	Qualitative	Whole community	Developed country	This study presented a conceptual model which isolates important variables and specifies the channels through which the effects of disaster impact people and can produce some psychological consequences, either positive or negative. The significance of this model lies in the fact that it demonstrates a clear empirical awareness.	According to Allen H Barton, the characteristics of disaster are divided into three different phases, namely, forewarning, duration, and scope of impact, which mediate the social and physical consequences of disaster impact. In this research, for a social characteristic system, seven factors were selected: level of community preparedness, presence of disaster subculture, development of therapeutic community, destruction of kin network and friendship networks, the extent of property damage, and the presence of institutional rehabilitation. Two important characteristics of individuals are identified: pre-impact psychological stability and grief reactions.

(Continued)

Table 4. (Continued)

Title	Year of publication	Methods	Target group	Research sources	Significant finding	Conclusion
Mental health and psychosocial aspects of disaster preparedness in Thailand	2006	Qualitative	Whole community	Developing country	After the 2004 tsunami, the Department of Mental Health in Thailand established a national instruction for mental health. Interventions were cited as a tool for preparedness for disasters based on the lessons learnt from the psychosocial relief efforts and mental health. In this research, social interventions for the affected community were integrated into the general mental health care. The mental health care delivery system will deliver the everyday requirements of the community and can be quickly scaled up in times of a disaster.	The expected results of this application and effective emergency management programs are enhanced protection of property, life, environment, improved community safety, physical well-being, mental health, and the ability to sustain well-being. Even though dissimilar disasters need different reactions depending on the context, type of hazards, requirements, and magnitude, nevertheless, the central components of preparedness are very similar.
Psychological preparedness for natural disasters	2012	Quantitative	Adults	Developed country	This study provides an overview of the construct of psychological preparedness and the outcomes of the recently established and validated measure of psychological preparedness by the Psychological Preparedness for Disaster Threat Scale (PPDTS).	In this research, a scale was produced which will give information and awareness about disaster preparedness strategies and interventions in a community. In the next stage, the scale will be adapted to assess whether improved psychological preparedness can support the avoidance of severe psychological problems and whether psychological preparedness might lead to improved resilience over time in the individual.
Mental health and the psychosocial consequences of natural disasters in Asia	2008	Quantitative	Whole community	Developing country	In international journals and publications, there has been little concern about the mental health and psychosocial problems of the survivors in Asia. Frequent reports of PTSD and other mental disorders resulting from natural disasters from many countries have been indicated.	Several mental illnesses such as a PTSD, Major Depressive Disorder, and anxiety were caused by a lack of mental health preparedness in Asia. It has also been emphasized that the limitations of mental health specialists and insufficient knowledge and practices also played a role. Therefore, advance investigation is necessary in the field of mental health preparedness for disasters.
Mental health and psychosocial aspects of disaster preparedness in Bangladesh	2006	Quantitative	Whole community	Developing country	According to this research, in Bangladesh, no special committee or special team has been created for the organization of disaster-related psychosocial difficulties. Health-provider staff are not very well-informed about disaster mental health care. Psychological preparedness and response to individual's special needs, coordination systems, and many other kinds of physical care should be supported to decrease mental disorders in disaster situations.	The most significant finding in this study is that children and women were more psychologically troubled than adult men. This is due to practical limitations of the situation for this group in the community or due to a lack of awareness of disaster mental health.

**Table 4.** (Continued)

Title	Year of publication	Methods	Target group	Research sources	Significant finding	Conclusion
An integrated model of psychological preparedness for threat and impacts of climate change disasters	2013	Quantitative	Adults	Developed country	In this research, the "method of response functions" (MRF) is recommended as a method for the construction of purposeful, reliable combined models for individual's psychological preparedness and for data and previous information or knowledge on some personality variables such as dispositional optimism, trait anxiety, self-esteem, and self-efficacy. These independent variables were used for the building of the psychological preparedness (PREP model).	The suggested model can be applied as an executable assessment tool for evaluating the basic level of psychological preparedness and for indication of the most significant variables for pre-impact intervention. According to this research, a better understanding of one's own and others' psychological response in natural disaster warning situations helps individuals to feel more secure, safe, more in control, better organized, and prepared, both psychologically and also in terms of effective emergency planning.
An academic government-faith partnership to build disaster mental health preparedness and community resilience	2014	Mixed methods	Adults	Developed country	This investigation has resulted in the establishment of a dual intervention model of capacity building for community psychological preparedness and community resilience for defining the possibility of the tripartite cooperative concept, designing, providing, evaluating Psychological First Aid (PFA) training, and guided preparedness planning (GPP). This research also examined the preliminary evidence of the sustainability and impact of the model on a community level.	The result of this study indicated that leaders from different organizational cultures can work successfully to implement a method which can be a widely applicable model for improving community disaster resilience and promoting community health preparedness.
International disaster mental health	2004	Review research	Whole community	Developed country	Three main points of this study: 1. Necessity of undertaking psychosocial support founded on the background of the affected community, in close association with local community leaders. 2. Attention to helping the community mental health in disaster of its own cultural standards and methods. 3. It is essential to identify the advantage of close linkages with respected organizations and training with experienced professionals in the field.	In this study, the need for evidence-based action is highlighted and it is significant to examine the most objective assessments provided by specialists who recognize they must struggle with their own culture-bound methodologies. Mental health efforts have to be in primary and major care and have to be linked to initiatives in the community, groups, and individual sets.

(Continued)

Table 4. (Continued)

Title	Year of publication	Methods	Target group	Research sources	Significant finding	Conclusion
Addressing disaster mental health needs of children: practical guidance for pediatric emergency health care providers	2009	Review	Children and health care providers	Developed country	<p>According to this research, the efforts toward increasing children's mental health awareness based on disaster readiness are important.</p> <p>Preparedness efforts have to put emphasis on identifying, addressing mental health for children, and apprehensions should be a part of all the stages of preparedness planning, response, and recovery from disaster.</p> <p>Suitable guidance for pediatric emergency health care providers is necessary, including references to screening questions to simplify mental health triage, Psychological First Aid during an event, and a summary of effective mental health interventions.</p>	<p>It is important to acknowledge that the health care provider also will experience the same mental reactions to a disaster. Therefore, a situation should be created where it is safe for health care providers to express their feelings of suffering and receive support with meeting basic needs, earning supportive services, and understanding effective and positive coping strategies in disaster events.</p>
The effectiveness of Psychological First Aid as a disaster intervention tool: research analysis of peer-reviewed literature from 1990 to 2010	2012	Review	Whole community	Developed country	<p>The systematic review of this study validated that although scientific evidence is missing, adequate evidence exists for the effectiveness of Psychological First Aid (PFA). This is broadly supported by available objective observations and expert opinion.</p>	<p>Psychological First Aid (PFA) is a vital first step in ensuring basic, comfort care, and support; therefore, people should be provided with information about the probable responses they might have, such as how they can access help from those around them, what they can do to help themselves (coping strategies), and where and how to access additional assistance if required.</p>
Lessons learned and forgotten: the need for prevention and mental health interventions in disaster preparedness	1985	Review	Whole community	Developed country	<p>This study indicated that more experience and knowledge is required for mental health preparedness when providing emergency care in natural disasters. This research also demonstrated that too little planning at the international level takes place with respect to mental health activities. This is due to the general belief that the psychological effects are short-term. The local mental health agencies should be developing operational disaster intervention techniques for community mental health preparedness.</p>	<p>This investigation from 30 years ago shows that there is a need to develop community disaster preparedness plans for establishing and training mental health teams. Preparedness and training are important for prevention efforts. Probable casualties and victims must be treated near the disaster rapidly, with the expectation that their reactions are normal responses to unusual conditions. Rehabilitation must be short-term and compassionate beside which social support and follow-up are essential. Everybody in the community needs to be informed of their role responsibilities in a disaster.</p>

PTSD: post-traumatic stress disorder.



particular stress-related emotions and thoughts. Consequently, this also contains the perception, appraisal, and understanding of threatening events and the risk communication.

Primarily, most research shows that disaster mental health consequences and disorders have been taken into consideration in many countries. However, the available studies about disaster mental health preparedness are few and the number of the documents related to mental health preparedness programs, models, or tools have not increased significantly in recent years, especially in those countries that they are at high risk of natural disasters. According to the above-mentioned studies, many countries will experience a high number of disasters in the future and the impact of the psychological effect will become more critical. Providing only financial and medical help immediately after a disaster cannot stop the long-term psychological effects of disasters on human life. Therefore, individuals and communities need to prepare psychologically for confronting a disaster.

The review of the articles suggested that natural disasters have a potentially negative impact on mental health, with increasing levels of PTSD, depression, anxiety, and use of psychotropic medications (McCabe et al., 2014; Malkina-Pykh and Pykh, 2013; Mangelsdorff, 1985; Panyayong, 2006; Zulch et al., 2012). According to the research, the central components of preparedness are very similar, even though dissimilar disasters need different reactions depending on the context, type of hazards, requirements, and magnitude of preparedness. The effect of natural disasters on mental health is similar in both developing and developed countries (Barron, 2004). However, there can be cultural differences related to the manifestation of reactions and expression of emotions. In some reviews, we have found some important research gaps and insufficient attention being paid to helping a disaster-struck community according to its own cultural standards and methods. These studies showed that there is a need to develop a more context-bound tool to evaluate the mental health preparedness of the community. Reser's research indicated that mental health readiness contains some intertwined factors within individual abilities and developments such as awareness, knowledge, anticipation, concern, thinking, feeling, experienced stress, motivation, intentions, and decision-making, and management of, or coping with, one's thoughts, feelings, and actions (Reser and Morrissey, 2009).

Also, the review showed that the majority of the studies considered that more research needed to be done into the psychological effects of natural disasters and mental health preparedness.

The term mental health preparedness has been referred to in the disaster literature in the last few years; however, only a few efforts have been made recently to operationalize mental health. Moreover, an investigation from 30 years

ago (Mangelsdorff, 1985) shows the necessity of developing community disaster preparedness plans for establishing, training mental health teams, and coordinating with government departments and policy makers. The local mental health agencies should develop operational disaster intervention techniques for community mental health preparedness. Individuals in the community need to be informed of their role responsibilities in a disaster. They should be informed about their possible reactions regarding casualties and victims which are normal in a disaster situation.

Research in Bangladesh and India indicated that no committee or special team had been created for the organization of disaster-related psychosocial problems for the community, particularly for women and children. The reaction of the majority of women shows they are poorly prepared with some gaps in their awareness and preparedness. However, it showed that a large number of the aforementioned women are interested to take part in disaster preparedness training provided by the public authorities (Sharma et al., 2015). The most significant finding in study from Bangladesh shows that children and women were more psychologically troubled than adult men due to the practical limitations of the situation or due to a lack of awareness of disaster mental health (Choudhury et al., 2006). Preparedness efforts have to put emphasis on recognizing and addressing the mental health problems of children, and their anxieties should be a part of all phases of mitigations, preparedness planning, response, and recovery.

A study in Australia examined the assessing of the efficiency of psychological preparedness guidance in community cyclone preparation training. The research delivers persuasive support for the efficiency of the modified stress inoculation intervention in a real cyclone threat situation. The aim of the research was to test, evaluate, and improve a pioneering natural disaster public training and information intervention, concentrating on tropical cyclone training and reaction. The material for this preparation was derived from "Stress Inoculation Theory." The research outcomes show that avoidance coping, previous traumatic experience, anxiousness, and stress were significantly interacting in a mental health condition in a disaster situation. Psychological factors and procedures during this threat period are important for effective coping and adaptive reacting. Therefore, the pre-disaster plans are a critically significant factor for prevention and mitigation (Morrissey and Reser, 2003).

The results of the developed and validated measure of psychological preparedness, known as the Psychological Preparedness for Disaster Threat Scale (PPDTS), demonstrated that a much more precise meaning of psychological preparedness along with a reliable and valid measure of psychological preparedness has been developed (Zulch et al., 2012).

Psychological First Aid (PFA) as a disaster intervention tool has also demonstrated a positive effect on mental health preparedness in disaster conditions (Fox et al., 2012). According to this study, people should be provided with the information about the probable responses they might have. This information comprises how they can receive help from the community, what is their own capability to help themselves (coping strategies), and where and how to obtain additional assistance if required.

A few Asian countries like Thailand and Myanmar have established a national instruction program for mental health interventions after the 2004 tsunami, both as a tool and strategy for improving preparedness in disasters and for enhanced protection of property, life, environment, improved community safety, physical well-being, mental health, and the ability to sustain the well-being. Their consideration facilitated the creation of a significant community mental health structure which served the immediate as well as the long-term needs of the community, and it was intended to become a part of the standard health care delivery system in these countries.

Community mental health preparedness plays a crucial role in responding to public health emergencies in every country. Although governmental organizations and assistance agencies have a significant responsibility, mental health preparedness is not adequately included in the government's responsibilities. Indeed, individuals and families continue to organize prearranged efforts with the help of governmental and non-governmental support (US Department of Health and Human Services Centers for Disease Control and Prevention, 2011).

There is also an absence of research using qualitative methods which are the recommended approaches to exploring the meaning of experiences and perceptions. In review of Table 1, we have recognized only four studies and they were conducted in the United States, Australia, Myanmar, and Thailand. Moreover, the use of mixed methods improves the conclusions and leads to a depth of understanding of the community mental health preparedness. This review showed that there are some restrictions in the published qualitative studies, such as a lack of discussion on the philosophical basis of the research, because the belief structure of the researcher influences the interpretation of the research. Therefore, it is essential to discuss the philosophy underpinning the research, the role of the investigators and their relationship with contributors, any potential biases or assumptions of the researchers, and the sampling procedure. Regarding responses and feedback about the used methods and programs, there is limited evidence regarding their effectiveness or impact and a lack of monitoring of the system. Some of this research addresses the effectiveness of mental health interventions to reduce the impact of disasters. They reached the same conclusion: more effort is required to evaluate the efficiency of these interventions. It also

emphasized the limitations of mental health experts, insufficient knowledge, and practices concerning mental health preparedness in Asia. Therefore, an advance study is necessary on the topic of mental health preparedness for disasters. The experience of dealing with the 2004 Indian Ocean tsunami emphasized the fact that disaster preparedness strategies must meet the mental health and psychosocial needs of the community.

Finally, we found a lack of information on vulnerable groups such as children, women, people living with disabilities, and the elderly. Assessment efforts for mental health preparedness training in general and those related to vulnerable populations such as children, women, and elderly people in particular should be encouraged (Choudhury et al., 2006; Morrissey and Reser, 2003; Sharma et al., 2015; Udomratn, 2008). These efforts confirm that an evidence-based guidance health system needs to strengthen intra- and inter-sector collaboration and coordination, information management systems, and community-based initiatives for disaster preparedness. It is also necessary to pay more attention to disaster risk reduction while increasing the reaction capacity. Investing in related research would contribute to the future decision-making in the field of disaster health supervision. Specialists and health system administrators should pay attention to the physical and mental health of their team and workers, and they should assign strategies to develop the quality of emergency medical care (Khankeh et al., 2011; Panyayong, 2006).

## Conclusion

Through the assessment of the gaps across research investigations, some overall themes have appeared. First, we note an absence of policy and planning for people experiencing economic difficulty, individuals with mental disorders, and specific population groups like children, women, and elderly people. In addition, standard training exercises for general and specific populations are required. Collaborative efforts between government organizations and NGOs (non-governmental organizations) are insufficient. The study's results also show that there are currently no comprehensive concepts or tools to evaluate community mental health preparedness. Based on the articles archived and selected, and similar programs, tools and models are more frequently used in developed and developing countries, where there is little evidence regarding mental health preparedness. Consequently, health care systems in a community need reliable evaluation tools which are established using expert knowledge and authenticated through the procedure of psychometric evaluation. Mental health services should be developed so that there is a community mental health structure that can provide immediate support and then be part of the routine health care system. As regards the improvement in successful education, training, and informational resources, it is important to involve all of these

organizations, agencies, and individuals. This has to be considered due to climate change and the increasing percentage of the population who are young, especially in Asia countries; natural disasters like tsunami, earthquake, and floods are going to be more frequent. Therefore, having evidence of the influence of disasters on the mental health of individuals at any age is important.

Further investigations are required to document the effectiveness of the most common methods and to develop psychological mental health as well as household disaster preparedness. Community mental health preparedness is important to discover the most appropriate tool to enable a suitable response when facing disasters. Given the weaknesses or lack of the current community mental health preparedness tools, further qualitative studies and mixed methods are desirable to explore and clarify the concept of community mental health preparedness. Developed comprehensive context-bound tools, based on a concept of definition and analysis, are highly desired. These tools will facilitate the assessment of the functional features of mental health preparedness.

### Acknowledgements

In this study, because we are not assessing the outcome of an intervention, bias is not an issue. However, two review authors independently assessed the risk of bias in the included studies by categorizing the papers by type of study. The quantitative and qualitative studies were reviewed in terms of their research consistency and of the utility of the results.

### Author contribution

All authors contributed to the development of the study. H.R.K. and J.R. contributed to the conception and design of the study. J.R. conducted the search, reviewed the literature, organized and wrote the initial article, and conceptualized and compiled figures and tables. H.R.K. and E.W. critically revised the article, contributed to the writing and the structure, and were consulted on the general structure and direction the article should take. All authors participated in preparing, reading, and approving the final manuscript.

### Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### References

Barron RA (2004) International disaster mental health. *The Psychiatric Clinics of North America* 27(3): 505–519.  
 Burke S (2014) A response by the Australian psychological society to the draft report of the productivity commission inquiry into

natural disaster funding. *Australian Psychological Society*. Available at: <https://www.psychology.org.au/Assets/Files/APS%20Response%20to%20Draft%20Productivity%20Commission%20report%20on%20natural%20disaster%20funding.pdf>

Choudhury WA, Quraishi FA and Haque Z (2006) Mental health and psychosocial aspects of disaster preparedness in Bangladesh. *International Review of Psychiatry Journal* 18(6): 529–535.

Clay LA, Goetschius JB, Papas MA, et al. (2014) Influence of mental health on disaster preparedness: Findings from the behavioral risk factor surveillance system, 2007–2009. *Journal of Homeland Security and Emergency Management* 11(3): 375–392.

Fergusson DM, Horwood LJ, Boden JM, et al. (2014) Impact of a major disaster on the mental health of a well-studied cohort. *JAMA Psychiatry* 71(9): 1025–1031.

Fialko Y, Sandwell D, Simons M, et al. (2005) Three-dimensional deformation caused by the Bam, Iran, earthquake and the origin of shallow slip deficit. *Nature* 435(7040): 295–299.

Fox JH, Burkle FM, Bass J, et al. (2012) The effectiveness of psychological first aid as a disaster intervention tool: Research analysis of peer-reviewed literature from 1990–2010. *Disaster Medicine and Public Health Preparedness* 6: 247–252.

Goenjian AK, Steinberg AM, Najarian LM, et al. (2000) Prospective study of posttraumatic stress, anxiety, and depressive reactions after earthquake and political violence. *The American Journal of Psychiatry* 157(6): 911–916.

Guha-Sapir D, Hoyois P and Below R (2014) *Annual Disaster Statistical Review 2013: The Numbers and Trends*. Brussels: CRED.

Kessler RC, Sonnega A, Bromet E, et al. (1995) Posttraumatic stress disorder in the national comorbidity survey. *Archives of General Psychiatry* 52: 1048–1060.

Keyes KM, Hatzenbuehler ML and Hasin DS (2011) Stressful life experiences, alcohol consumption, and alcohol use disorders: The epidemiologic evidence for four main types of stressors. *Psychopharmacology* 218(1): 1–17.

Khankeh HR, Khorasani-Zavareh D, Johanson E, et al. (2011) Disaster health-related challenges and requirements: A grounded theory study in Iran. *Prehospital and Disaster Medicine* 26(3): 151–158.

Khankeh HR, Nakhaei M, Masoumi G, et al. (2013) Life recovery after disasters: A qualitative study in the Iranian context. *Prehospital and Disaster Medicine* 28(6): 573–579.

McCabe OL, Semon NL, Lating JM, et al. (2014) An academic-government-faith partnership to build disaster mental health preparedness and community resilience. *Public Health Reports* 129(Suppl. 4): 96–106. Available at: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4187312&tool=pmcentrez&rendertype=abstract>

McFarlane AC and Williams R (2012) Mental health services required after disasters: Learning from the lasting effects of disasters. *Depression Research and Treatment* 2012: 970194.

Malkina-Pykh IG and Pykh YA (2013) An integrated model of psychological preparedness for threat and impacts of climate change disasters. *WIT Transactions on the Built Environment* 133: 121–132.

- Mangelsdorff AD (1985) Lessons learned and forgotten: The need for prevention and mental health interventions in disaster preparedness. *Journal of Community Psychology* 13(3): 239–257.
- Moher D, Liberati A, Tetzlaff J, et al. (2009) Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine* 151: 264–269.
- Morrissey SA and Reser JP (2003) Evaluating the effectiveness of psychological preparedness advice in community cyclone preparedness materials. *The Australian Journal of Emergency Management* 18(2): 46–61.
- Norris FH, Perilla JL, Riad JK, et al. (1999) Stability and change in stress, resources, and psychological distress following natural disaster: Findings from hurricane Andrew. *Anxiety, Stress & Coping* 12(4): 363–396.
- North CS, Ringwalt CL, Downs D, et al. (2011) Postdisaster course of alcohol use disorders in systematically studied survivors of 10 disasters. *Archives of General Psychiatry* 68(2): 173.
- Perry RW and Lindell MK (1978) The psychological consequences of natural disaster: A review of research on American communities. *Mass Emergencies* 3: 105–115.
- Panyayong B and Pengjunter W (2006) Mental health and psychosocial aspects of disaster preparedness in Bangladesh. *International review of psychiatry* 18(6): 529–535.
- Reser J and Morrissey S (2009) The crucial role of psychological preparedness for disasters. *InPsych: The Bulletin of the Australian Psychological Society* 31(2): 14–15.
- Schonfeld DJ and Gurwitsch RH (2009) Addressing disaster mental health needs of children: Practical guidance for pediatric emergency health care providers. *Clinical Pediatric Emergency Medicine* 10(3): 208–215.
- Sharma R, Kumar V and Raja D (2015) Disaster preparedness amongst women, the invisible force of resilience: A study from Delhi, India. *International Journal of Health System & Disaster Management* 3(3): 163–168.
- Simmons AN, Paulus MP, Thorp SR, et al. (2008) Functional activation and neural networks in women with posttraumatic stress disorder related to intimate partner violence. *Biological Psychiatry* 64(8): 681–690.
- Udomratn P (2008) Mental health and the psychosocial consequences of natural disasters in Asia. *International Review of Psychiatry* 20(5): 441–444.
- US Department of Health and Human Services Centers for Disease Control and Prevention (2011) Public health preparedness capabilities: National standards for state and local planning. Available at: <https://www.cdc.gov/phpr/readiness/capabilities.htm>
- Witruk E, Lee Y and Otto K (2014) Dealing with earthquake disaster on Java 2006: A comparison of affected and non-affected people. *Indonesian Psychological Journal* 29(3): 121–135.
- Zulch HR, Reser JP and Creed P (2012) Psychological preparedness for natural disasters. In: *Proceedings of the first international conference on urban sustainability and resilience*, UCL, London, 5–6 November