

If It Is Meant to Be, Let It Be:

Risk communication among Bosnian refugees resettled in the U.S

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Abstract

The purpose of this paper is to explore and understand how a Bosnian refugee community perceives and responds to the potential risk of a natural disaster in order to identify tailored approaches to improve risk communication. This is a qualitative study. Participants resettled in St Louis, Missouri were identified through criterion and snowball sampling. Thirty-three face-to-face interviews were conducted using a semi-structured interview guide. Data were analyzed using both content and thematic analysis. Findings indicate that due to their war experiences, cultural and religious understanding of natural disaster, and social influence on their risk interpretation, participants tended to underestimate the potential threat of natural disaster. Media was the main communication methods in times of potential natural disaster. Lack of organizational support during risk communication was a major concern. Ethnic radio stations and word of mouth were rated as the most popular communication channels for disseminating messages in preparation of a natural disaster. Using a community-based participatory approach to identify community needs and involve Bosnian community partners in risk communication planning, implementation, and evaluation, is vital for a Bosnian community.

Keywords: *Bosnian refugees; risk communication; natural disaster; community-based participatory approach*

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I. Introduction

In the manual *Crisis and Emergency Risk Communication (CERC)*, the Centers for Disease Control and Prevention (CDC) highlight the increased importance of risk communication in environmental public health (Centers for Disease Control and Prevention, 2012). During the process of risk communication, the communicator/messenger aims to deliver information about the nature, magnitude, significance, control, and management of an environmental hazard, such as a public health disaster and its consequences through a variety of communication channels. Risk communication often involves a discussion about the probability of the occurrence of adverse exposure and an exchange of information between the communicator and recipients about any concerns they might have. It also helps recipients, including individuals, groups, and organizations, make an informed decision about taking action (Covello et al., 2001; Centers for Disease Control and Prevention, 2012).

How likely and to what extent recipients respond to risk warning and are compliant to a course of desired protective action, depends on factors that facilitate a decision-making process during risk communication. These factors include attributes, such as the characteristics of warning messages, risk perception, and message dissemination channels. The characteristics of a warning message include content specificity, accuracy, clarity, source credibility, persuasiveness, consistency, frequency, and certainty of a warning message, which determine the effectiveness of the message. Warning also involves a complex social process. For instance, how individuals hear, understand, and interpret a warning message differs by person and their interactions with their social and physical environments. Risk perception is external to a warning message and is considered to be the recipients' subjective assessment or personalized notion of the likelihood of the occurrence of a potential threat. Risk perception among individual recipients is complex and varies by ethnicity, age, gender, socioeconomic status, education, culture, belief, prior experiences with disasters and government authorities, social networks, and geographic locations. With respect to message dissemination channels, understanding and working with social and mass media are the two major components of rapid communication of risk. More and more people rely on broadcasting and internet sources for immediate access to information. Media also plays a significant role in mediating and moderating the general public's risk perception by choosing the ways of framing a message (Drabek, 1999; Peacock, Brody, & Highfield 2005; Dash & Gladwin 2007; Glik, 2007).

Researchers and practitioners have given attention to vulnerable populations who request special assistance during times of risk communication. Vulnerable populations include not only mentally or physically disabled individuals but also immigrants, refugees, elderly, children, and other linguistically, socially, geographically, or economically disadvantaged individuals who have difficulties receiving and responding to warnings, including emergency preparation messages (Sullivan & Hakkinen, 2011). Findings from Andrulis, Siddiqui, and Gantner study (2007) indicated that major government and non-government agencies had taken efforts to disseminate disaster preparedness and response information in multiple languages to the minority communities through multiple communication channels (e.g., internet, community radio station). However, many ethnic minorities did not use internet, lack the skills to locate information through complex web-based systems, or simply did not trust government sources. The accuracy and clarity of the translated messages were also a concern. Because of the literal translation from English to another language, the translated messages were less likely to be culturally appropriate and acceptable. Spence, Lachlan, and Griffin (2007) interviewed 935 Hurricane Katrina evacuees in order to examine whether information seeking behavior, media choice, and response behavior varied by ethnicity. Results indicated that African Americans from Massachusetts, Michigan, and Texas were less likely to evacuate right after a warning or before the storm than were Caucasians and other ethnic groups. Compared to other ethnicities, while African Americans were more likely to seek disaster-related information, such as shelter, food, and safety, they also relied on interpersonal information sources more than cell phones and internet, and were more likely to seek confirmation through their individual social networks. Eisenman et al. (2007) in findings generated from randomly selected African American evacuees of Hurricane Katrina in Houston, further verified that because of these evacuees' faith in their families, friends, relatives, and church members, their decisions about evacuation were often made based on the integrated messages of the media and their social networks. Participants also perceived that the government was just trying to scare them about the severity of the hurricane. Further, they reported that the evacuation message was ambiguous and not specific. Participants who did not evacuate immediately also claimed that, based on their previous disaster experiences, they determined that the risk of flooding was low.

The state of Missouri has frequently been struck by natural disasters, including tornadoes, snow storms, ice storms, and flooding (State Emergency Management Agency, 2013). Between 1957 and 2013, Missouri declared a total of 55 major disasters, all of them natural disasters. Between 1976 and 2011, Missouri announced eight state emergencies due to flooding, Hurricane Katrina, severe winter storms, and drought (Federal Emergency Management Agency, 2013; State Emergency Management Agency, 2013). Until 2013, the total number of major disaster declarations made by Missouri was ranked 10th among the 64 states and tribes in the U.S., and the total number of the state emergency declarations was ranked 18th (Federal Emergency Management Agency, 2013). The largest Bosnian community outside of Bosnia and Herzegovina calls the Greater St. Louis area in Missouri their home. Arriving in the mid-1990s as refugees, the Bosnian community has consistently grown (Matsuo et al., 2008; International Institute-St. Louis, 2013). To our knowledge, rarely does literature exist to examine Bosnian refugees' preparedness for and response to a complex public health emergency. At the same time, refugees are considered to be linguistically, socially, and economically disadvantaged populations in the U.S. The purpose of this study is to conceptually explore and understand how Bosnian refugees who have resettled in the Greater St. Louis area receive, process, and potentially respond to natural disaster warnings. The study also seeks to identify tailored approaches that can be implemented to improve risk communication among Bosnian refugees in preparation for a natural disaster.

II. Methods

Study design

Data for this paper originated from a larger qualitative study, which was designed using a grounded theory approach based on the premises of the Theory of Planned Behavior (TPB). The TPB explains behaviors beyond volitional control and applies to ‘individual motivational factors as determinants of the likelihood of performing a specific behavior’ (Montano & Kasprzyk 2002, 67). The grounded theory approach allows researchers to transcend a pure description of a phenomenon, an experience, or an event into a theoretical framework or ‘an abstract analytic schema’ (Creswell, 2007, p. 62). In the grounded theory approach, researchers systematically examine the data gathered from participants with similar experiences in order to discover, generate, elaborate, or extend a theory or a theoretical framework used for explaining a process, action, or interaction, or guiding future research (Strauss & Corbin, 1998).

Subjects

The original sample size was determined by developing a well-founded theory with saturated data (Strauss & Corbin, 1998; Creswell, 2007, p.62). Because of an expectation of high participant attrition rate due to cultural and linguistic barriers and frequent movement, the initial number of participants’ recruitment was planned to have a 10-15% increase in order to account for a potential loss. The sampling process began with criterion sampling. Inclusion criteria were: (1) aged thirty-eight years old and above, (2) having arrived to the U.S. as a refugee, (3) having been present in Bosnia during the 1992-1995 war, (4) one participant per household, (5) living in the Greater St. Louis area, and (6) willingness to provide in-depth information. The only exclusion criterion was a cognitive impairment limiting one’s participation ability. The reason for purposefully selecting Bosnian refugees was because the original qualitative study focused on examining how prior war trauma contributed to refugees’ individual response to a natural disaster in their later lives. The participants were later recruited via a snowball sampling initiated through personal connections and a local Bosnian radio channel. Thirty-three Bosnian refugee adults who resettled in the Greater St. Louis area (e.g., the City of St. Louis and South County) were interviewed for the study.

Measures

Based on the existing literature and the TPB, the original semi-structured interview guide for participants was composed of pre-constructed complex questions to facilitate a dialogue between participants and the investigators and to collect in-depth information, including: (a) participants’ demographics, (b) cultural attitudes, behaviors, and norms towards a natural disaster, (c) prior traumatic experiences (e.g., the Bosnian war and natural disasters), (d) coping skills in reference to a natural disaster (e.g., language skills and access to both tangible and intangible emergency resources), and (e) knowledge of natural disaster preparedness. The sample questions and their sub-questions include: (1) What does a natural disaster mean to you? (2) Have you ever received any emergency warning regarding a natural disaster? If yes, in which way did you receive it? How much did you believe it? How so? If no, what are the best ways to inform you if there is a pending natural disaster? How so? (3) Could you please describe how you survived the Bosnian war? How do you think your survival skills in the war can be applied to responding to a natural disaster here? (4) Have you ever received any information regarding how to respond to a natural disaster in the U.S.? If yes, how did you receive it? Could you please describe what you learned? How effective was it? If no, in which way would you like to receive educational information regarding how to respond to a natural disaster? How so? The interview guide was validated by a group of academic and non-academic refugee experts.

Procedures

Thirty-three face-to-face, dialogue-based, semi-structured interviews were conducted at each participant's home or in a public place. A consent form which was signed before each interview, was translated into Bosnian, back translated, and confirmed by professional translators. The estimated duration for each interview was two hours. The participants were asked to respond to the pre-constructed complex questions and other new or specific questions emerging from the previous interviews. A professional interpreter was hired from the St. Louis Bosnian Media Group and was present during each interview. All interviews were digitally recorded, and completed between August and December 2013. The study was approved by the Institutional Review Board at Southern Illinois University Edwardsville.

Analysis

The audio data were transcribed verbatim in English by three trained transcriptionists. Data were analyzed using content and thematic analysis approaches by ATLAS ti 6.2 (GmbH, Berlin). The raw data were coded line by line; codes, subcategories, categories, theme emerged from the data; properties (subcategories) were filled in each category; quotations were constantly compared to each other to be fit into suitable codes, subcategories and categories; and a top-down coding was used for part of the categories based on the existing literature. The members of the research team analyzed the data separately, and then compared each other's coding repeatedly in order to maintain the inter-coder reliability.

III. Results

For demographic information on the 33 study participants, please see Table 1. About 52 of the participants are male, and 48% of them are female. Approximately 76% held a full-time job serving as cleaners, sewing workers, mechanics, electricians, nursing home caregivers, or truck drivers. Nearly 85% owned a house and had homeowners insurance, and the majority had access to a basement. All the participants had at least two children. Most children lived either at their parents' home or within 30 minutes driving distance. Approximately, 94% of the participants owned a car and reported having a driver's license. More than half of the participants spoke English fluently, and a majority reported learning the English language through their daily lives after they were resettled in the U.S. No participant lived in St. Louis less than 10 years and longer than 17 years.

Characteristics	Number of Participants (N)	Percentage (%)
Gender		
Male	17	52
Female	16	48
Age		
<40	1	3
40-50	28	85
>50	4	12
Marital Status		
Married	30	91
Separated/Divorced/Widow	3	9
Employment		
Full-time	25	76
Part-time	3	9
Unemployed	5	15
Home Ownership		
Yes	28	85
No	5	15
Car Ownership		
Yes	31	94
No	2	6
Spoken English		
Yes	20	61
No	13	39
Years in St Louis, Missouri		
<10 Years	0	0
10-13 Years	22	67
>13 years	11	33

Table 1: Bosnian Participants' Characteristics

on a smaller scale of impact than predicted. One participant mentioned that the war was probably different than it would be in the case of a natural disaster because ‘the war happened everywhere and everyone was in it. Here, if that (a natural disaster) happened, it would probably be local. If it was local, you could get help or go somewhere else’. If a natural disaster occurred, some participants felt that they would take a chance because they did not think that they had control over it, and would rather not talk or think about it. As one participant pointed out:

[In the war], I was with a group of 750 people, pretty much 90% of those people are older than me, the other 10% probably younger, but I used my brain and I saw the Serbian army was going to kill people, they kill everybody. It doesn't matter who you are or how old you are, stuff like that. I used my brain. I'm going to keep away from this part, maybe I will survive. I take a chance, you know. That's probably how I'm going to do even this time [with a natural disaster].

Meaning of a natural disaster

Although all participants claimed association with a particular religion, they admitted that they did not regularly attend a religious center to practice. When asked what a natural disaster meant to them and their families from a religious point of view, only two participants stated that a natural disaster happened because of global warming and human behaviors, or that it was purely related to science or nature. Three participants believed it was due to an integrated effect of both God and science. Of the 33 participants, 28 participants believed that the occurrence of a natural disaster was God's will. They said, ‘Only God knows, God is powerful. He can make it happen or cause it to stop’; ‘It's all coming from God. This is a warning to the people for what they are doing. People [are] doing mean things to each other. People do not believe anything anymore. People [are] getting silly too

Determinants of risk perception

Disaster experiences

All participants reported having been in Bosnia during the 1992-1995 Bosnian war. Of the 33 participants, only 10 reported having actually experienced a natural disaster, such as severe winter storm, tornado, flooding, and earthquake in either Bosnia or the U.S. In general, the participants did not appear to be anxious about natural disasters, and they perceived that they would be much calmer and more confident in responding to a natural disaster than the general population because ‘most people living [in the U.S] did not experience a war, and even tornadoes are not often around here’. Participants indicated that a war was the worst thing that a human being can ever experience. Although they acknowledged being vulnerable to a natural disaster, they believed that the U.S. government, organizations, and communities would help them, and that a natural disaster would end shortly and be

much'; 'It's kind of destiny. If someone has bad deeds, he gets punished'; 'In our beliefs, even if your grandpa or grandma made some bad deeds, sometimes his grandkid pays the price even though maybe the grandkids didn't do anything bad. Someone has to pay the price for it'; 'My grandpa knew some special prayer about hail damage. Once he prayed, the hail stopped. I remembered as a kid'; 'God already signed up for everyone different destinies. So whatever is signed up for me, that's how it is'; 'God has rules in every book and in our religion, we must believe in all God's books. So if you don't [follow the rules], there happens disasters like flooding'. A majority of the participants disagreed, however, that praying was the only and first response to a natural disaster. They believed that they should actively prepare for and respond to a disaster, keep themselves and their families' safe, and then pray in a safe environment. One participant stated:

If [a natural disaster comes] and I am in the basement, I am meant to get stuck by something and die. But the religion also says you have to take care of yourself first. Then God gonna help you too. I do believe but I can't wait for disaster, I mean. You see in Bosnia we have one joke about this kind of particular situation that man was in water. You know drowning. He doesn't know how to swim. Suddenly boat come to him from somewhere, [but] he say no God's gonna help me. And [it] happen again and again. Three times [the] boat [came], and finally he [was] on the other [side of the] world talking to God. God, you didn't help me. What? I did. I sent boat once. I sent boat twice [...] So do something about yourself.

Trust in warning messages

The participants were asked about their awareness of warning sirens in respective communities, and how they would respond when the sirens were activated. More than 90% of the participants were aware of the existence of the sirens in their communities. When a siren went off, they could decipher whether it was a test or a real emergency warning. They did not think, however, that there was any difference in terms of a type of a siren and genuinely believed that all the sirens in their communities signaled a tornado. A total of 18 participants claimed that once they heard the siren going off, they would go to a basement or seek a shelter right away. The rest of the participants stated that they would seek more confirmation before they acted. For example, they would usually go out and check the weather first. They believed that they had the skills and good instinct for a weather forecast, which were inherited from their previous generations. Some participants said that 'You can see it visually from outside that it's coming. When it becomes really dark and it's becoming bad weather, and if you hear sirens then definitely'; 'I look outside and see how dark it is in the area and how the clouds are moving in which direction'. One participant indicated that whether he would respond to a siren was based on whether he lost satellite signals. Turning on the TV and seeking confirmation from a weather or news report was another method participants mentioned as a way of deciding whether they should respond to the siren. How they would decide to seek shelter also depended on their family members' collective decision. A couple of participants stated that if not for their children requesting to go to the basement, they would not respond to the siren. They said, 'This summer you know my kids kind of going around saying let's go let's go. If it's meant to be, let it be. I can't just run every time I hear a siren'; 'I personally think if it's meant to happen, it will happen. Like in this building everybody talking about going to downstairs but I don't think that's a kind of protection'; 'When it's raining hard or we have sirens going on, our children think it's really horrifying. Kind of panicking so we go downstairs'. Participants went further to explain the influential role that their family members play on their disaster decision-making and stressed for instance:

And my husband, he [has] never been scared [of] tornado. He no wants to go to basement. I always say take my kid downstairs you know. If I'm at work I always tell him to go down you know. Then he said you don't know nothing it's not close. You know blah, blah. Ok when they happen here and he say oh my god they are so close. He thought Saint Louis no tornadoes only Illinois and [it's] so far from us.

If there are sirens going faster and faster and beeping more, louder and louder, I think that happened once and he (my husband) came down. The other time he was just staying here, watching TV. You can try to convince somebody, it doesn't have to be your relatives or whatever. A stranger will want to sometimes listen to you, but sometimes even your own child will not. You can try your best, but sometimes you have to think, you have to save yourself first, then you can save somebody else.

Risk Communication Channels

Social and mass media

As mentioned earlier, participants indicated a heavy reliance on TV to receive weather warnings. Although some of the participants were not fluent in English, they could still figure out the information on the TV set by paying attention to symbols and pictures. Twenty-three participants did not actually experience any natural disasters but they were all able to describe a previous incident of a natural disaster, the severity of a natural disaster, and how it was being handled because of what they had learned from TV. Some participants mentioned that their children paid considerable attention to these types of events. They learned either from school or through watching TV, and because the children speak excellent English, they were able to relay this information to their parents. One participant said that 'My son also likes to tell us all about it in Bosnian. Once he finds anything about that on TV, he comes and tells us about it'. The participants also listened to Bosnian radio stations in St Louis. Since 85% of the participants had either a full-time or part-time job, they stated that they were usually informed in advance by their co-workers in case of a public emergency. Almost one-third of the participants were truck drivers. When they were on the road, they usually received weather warnings through using a CB radio to communicate with other truck drivers, listening to public radio broadcasting in their cars, watching TV at truck stations, or via phone calls from their families and friends. About 80% of the participants had a weather app (e.g., AccuWeather) on their cell phones. As an alternative, a majority of the participants also used internet sources, Facebook, and Skype. They and their family members in Bosnia and the U.S. were mainly connected by Facebook and Skype. Some participants were very eager to show the interviewers their Facebook pages during their interviews. However, they believed that if a disaster happens, they were most likely to solely depend on phones for communication.

Connections with government and non-government agencies and organizations

Most participants reported a strong tie with their ethnic community in St. Louis. They stated that they had many close Bosnian friends, and often socialized with each other at homes, religious centers, stores, worksites, and social events. They indicated that even if they did not know each other, if someone was in need, most Bosnians would come together and help him/her in various ways. One participant stated, 'Once we [are] in trouble, we help each other. We have a high level of solidarity.' However, more than two-thirds of the participants did not think that there were any defined community leaders or ethnic organizations that could play a major role in the face of a natural disaster. Most of them would say, 'No, I am not really informed with that. I don't have that information'; 'I am not sure if mosque would help. I did not talk to anybody about those kinds of situations. I am really not sure';

‘Yeah, we have some organizations, but you know it’s not the main one that everyone follows. It’s kind of a variety’; ‘Only if they (mosques) can or they did not go through [the] same thing (a natural disaster). If they did not experience any disaster at the moment...if they capable...’. When the participants were asked about who would prepare them and be involved in responding to a natural disaster, several of them remembered, ‘We have in Bosnia, a Civil Protection Agency and in case of a disaster, mobile teams would be put together immediately’. However, as the environments changed, they were no longer familiar with the organizations and agencies in the U.S. although they believed that the government would be involved because of the tax money they paid. They were familiar with roles and responsibilities of the Red Cross, police departments, and fire departments but were generally unaware of the Federal Emergency Management Agency (FEMA), CDC, and state and local health departments.

Disaster preparedness message dissemination methods

The participants suggested multiple approaches that they thought would be the most effective to reach a significant number of Bosnians and disseminate disaster preparedness messages. The most popular approaches were through Bosnian radio stations in St. Louis, followed by word-of-mouth, local TV channels, social events (e.g., soccer games, other sports tournaments, religious celebrations, Bosnian concerts, and fundraisings), and Facebook (see Figure 1). For instance, one participant assumed that if there were 1,000 Bosnians listening to radio, and each of them tells another person, there will be 2,000 Bosnians informed. The majority of participants agreed that Bosnians loved to talk, and called each other frequently, and that they did not like to read. Although mosque could be an option for message delivery, mosques had a very limited number of people, and Bosnian social clubs (e.g., sports club and culture club) might be the most desirable places to reach more people. Several participants also indicated that information can be delivered through St. Louis government officials (e.g., mayor), Bosnian stores, markets, and restaurant, mails, and local newspapers.

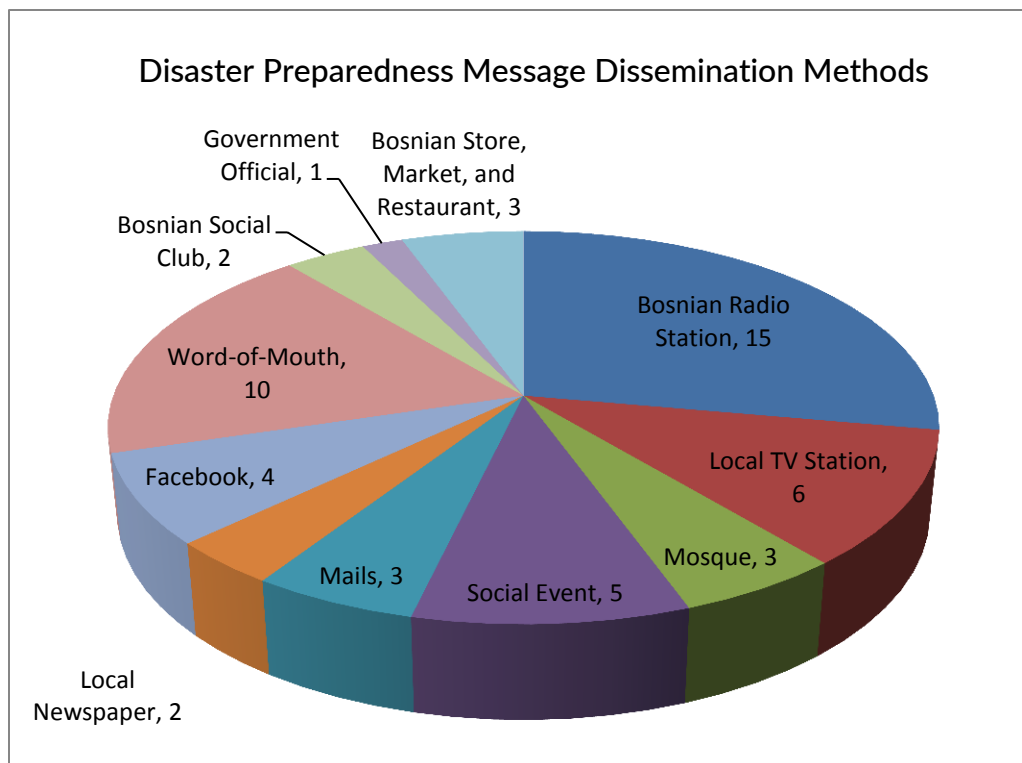


Figure 1: Disaster Preparedness Message Dissemination Methods

IV. Discussion

Overall, the participants perceived a low risk of the occurrence of a natural disaster. They resolutely believed that if they could survive a war, they would survive and be prepared for any other disaster at any given time. Moreover, they believed that although a natural disaster could cause a severe loss, it was still not comparable to the severity of the consequences of a war, especially given their experience that humanitarian aid was often hard to reach. As a result, they were much less worried about a natural disaster. These results are similar to McGough et al. (2005) study where they randomly surveyed 257 special needs residents of North Dakota, including seniors, non-English speaking residents, residents with hearing and vision disabilities, Native Americans, and homebound residents regarding risk communication of Bioterrorism and other public emergencies. The Bosnian participants in their study stated that they were not concerned about terrorism because they believed that the United States was the land of peace and security, and they did not consider the possibilities of anything happening in the U.S. In addition, since a natural disaster was more likely to be ‘from God’, it was less likely to be controlled, as one participant stated, ‘if it’s meant to be, let it be’. Covello et al. (2001) discussed the challenges of risk communication of an infectious disease outbreak and bioterrorism. They listed 15 influencing factors that were relevant to risk perception and can determine individuals’ levels of concern, worry, fear, anger, and anxiety and modify their risk perception as well as their attitude and response to a public emergency. One of the factors was human versus natural origin of a disaster. It was explained that dangers considered being caused by nature or God were perceived as lower risks than those risks caused by human behaviors. Our study participants also indicated that they were more likely to respond to a weather warning if the message could be confirmed by multiple sources, including their own instinct, different media sources, internet sources, friends, and/or other family members. One single source of warning, such as the community siren, may not be credible enough for them to assess a risk as high. It would also be a collective decision-making process in times of a natural disaster. This brings up another issue concerning trust, which is consistent with current literature and can potentially undermine the accuracy of individuals’ estimation of risk (Drabek, 1999; Peacock, Brody, & Highfield, 2005; Dash & Gladwin, 2007; Glik, 2007).

Rogers et al. (2007) reviewed the current literature and suggested that when individuals did not respond to a warning, it may not be due to a lack of understanding of the message. Rather, it may be because of selective hearing and distrust of the message or the source of the communication. The levels of an individual’s confidence in a disaster warning determine the levels of uncertainty and complexity of a public disaster, which an individual can perceive, and the acceptance of the scientifically quantified likelihood of occurrence. Trust is especially imperative when a situation is uncertain, and individuals feel as if they are losing control. A trusting relationship fosters the understanding of the uncertainty of risks between communicators and recipients (Frewer, 2004; Holmes et al., 2009). It may be particularly necessary that risk communication go through recipients’ acknowledged reliable channels, such as families and friends, faith-based organizations, community leaders, media controlled by racial/ethnic groups, and community-based organizations/workers (Andrulis, Siddiqui, & Gantner, 2007). Quinn (2008) suggested a model of building minority communities’ capacity and resilience to disasters and pandemics through enhancing trust and risk communication. In his model, strategies for communication for emergency preparedness professionals/organizations prior to a disaster include: (1) using community-based participatory research (CBPR) approaches to identify community’s concerns and needs, and building partnership and trust between government and non-government agencies and community partners; (2) engaging trusted community partners in developing communication plans and other planning activities with local and state health departments; (3) identifying appropriate channels to maximize the dissemination of emergency information to a variety of community segments; (4) involving community partners in designing culturally and linguistically appropriate

tailored messages; and (5) conducting communication trainings, which can be relevant to laws in a public emergency. These considerations are particularly important for the current study population. Only one out of 33 participants was aware of government and non-government organizations/agencies involved in a disaster preparedness and response, such as health departments and FEMA. Although most of the participants watched TV and had access to the internet, it was questionable whether they were looking for information from any official and reliable sources. A majority of the participants were also concerned about the lack of identified community leaders and ethnic organizations that may be relied on in the face of a natural disaster. However, they all agreed that the Bosnian radio stations in St. Louis and word-of-mouth were the most popular and effective communication channels. Public health preparedness professionals and emergency response teams should consider utilizing these channels to initiate communication with the Bosnian community, help identify the community partners, and engage the community in a variety of communication planning activities. At least 39% of the participants did not speak English and more than half were not able to read and write English. Therefore, involving the community in designing linguistically and culturally tailored messages also becomes a key to effective communication. Using specific and simplified language is one way. Ensuring the accuracy and cultural acceptance of the translated materials is another way since even the simplest weather icon can be interpreted differently by different cultures (Andrulis, Siddiqui, & Gantner 2007; Sullivan & Hakkinen, 2011).

A noteworthy finding of this study is that children seemed to play a significant role in risk communication and emergency mobilization and response in their families. Each of our participants had at least two children. All of these children either were born or grew up in the U.S., their English proficiency was superior, and they are very familiar with the U.S. education system. They received relatively comprehensive emergency training in their middle schools and/or high schools and were quite familiar with the emergency response procedures. They also maintained great sensitivity to a natural disaster. Many participants mentioned that they were aware of their children's knowledge of natural disaster situations, and a number of participants admitted that if it was not because their children urged them to shelter, they would not respond to an early disaster warning. It is not unusual for refugee and immigrant children to be more competent in the host language than their parents are, and to serve as interpreters in a variety of contexts. For instance, in their study, Mitchell et al. discussed the roles of children and youth in risk communication and risk reduction. They studied two cases: El Salvador and New Orleans with a Vietnamese community. Both of these cases aimed to empower children and youth's capacity in preparing their family and community for responding to natural disasters. To do so, they established children's clubs within school and provided the children with disaster preparedness training, including learning about early warning messages, evacuation drills, first aid training, and identifying sources and appropriate languages of messages. In the New Orleans case, children took a vital responsibility of translating messages concerning, the locations of evacuation safe places and relief supplies and food distribution centers during the hurricane. The outcomes from both cases have been very favorable, introducing a new approach of child-centered disaster risk reduction (Mitchell et al., 2008).

There are some limitations to this study. This is a qualitative study with a relatively small number of Bosnian participants living in the Greater St. Louis area. All participants had experienced the Bosnian war and resettled in the U.S. Therefore, since the current sample is a refugee sample, it may not be representative of Bosnian populations living in other areas of the world where integration policies may have been different, as well as the second and third generations who live in St. Louis but do not have a memory of war and are highly adapted to the American culture. Data loss can also be a potential concern due to interpretation. In addition, since all interview

questions focused on natural disaster, the implication of the results to other types of disasters may be limited.

V. Conclusion

Findings from this study suggest that participants' risk perception of a natural disaster was mainly determined by their previous war experiences, their religious and cultural understanding of a natural disaster, and their social networks' collective interpretation of a disaster. Participants relied heavily on social and mass media for risk communication and public emergency preparedness but were concerned about a lack of awareness, navigation, and utilization of organizational/institutional resources for preparing and responding to a natural disaster. In the future, given the nature of this population, adopting a community-based participatory approach for community capacity mapping and involving the Bosnian community, including children, youth, adults and its ethnic organizations, in risk communication planning, implementation, and evaluation is essential to risk reduction and emergency mobilization.

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