Culture and the psychological impacts of natural disasters: Implications for disaster management and disaster mental health

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Abstract

In recent decades, natural disasters have caused extensive losses and damages to human psychological wellbeing, economy, and society. It has been argued that cultural factors such as social values, traditions, and attachment to a location influence communities facing and responding to natural disasters. However, the issue of culture in disaster mental health seems to have received limited attention in policy and practice. This review highlights the importance of cultural background in the assessment of vulnerability to the psychological impacts of disasters, disaster preparedness, and provision of disaster mental health services. In particular, this paper suggests the importance of cultural competence in the planning and delivery of effective disaster mental health services. In order to address the varying circumstances of people with different cultural backgrounds, disaster mental health services must be developed in a culturally sensitive manner. Development of culturally competent disaster mental health services requires significant changes in policy making, administration, and direct service provision.

Keywords: Culture, Disaster response, Disaster management, Psychological impacts, Vulnerability.

Introduction

Natural hazards have caused extensive loss of life, as well as damages to physical facilities such as buildings and infrastructure, and have as a result had a detrimental impact upon the socio-economic conditions of affected communities. The Indian Ocean Tsunami in 2004, Hurricane Katrina in New Orleans in 2005, L'Aquila earthquake in Italy in 2009, and recent flooding in Pakistan and the UK have all created serious losses and damages, and have heavily disrupted essential community functions. They have also increased the stress and vulnerability of the people affected. In the UK, recent flood events have brought to light the extensive and interrelated economic and psychological impacts of flooding, which have impacted individual wellbeing, local economies, economic development, and social cohesion in affected areas. Furthermore, increases in stress and deterioration of overall mental health have been reported following the various floods in the UK (Werritty et al., 2007; Penning-Rowsell, Tapsell & Wilson, 2004; Reacher et al., 2004; Tapsell et al., 2002). Such psychological effects of disasters can often be more pronounced than the physical health effects (Tapsell et al., 2002) and for

this reason, this area has become of increasing scientific interest (Kar, 2009; Norris et al., 2002; Schnurr and Green, 2004). Factors relevant for assessment of vulnerability to the psychological impacts of disasters warrant further investigation due to paucity of studies carried out in this area. Accordingly the paper is structured as follows. First, psychological impacts of disasters and the factors that influence them are discussed. Among the factors that influence psychological impacts, "culture" has been identified as one of the main factors and detail discussions on culture and its components are discussed next. Thereafter, influence of culture towards disaster risk management with particular reference to disaster response is discussed. Finally, three main areas addressed from the paper: culture, psychology and disaster risk reduction are linked to highlight the further research needed in this area to develop culturally sensitive psychological management for disaster-affected victims.

Psychological impact of disasters

Sharp increases in the prevalence of mental health symptoms have been reported following various disasters. Fifty one percent of people in the area most affected by Hurricane Andrew in the USA met criteria for a new-onset disorders following the disaster, including Post-Traumatic Stress Disorder (PTSD), major depressive disorder, and anxiety disorders (David et al., 1996). This pattern was repeated following Hurricane Katrina in 2005, with a rate of PTSD as high as 62.5% for children who remained in the affected area, and similarly high rates of co-morbid disorders such as oppositional defiant disorder and separation anxiety disorder (Scheeringa and Zeanah, 2008). Phifer et al. (1989) found increased somatisation, anxiety, and depression in a sample of 200 older adults interviewed before and after severe flooding in south-eastern Kentucky. These findings were replicated following recent floods in the UK (Paranjothy et al., 2011; Murray, Caldin and Arnlot, 2011; Hayes et al., 2009). Following a major earthquake in Central Java, Indonesia in 2006, children affected by the disaster displayed higher rates of symptoms consistent with Western-identified PTSD, in addition to two culturally-specific symptoms and problematic behaviours such as diminished academic motivation (Widyatmoko et al., 2011). Bryant et al. (2014), reporting on the Black Saturday bushfires in Australia in 2009, found that exposure to the bushfires was positively correlated with risk of PTSD, depression, and severe psychological distress. Overall, these findings highlight the severe psychological impact of disasters, and suggest the importance of providing accessible and comprehensive mental health services in areas affected by major disasters (Wang et al., 2000).

A number of reports also indicated that the psychological impacts of disasters are exacerbated by factors including extent of damages, time taken to return to normal life, ineffectiveness of help received (Galea et al., 2005; Floyd & Tunstall, 2005; Adeola, 2003) and importantly pre-existing vulnerability to disasters. One fact that determines vulnerability is age. The elderly are disproportionately affected by displacement and damage to property (Werritty et al., 2007; Hayes et al., 2009) and were shown to be more likely to develop PTSD and general psychiatric morbidity than younger adults following the 2008 Sichuan earthquake (Jia et al., 2010).

Additionally, society-wide factors may determine vulnerability to the psychological impacts of disasters. Socio-economic factors, for example, account for the decision made by numerous communities to remain in high-risk environments despite being aware of the risk (Lavigne et al, 2008; Kates, 1971). In Bangladesh, poorer residents are frequently unable to live further from the river due to economic constraints, making them more vulnerable to flood damage (Mutton and Haque, 2004; Brouwer et al, 2006) in spite of their awareness of risk-reduction measures (Concern Universal Bangladesh, 2010). This has been attributed to factors such as population expansion in high-risk areas, lifestyle changes, and demographic changes (Kunkel et al., 1999). Other authors

have identified social factors such as political interests (Næss et al., 2005) as having an impact on the vulnerability and resilience of communities. The importance of socio-economic factors in a community's evaluation of the risk of a natural disaster, or 'risk perception' (Kates, 1971) has been confirmed by recent research (Kulatunga et al., 2014; Wedawatta et al., 2014;) as has the link between socio-economic factors and vulnerability to the psychological trauma associated with natural disasters (Fothergill and Peek, 2004).

Cultural background may be another society-wide factor relevant for assessment of vulnerability to the psychological impacts of disasters. However, the relationship between cultural background and psychological impact on individuals affected by disasters has not been subjected to wider academic research, despite some anthropological interest in this area (Oliver-Smith, 1996; Oliver-Smith and Hoffman, 1999) and calls for further investigation targeting factors determining increased vulnerability to disasters (Murray, Caldin & Arnlot, 2011). This paper seeks to address the issue by undertaking a comprehensive review of relationships between culture and issues related to disaster response and vulnerability to the psychological impacts of natural disasters. The implications of evidence examined in this review for disaster mental health services will be discussed.

Defining culture: perspectives and components

Edward Tylor has defined culture as the "complex whole which includes knowledge, belief, art, moral, law, custom and any other capabilities and habits acquired by man as a member of society" (Tylor, 1924). According to Swidler (1986), culture is a tool kit comprised of symbols, stories, rituals, and world-views which people may use in different situations. Schein (2004) views culture as "a pattern of shared basic assumptions (beliefs) that was learned by a group as it solved its problems of external adoption and internal integration, that has worked well enough to be considered valid". Culture can be learned through socialisation and is transformed from individuals to individuals and groups. Many researchers have identified the generational transformation of knowledge, beliefs, values and norms as one of the core characteristics of culture (Kroeber and Kluckhohn, 1953, in Faulkner et al., 2006; Rapoport, 1987; Hall, 2003; Schein, 2004).

There are two main components of culture: material and non-material. Material culture consists of physical or tangible creations made, used, or shared by members of society, whereas non-material culture consists of abstract and intangible human creations that influence behaviour (Ogburn, 1966 cited in Schaefer, 2009). Some examples of material culture include crafts, historic buildings, and historic locations (UNESCO, 2003; Throsby, 2001). Examples of nonmaterial culture include symbols, language, values, norms, and behaviours (Brett, 2007; Schein, 2004). Symbols communicate abstract concepts through visible objects, and provide shared meanings to a culture and can stimulate loyalty, animosity, love and hate. The language of a culture helps to express ideas and enables communication between members of the society. Values are ideas that help us to evaluate people, objects, and events, such as right and wrong, good and bad, and desirable and undesirable. Norms are behavioural expectations that are established in the form of rules or "standards", and determine what behaviour is acceptable (prescriptive norms) or unacceptable (proscriptive norms). Finally, behaviours are the observable patterns of actions of an individual or a group.

Perspectives vary on the role of culture in a society. Culture may be described from a functionalist perspective as an essential element for the proper functioning of a society. Functionalists claim that components of culture such as norms and values support the functioning of a society by guiding members to make certain choices. Functionalists have viewed religion as an influential component of culture providing values and beliefs that are learned, shared and transmitted to other members of a society. In contrast, conflict theorists view culture as a

product of socio-economic inequality leading to power differentiation. According to conflict theory, people compete for limited resources in the society, and components of culture such as values and norms create and sustain the privileged position of certain social groups. Finally, symbolic integrationists suggest that people create, maintain, and modify culture as they go about their day-to-day activities (Herman-Kinney and Reynolds, 2003). Symbolic integrationism holds that values and norms do not automatically determine our behaviour, as people re-interpret values and norms according to the situation. Within this perspective, cultural components such as values and norms are dynamic and liable to change through interaction with others.

Culture, disaster response, and psychological vulnerability

The various components of culture described above influence how communities communicate, perceive the world and respond to disasters and emergencies. Preparedness, response to disasters, and post-crisis recovery are heavily influenced by the cultural background of affected communities (Arunotai, 2008; Kulatunga, 2011). Anthropologists have suggested that the behaviour of a community during a natural disaster can be determined more by culture than threat (Oliver-Smith, 1996). It is frequently the case that affected communities give priority to factors such as social values, religious beliefs, traditions, and attachment to a location, rather than the potential danger posed by a natural disaster.

Taken together, cultural factors play an essential role in determining the way people respond to stress, engage in crisis management and access disaster relief efforts. Accordingly, they may determine a community's response to natural disasters. For example, during the eruption of the Merapi volcano in 2006, numerous communities refused to evacuate disaster prone areas, going against the instructions given by the government in order to obey the instructions of their traditional community leader (Lavigne et al, 2008). The community living near the Merapi volcano at the time believed that their village and the land they cultivated were their ancestors, and hence preferred to return back to their village and to their ancestors despite the danger posed by the volcano (Koentjaraningrat, 1985). Another example is provided by members of the community living in Mascali in 1928, who expected an intervention from their religious saint to overcome the danger of a volcanic eruption. One eye-witness recalls: "We thought the patron saint of our town, St. Leonard of Noblac could have stopped the lava, so some people decided to put the statue of the saint in front of the oncoming lava. They positioned it only 50 metres away, hoping it would perform a miracle but it was no good" (Dibben, 1999). This shows the significant influence of cultural beliefs upon group behaviour of a community's response to a natural disaster.

Conversely, culture may help communities to survive during disasters and may not represent a barrier for disaster risk reduction. This was evident during the Indian Ocean Tsunami in December 2004, where communities and individuals who had indigenous knowledge of Tsunamis were more likely to survive the event. For example, the Moken community in Thailand identified signs such as unusual behaviour of animals and birds, as well as low tide, as indications of a Tsunami based on their traditional stories. This enabled the community to move away from the sea towards protective areas (Arunotai, 2008). Another example can be seen in the community in the Solomon Islands, who used the shelter of overhanging rocks when Cyclone Zoe hit the island in 2002 (Vettori and Stuart, 2004).

Cultural differences, therefore, have a strong influence upon disaster response. Though there is a paucity of literature in this area, it is has become increasingly evident in recent decades that cultural differences also

influence the vulnerability to the psychological impacts of natural disasters. For example, manifestation of PTSD symptoms may be influenced by variation in cultural differences in susceptibility to stress, coping strategies, and support networks (Kar et al., 2007). Differences in psychiatric morbidity between communities affected by natural disasters in the Third World and in the United States have been reported (Goenjian et al., 1995). Interviews with survivors of the 2004 Asian tsunami from the Matara district of Sri Lanka emphasised the importance of religious beliefs and cultural traditions in sustaining emotional well-being and promoting psychological resilience during the disaster (Ekanayake et al., 2013).

Culture and psychological impact: Implications for disaster management

The relationship between culture and psychological vulnerability to disasters necessitates culturally competent approaches to disaster mental health services. Unfortunately, the issue of culture in effective disaster mental health services has received limited attention, despite evidence indicating the importance of cultural competence in responding to the needs of disaster survivors (Norris, Hamblen and Rosen, 2009). For instance, crisis counselling programs that are sensitive to the unique experiences, beliefs, values, traditions and language of survivors, regardless of racial, ethnic, or cultural background, have been shown to be more efficient and effective (U.S. Department of Health and Human Services 2003). Unfortunately, limited access to culturally-appropriate mental health services has been identified (Rosen, Matthieu and Norris, 2009).

The Crisis Counseling Assistance and Training Program (CCP) provides a strong example of a culturally competent disaster mental health service. The CCP was established in 1974, and is one of the USA Federal Government's major efforts to support mental health services for people affected by disasters. The CCP supports a combination of psychoeducation and brief counselling services (Rosen et al., 2010). Since its inception this initiative has demonstrated the importance of training disaster mental health services in cultural competence by recognising and respecting the strengths, beliefs, ideals and resources of the communities affected by the disaster. As previously mentioned, culture is not a barrier for disaster risk reduction, and numerous examples have been documented of communities drawing strength from their cultural background and resources both during disasters and in their aftermath (Arunotai, 2008; Vettori and Stuart, 2004). The CCP utilises a strengths-based approach to improve disaster survivors' access to services, identify personal and community resources that will aid recovery, and tailor interventions and strategies to the needs of populations according to their culture (Norris and Bellamy 2009; Ida, 2007; Hernandez et al., 2006; Sue, 2006). A key strategy promoted by the CCP is the recruitment of the local community in provision of mental health services. This may include recruitment of disaster workers from the affected community (Cohen, 1984) and community leaders as advisors (Gould, 1988; Hernandez et al., 2009).

It is clear, therefore, that cultural issues need to be examined when developing and planning disaster mental health responses. In a review of 36 disaster counselling projects conducted between 1996 and 2001 in the USA, it was found that projects that prepared more culturally-appropriate activities ("tailored activities") reached more clients and served more members of minority groups (Rosen et al., 2010). These disasters included fires, tornados, hurricanes, winter storms, and floods (Rosen et al., 2010). Lack of culturally-competent preparation of this kind led to poor engagement of black communities by local mental health providers in the aftermath of Hurricanes Katrina and Floyd (Cepeda et al., 2010; Harville et al., 2009). The importance of culturally sensitive support services post natural disasters such as earthquakes, typhoons and cyclones throughout Asia has also been highlighted (Srivastava, 2010). Recently, a positive shift has occurred in attitudes to mental health in Asian countries, and acceptance of disaster mental health in these countries can be attributed in part to the increasing

acceptance of mental illness from cultural leaders. In particular, the acceptance of PTSD as a legitimate diagnosis has been an important landmark (Kokai, Shinfuku and Edwards, 2004). For example, in India, the Nitte Rural Psychiatric Project was developed as a culturally aware crisis management programme for survivors with limited resources; significant care and support was offered by respected community members, religious leaders, and local medical and mental health services (Akiyama et al., 2008). This body of evidence demonstrates that development of culturally competent disaster mental health services requires significant changes in policy making, administration, and direct service provision. These changes must take place on a system-wide level (U.S. Department of Health and Human Services, 2003; Mollica et al., 2004). Furthermore mental health interventions should attempt to be well integrated with local culture, available resources, and the capabilities of local healthcare services (Henley, Marshall and Vetter, 2011).

In summary, the paper discussed three main areas namely psychological impacts of disasters, influence of culture towards disaster management and influence of culture towards psychological impacts (please refer Figure 1). The emerging theme from the paper was the inter-link between culture, phycology and disaster management as shown in Figure 1. Accordingly, the paper highlights the importance of giving due consideration for culture within the psychological research and designing culturally sensitive and competent mental health services It is argued that such strategies will be better accepted by local communities and will contribute towards their resilience effectively.

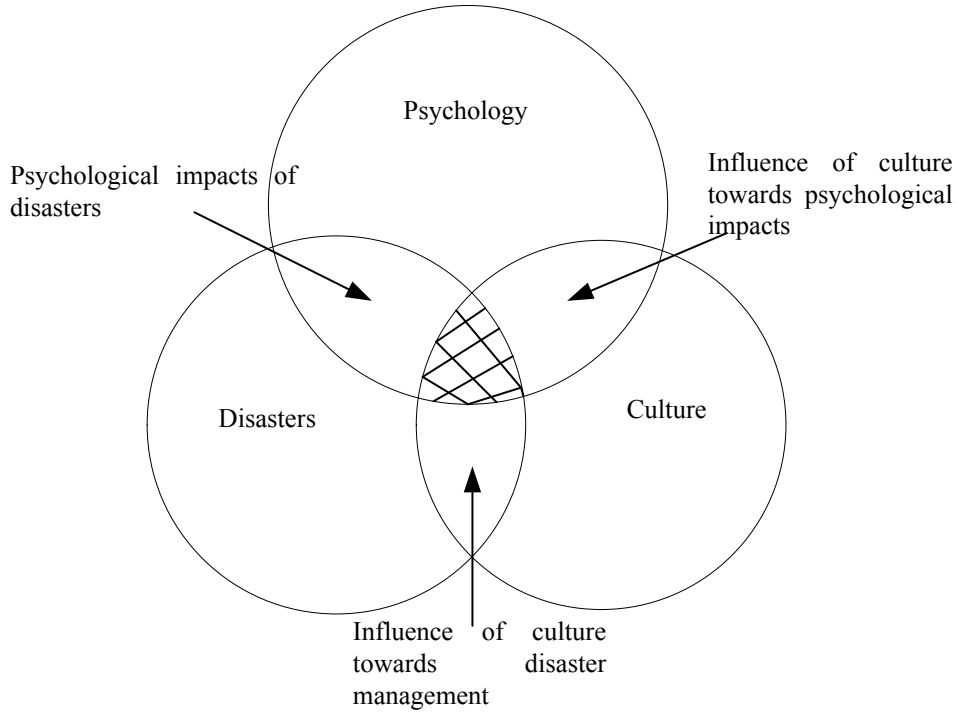

Figure 1: Inter-link between culture, phycology and disaster management

This will involve collaboration between different stakeholders involved in disaster response and health services operating at micro (local community) and macro (national) levels, depending on the cultural contexts within a particular country. If the cultural contexts vary between communities, it may require strategies tailored to suit different communities at a more local level, as opposed to solely relying on general strategies at the national level. Engaging local communities with such activities and linking their concerns and requirements with initiatives at the national level becomes a requirement therein.

Conclusion

A natural disaster affects the lives of survivors socially, economically and psychologically, and can influence their behaviour regarding the hazards. Cultural background is an important factor in assessment of disaster preparedness, vulnerability to the psychological impacts of disasters, and provision of disaster mental health services. For example, risk perception may be affected by culture. We suggest how culture may not be a barrier but instead may facilitate disaster risk reduction. Programmes such as the CCP are effective as they are sensitive to the cultural differences of communities affected by disasters. The paper highlights the importance of cultural competence in the planning and delivery of effective disaster mental health services.

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