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"To silence the deafening silence": Survivor's needs and experiences of the impact of disaster radio for their recovery after a natural disaster

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ABSTRACT

In the aftermath of the Haiyan typhoon, disaster radio was used to spread information and music to the affected population. The study described survivors' experiences of being in the immediate aftermath of a natural disaster and the impact disaster radio made on recovery from the perspective of the individuals affected. Twenty eight survivors were interviewed in focus groups and individual interviews analyzed with phenomenological-hermeneutic method. *Being in disaster mode* included physical and psychosocial dimensions of being in the immediate aftermath of the disaster. Several needs among the survivors were expressed. Disaster radio contributed to recovery by providing facts and information that helped the survivor to understand and adapt. The music played contributed to emotional endurance and reduced feelings of loneliness. To re-establish social contacts, other interventions are needed. Disaster radio is a positive contribution to the promotion of survivors' recovery after disasters involving a large number of affected people and severely damaged infrastructure. Further studies on the use and impact of disaster radio are needed.

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1. Introduction

Disasters are one of the major causes of deaths and massive suffering among human beings around the world (World Health Organization and International Council of Nurses, 2009). There are several descriptions of health in disasters. In this study, a biopsychosocial approach was used. The biopsychosocial model describes health as a state of physical, mental and social well-being (Engel, 1981, 1992). Engel stated that in order to understand the health effects, all these dimensions must be taken into consideration. Health consequences of disasters should therefore be seen in a wide perspective, including biological, psychological and social dimensions (Katz, 2012).

Typhoons cause physical traumatic injures (Doocy et al., 2013), shortage of food and fresh water, and severe damage to the infra-structure, including medical facilities (PAHO/WHO, 2000). In addition, disasters might cause a range of psychosocial harms compromising stress reactions, disturbance of social relations and economic consequences, as well as psychopathologies such as post-traumatic stress syndrome (PTSD), depression and anxiety (Bartels and van Royen, 2011; Bonanno et al., 2010).

The concepts of recovery and resilience will be of importance in this paper. In this study, recovery is defined as "something which aims to ease physical and psychological difficulties for individuals, families and communities, as well as building and supporting social and psychosocial well-being" (Mooney et al., 2011, p. 27). In a psychological dimension, recovery means a process where the individual first experiences moderate to severe levels of stress-related symptoms, which do interfere with the ability of normal function, but over time the person returns to normal levels of functioning (Bonanno et al., 2010). A traditional metaphoric description of resilience is to "bounce back" after a displacement. Psychological resilience means the capacity to maintain relatively stable, healthy levels of psychological and physical functioning after a highly disruptive event (Bonanno, 2004). Resilience is the most common

outcome following a potential traumatic event, accompanied by recovery (Bonanno et al., 2011).

After the Haiyan (locally called Yolanda) supertyphoon that hit the Philippines on the 8th of November 2013, about 4 million people were displaced, 28,000 were injured and about 7,000 died (The International Disaster Database, 2014; UNOCHA, 2013). In Tacloban, the capital of the region of Eastern Visayas, normally with about 250,000 residents and in the aftermath of the typhoon housing about half a million people (UNOCHA, 2013), the typhoon caused severe damage. There was an almost complete loss of electricity, mass communication systems including radio and TV stations, internet, mobile phone signal and official services for several weeks after the typhoon (Austin and Baily, 2014). In the immediate aftermath of the typhoon, disaster radio was used to disseminate information and music in the area (Hugelius et al., 2015). Disaster radio means a radio station operating in a disaster-affected area transmitting specific disaster-related information, either by temporary technical solutions or by ordinary means. The disaster radio, in this area performed by the Non-Governmental Organisation First Response Radio as part of the requested international disaster response, was on air from day five after the typhoon. Officials and relief organizations were offered to broadcast information via the radio. Solar cell driven radio transmitters were distributed free of costs, and broadcasts were played through loudspeakers at official places such as evacuation centers and hospitals.

Crisis communication is seen today as an integrated part of disaster response, and good communication with the public is considered as essential to reduce mortality and psychological impacts in crises (Inter-Agency Standing Committee, 2013; Longstaff and Yang, 2008). Disaster radio has the advantage to function as a transmitter of information also in severely affected disaster areas and is therefore a potential way of reaching a large number of affected people, although research on the use and health outcomes of disaster radio in a health recovery perspective after natural disasters is limited (Bradley et al., 2014).

The aim of this study was to describe survivors' experiences of being in the immediate aftermath of a natural disaster and the impact disaster radio made on recovery from the perspectives of the individuals affected.

2. Method

A qualitative study using a phenomenological hermeneutical method (Lindseth and Norberg, 2004) was conducted. The method aims to understand the essential meanings in lived experiences as expressed by the persons interviewed and by interpretations of texts (Lindseth and Norberg, 2004).

2.1. Participants

A purposeful sampling method (Coyne, 1997) was used and 28 survivors were interviewed (see Table 1) about five months after the typhoon. To participate, the survivor should be 18 years or older and must have listened to disaster radio in the immediate aftermath of the typhoon. Participants were recruited by official announcements at a nursing school and an evacuation center in a severely affected area where disaster radio had been broadcast. Participation was voluntary and oral and written study information was given and a letter of consent was signed prior to the interviews. All persons who volunteered to participate were included in the study. Of all participants, 14 persons had a connection to the nursing school either as a student or as a member of staff. None of them had been professionally engaged in the disaster response. Participants could choose from being part of a focus group interview or an individual interview.

None of the participants had suffered serious injuries or illness as a direct result of the typhoon. Some had lost family members or friends and all had experienced either damage to or a complete destruction of their homes. At the time of the interviews, eight persons still lived in temporary shelters. Vulnerable groups were represented by elderly people and low income beneficiaries (Philippine Council for Health Research and Development, 2006).

2.2. Data collection procedures

The interviews were performed at a nursing school, in an evacuation center or at workplaces, as preferred by the participant (see Table 1). All interviews were conducted by the first author (KH), along with a local assistant who could also act as an interpreter when needed. The primary language used was English. Interpretations were needed for specific words or sentences in two of the individual interviews. A semi-structured interview guide (see Fig. 1) was used. The interviews were tape-recorded. Immediately after the interviews, the first author wrote field notes arising from the interviews (Lindseth and Norberg, 2004).

2.3. Data analysis

All interviews were analyzed together; no distinction was made between focus group interviews and individual interviews. The interviews were transcribed verbatim by the first author and thereafter analyzed using phenomenological hermeneutic methodology (Lindseth and Norberg, 2004). First, a naïve understanding (Lindseth and Norberg, 2004) was reached and formulated from several readings of the whole text and the field notes. Thereafter, a structural analysis (Lindseth and Norberg, 2004) was performed where

Table 1
Descriptions of all 28 informants: gender age, place of interview, individual or focus groups interview, and lengths of each interview.

Type of interview	Participants (gender and approx. age)	Interview time	Place of interview
Focus group 1	3 men, 4 women, 20–60 years	55 min	School
Focus group 2	1 man, 5 women, 20–25 years	60 min	School
Focus group 3	4 women, 50 years	72 min	Evacuation center
Focus group 4	3 men, 1 women, 20–70 years	20 min	Evacuation center
Individual interview 1	1 man, 40 years	12 min	School
Individual interview 2	1 men, 50 years	35 min	Evacuation center
Individual interview 3	1 woman, 50 years	45 min	At workplace
Individual interview 4	1 woman, 85 years	125 min	At workplace
Individual interview 5	1 woman, 35 years	22 min	At workplace
Individual interview 6	1 men, 55 years	45 min	At workplace
Individual interview 7	1 woman, 40 years	18 min	At workplace
Total	**28 persons**	**509 min**	

1. **Where were you when Yolanda came?**
    a. What were the major concerns for you at that time?
    b. What do you think were the major needs among people at that time?
    c. Why did you listen to the radio?
    d. What was important to you? Why?

2. **If you would give any advice to anyone who would be in the same situation as you in another disaster, what would that be?**
    a. Can you give any example?
    b. Why is that important?

3. **Do you have any more comments or thoughts that you want to share?**

Fig. 1. Interview guide used in all interviews.

meaning units covering the aim were identified, separated from the text and read through in relation to the naïve understanding. The meaning units were then condensed, so that the essential meaning of each unit was rewritten and expressed in everyday words as concisely as possible. The condensation process was made in two rounds to reach a solid condensation of each text. The units were than sorted into sub-themes and themes that were reflected on in relation to the naïve understanding. This process was repeated until the naïve understanding and the structural analysis validated each other. After this, a comprehensive understanding (Lindseth and Norberg, 2004) of the structural analysis was made. The whole text and the themes were reflected on, in relation to the texts, field notes, literature and the context of the study (Lindseth and Norberg, 2004). The analysis was performed by the main author (KH), closely monitored and validated by co-authors (AA and MG). Finally, the third co-writer (PO), who had not been involved in the analysis process itself, validated the findings. During the entire analysis, the authors had access to the full texts and field notes.

2.4. Ethical considerations

Guidelines for research involving disaster-affected individuals (Philippine Council for Health Research and Development, 2006) were followed. The study was approved by the National Ethical Committee of the Philippines.

3. Results

The results are presented with the naïve understanding first, followed by the structural analysis (see Table 2). Thereafter, the comprehensive interpretation follows.

3.1. Naïve understanding

The participants described their experiences of being in the middle of and in the immediate aftermath of the typhoon as a scary and chaotic situation that stretched their ability to survive to a maximum. The uncertainty and unfamiliarity with the situation which did not fit in with their previous experiences created a desperate need to clarify the situation for themselves. The disaster radio filled a perceived gap of truthful information and added practical advice. It calmed and enabled the survivors to take control of their situation, while reducing feelings of being helpless victims. The music helped to create a sensation of normality and to reduce feelings of loneliness. Disaster radio could not meet the need to get in contact with family and friends.

3.2. Structural analysis

In the structural analysis, 261 meaning units were analyzed. One main theme describing the overall experience, four themes describing needs related to the lived experience and the impact of disaster radio, and nine subthemes describing the lived experience were found (see Table 2).

3.2.1. Being in survival mode

The main theme, *being in survival mode*, was described as a constant state of flux, compared with being in normal everyday life, including physically, psychosocial and spiritual dimensions. Practical actions, some of them advised by the disaster radio, helped the survivors to physically survive. Psychosocial aspects included feelings of uncertainly and fear, loneliness, helplessness, and emotional pain, but also staying strong and suppressing negative thoughts

Table 2
Summary of the structural analysis: main theme, themes and subthemes.

Main theme	Themes	Subthemes
Being in survival mode	To get in contact with loved ones	– Feeling an overwhelming worry about loved ones
	To understand and retake control	– Feeling uncertain and fear
		– Endeavoring to clarify the new conditions of the surrounding world
	To get a rest from the fight of surviving	– Acting to survive
		– Feeling emotional pain
		– Resting in normality and happiness
	To regain hope and confidence	– Feeling lonely
		– Feeling helpless
		– Having a sense of trust

and emotions. Praying for strength and finding trust and consolation were stated as spiritual dimensions. The survival mode was described as a more or less conscious strategy that kept body and mind busy and reduced negative emotions, although the reality sometimes broke through and threw the survivor back in a chaotic, frightening existence.

3.2.2. To get in contact with loved ones
The first theme described a desperate need to get in contact with loved ones based on an *overwhelming worry about the wellbeing of loved ones*. This was the most emphasized need expressed in the interviews. The absence of internet and mobile phone signal made it impossible to communicate and get confirmation of the well-being of loved ones.

> "To me, it was my major concern (. . .) I could not do anything good. . ..not help. . ..if I did not know. . .about my mum. And my uncle. So yeah, it was most important."

The worry sometimes overwhelmed the person to an almost unbearable degree. A majority of the participants stated that their longing to get confirmation about the location and well-being of their loved ones was overwhelming any physical concerns such as pain or hunger.

> "If you don't know, your brain is worried all time. It will not tell you that you need to eat, you will not feel pain, you will only think of your family. . .."

Strategies to manage the overwhelming worries varied from trying to use social media, trying to send text messages (SMS) or walk long distances in the debris, even if that meant risking further injuries.

3.2.3. To understand and retake control
Two subthemes emerged from the theme: *feeling uncertainly and fear* and *endeavoring to clarify the new conditions of the surrounding world*.

Not being able to interpret the reality around them according to their previous experiences caused strong feelings of uncertainty and fear. Stress reactions, which limited the body and mind from functioning as normal, like to physically move or to understand information, contributed to the feeling of lost control.

> "Is this really happening?" It's like you're not sure of what's happening."

The disaster radio provided reliable information that decreased fears. By understanding what was happening, a sense of control and the ability to adapt appeared.

> "If you know what is going on. . ..it is much easier to do right. You could get information on what was going on, how I could do. They told us. . ..to get food. . ..and they told us about roads. . ..and so on."

In the aftermath of the disaster, several frightening rumors on for example tsunamis, attacks or pollutions occurred, and the radio decreased panic caused by rumors by providing truthful information.

3.2.4. To get rest from the fight of survival
The theme comprised the subthemes *acting to survive, feeling emotional pain*, and *resting in normality and happiness*.

The context in which the participants found themselves after the typhoon was described as strange, chaotic and inconvenient. Practical actions, like moving from dangerous areas or collecting food, helped the survivors to focus and supported their physical safety. To witness human suffering while at the same time fighting for you own survival was experienced as straining. Sometimes, emotional pain broke through practical concerns and rational thinking.

> "And when you know they are safe- ahhh. Than you feel. You open your mind. . .see and feel. . ..and that is very, very painful. . ."

Hearing voices and music played in the radio reminded the survivors of normality and offered moments of rest from the fight for survival and recovery.

> "I think that the music also. . ..it made me feel. . .like normal. . .for a while. To rest my brain"

> "It was a kind of silence that is deafening. And the radio broke through it, someway. The music and to hear another voice, in the middle of the night. That made me able to hang in there for one night more. . ."

Some participants expressed that the happy music played influenced them so much that they could feel happiness, and endure.

3.2.5. To regain hope and confidence
Three subthemes describing the lived experience emerged: *feeling lonely*, *feeling helpless* and *having a sense of trust*.

Despite whether the survivors were physically surrounded by people or not, the feeling of loneliness was strong. Also, feelings of helplessness and being in the hands of stronger powers and of nature itself were expressed.

> "People they were moving like ants. In two directions, like two lines of ants in the street. So they were. . .we were. . .ants. . .actually. Not able to do anything about it."

The survivors were vacillating between hope and despair. Disaster radio helped them to regain hope, for example by advertising available and incoming and available help.

> "Despite all the things that had happened during the Yolanda. Despite all the things I was enlightened. At the same time, it is a really nice feeling despite all the things that had happened there is still help from other people, especially from other places."

By listening to community leaders and experts, confidence and trust for authorities and response teams were obtained, as well as confidence in the individual's ability to manage, not only to survive but also to recover in a wider, longer perspective.

3.3. Comprehensive understanding
The lived experience of being in the immediate aftermath of a natural disaster, *being in survival mode*, illustrates a battle on the margins of life where physical, mental, social and spiritual dimensions are integrated.

The consequences of the disaster were gaps in functions and changed conditions in the surrounding world, compared to normal life. Such gaps were for example infrastructural injures, changed relations, absence of persons, absence of services, and lack of confidence and trust in the community, in one's own capabilities and in life itself. This caused needs that had to be met in order for the individual to adapt to the new context they were forced in to. Being in survival mode describes a state that varied over time as a pending process.

Disaster radio could fill in many of the experienced needs and made it possible for the individual to relate what was happening around to himself and to balance the strenuous parts of survival mode in order to create endurance and recovery. To enable contact and confirm the well-being of loved ones, disaster radio needs to be supplemented with other interventions (see Fig. 2). The impact of disaster radio consisted of practical advice and information, and emotional and spiritually support, all of equal importance for the recovery process.
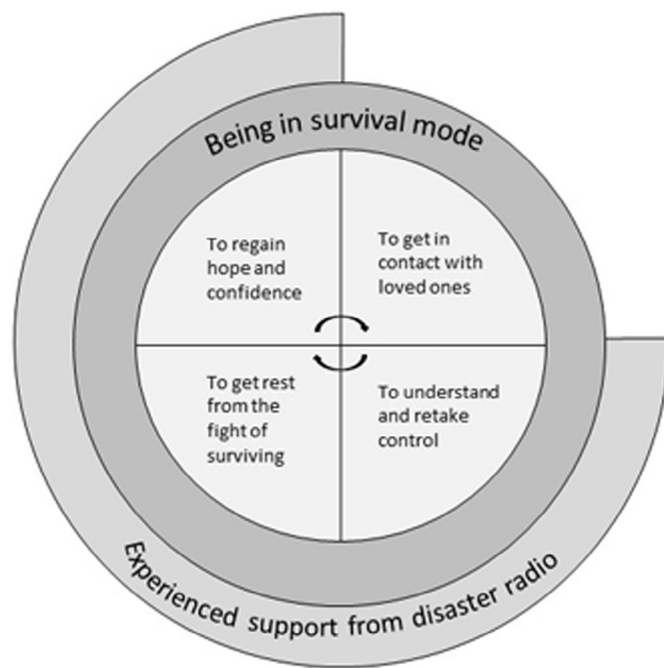
Fig. 2. Experiences and needs resulting from being in the immediate aftermath of a natural disaster and their relationship to disaster radio.

4. Discussion

This study aimed to describe survivors' experiences of being in the immediate aftermath of a natural disaster and to assess the impact disaster radio had upon recovery from the perspectives of the individuals affected. Being in survival mode included physical and psychosocial dimensions of life, all of equal importance. The human response to stressful events has also been referred to as depending on an integration of biological, psychological, social and cultural risk and resilience factors (Bonanno et al., 2010). With a biopsychosocial perspective on health (Engel, 1981, 1992), these findings were anticipated, given the nature of a natural disaster that literally turns societies upside down and affects all aspects of life. It has been discussed if spiritual aspects of life and health should be considered as either part of the psychological and social dimensions of the biopsychosocial model (Cohen and Koenig, 2003; Smith, 2002), or added in a revised model (Hatala, 2013). In this study, the idea of a holistic approach integrating spiritual aspects in the psychological dimensions (Cohen and Koenig, 2003) in order to understand health consequences from natural disasters was chosen.

Being in the survival mode created a distinct need to re-establish contact with loved ones. According to the biopsychosocial model, humans are embedded in and dependent on surrounding social structures for maintaining health (Engel, 1981). The context of a natural disaster often includes interruptions in services used for maintaining social contacts such as internet and telephone. Additionally, disasters can cause a loss of homes and loved ones and can interrupt relationships within and across social units such as families (Bonanno et al., 2010). Disaster radio was not experienced as a resource for the survivors in their endeavor to re-establish social networks. Social support after traumatic events is the factor with strongest evidence to promote psychological recovery (Hobfoll et al., 2007). Therefore, disaster relief that enables social contacts, like temporary internet, mobile net and solutions for charging mobile phones, must be highly prioritized (Madrid and Grant, 2008; Neubaum et al., 2014; Romo-Murphy et al., 2011).

Not only facts and practical advice provided by the radio but also the music it played contributed to the recovery for the survivors. The power of music to influence and strengthen human health is well known, although the healing and stress reducing effects of music are not fully understood (Nilsson, 2011; Sacks, 2006). The music played was selected to be familiar, popular and happy music (Hugelius et al., 2015) and had several values for the survivors. It promoted a sense of normality, safety and consolidation, and offered rest that balanced the strenuous parts of the survival mode, which contributed to endurance. Music should therefore be considered as an important contribution to the promotion of recovery after natural disasters, and disaster radio offers a practical opportunity to distribute it.

Even if a majority of a disaster-affected population will not suffer from severe mental illness or be in immediate need of specialized psychotraumatic treatment, survivors will benefit from provision of basic services, security and safety (Hobfoll et al., 2007; Inter-Agency Standing Committee, 2013; Mooney et al., 2011). Disaster radio contributed to establishing a sense of security and safety and enabled the survivors to understand the situation and get a sense of control. Disaster radio also instilled hope and reduced feelings of loneliness and helpless. This was also found by Perez-Lugo (Perez-Lugo, 2004). It can be concluded that these effects are all relevant and important strategies for the psychosocial recovery (Hobfoll et al., 2007), and therefore disaster radio did contribute to the promotion of recovery.

According to the phenomenological hermeneutic method, lived experiences can only be understood in relation to our pre-understanding (Lindseth and Norberg, 2004). By being aware of one's pre-understanding and by discussing the findings and analysis process with others, a more valid result can be archived (Lindseth and Norberg, 2004). The structural analysis should be as objective as possible, but in the naïve reading and in the comprehensive analysis, a pre-understanding of the context studied is important and does contribute to the analysis (Lindseth and Norberg, 2004). The same has been suggested for disaster research in general (Girratano et al., 2013). The first author (KH) had experiences from being deployed to several disaster areas, including the actual disaster studied, but was not involved in the disaster radio response. The first authors' experiences were perceived as being an advantage that enabled a deeper level of understanding when formulating the naïve and comprehensive understanding. During the interviews, participants sometimes related to the interviewer's (KH) experiences as something positive that deepened the interviews. To ensure an objective structural analysis, the co-writers were closely monitoring and validating every step of the analysis (Lindseth and Norberg, 2004). No distinction in the content, depending on individual or focus group interview, was experienced by the authors.

To interview disaster survivors demands sensitivity and concern (Girratano et al., 2013; Stallings, 2007). Focus group interviews have been proposed to facilitate social support when interviewing potentially traumatized people (Sim, 1998). The choice to use a combination of focus groups and individual interviews was primarily based on practical circumstances. The time for the interviews, five months after the typhoon, was chosen not to cause interruptions in the acute rescue and recovery phase, but not to be too late for the survivors to remember their experiences (Benight and McFarlane, 2007; Stallings, 2007). In accordance with ethical guidelines, arrangements for psychosocial support for the participant were available if such a need would have occurred.

None of the survivors in the study expressed any immediate need for medical or professional psychosocial support, although the sample did not include people who had suffered serious physical injuries or persons who had evacuated the area and not returned at the time for the interview. The actual need for such interventions or others could therefore not be judged from this study. The study covered

a small survey of voluntary participants in a specific disaster event. The findings may not be generalized, but the knowledge gained should be useful in the development of enhanced disaster response strategies.

Taking the context of a natural disaster in consideration, with a large number of affected people, severely damaged infrastructure and the experienced effects shown in this study, disaster radio can be used to promote recovery among survivors. However, disaster radio has limitations and must be supplemented with specific, evidence-based interventions in order to manage severe psychopathologies and physical injuries and to enable and re-establish social contacts.

Further studies to investigate health recovery in relation to disaster radio are necessary in order to fully understand the impacts of disaster radio. Also, studies about the optimal content and use of disaster radio with special consideration to music and its impact from a health perspective are needed.

5. Conclusions

Being in survival mode included physical, psychological and social dimensions and needs, in accordance with a biopsychosocial perspective. Therefore, needs among natural disaster survivors should be understood in a holistic perspective including all these dimensions. Disaster radio contributed positively to recovery among disaster survivors. Information and advice supported physical recovery, decreased fears and enabled a sense of control and understanding. Music broadcast was important to create emotional endurance and reduce feelings of loneliness and helplessness. Disaster radio could not contribute to the emphasized need to re-establish social contacts, and must therefore be supplemented with other interventions. Further studies on the use and impact of disaster radio in a health recovery perspective after disasters are needed.

Conflicts of interest

None declared.

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