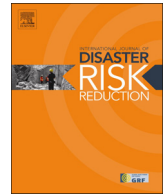




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Disaster awareness and information seeking behaviour among residents from low socio-economic backgrounds

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ABSTRACT

An individual's socio-economic status can increase their vulnerability to, and ability to prepare for and recover in the aftermath of a disaster. People from low socio-economic (LSE) backgrounds often face greater disaster risks, but are least prepared for disaster events due to a number of factors including a lack of housing affordability, low income and literacy levels. While there is an established relationship between a person's socio-economic status and disaster vulnerability, very little is understood about the disaster information seeking needs and preferences of LSE population groups and how this affects their levels of disaster awareness. This paper addresses this gap through a comparative study of LSE and non-LSE population groups to identify key disaster information sources and how it shapes levels of disaster awareness. A survey of 224 residents was conducted, and multivariate regression analysis of both LSE and non-LSE respondents revealed a trend of disaster passivity in both population groups. English language proficiency, occupation, familiarity with the local environment are the most important factors influencing disaster awareness among the LSE population groups. For non-LSE population groups, disaster awareness is gender-dependent with females showing higher levels of awareness. Overall, television was the most trusted information source regardless of socio-economic status. The results provide a better understanding of the underlying impact of socio-economic status on disaster awareness and information seeking behaviour, which can assist practitioners and policy makers in making informed decisions on disaster mitigation strategies to reduce the disaster risk vulnerability of targeted population groups.

1. Introduction

Natural disasters have no political, social, economic and cultural boundaries and impact varying on continents, countries, communities, families and individuals depending on their geographic location, risk exposure and lifestyle choices. Globally, naturally disasters are increasing in frequency, severity and magnitude, with economic losses estimated at US\$7 trillion between 1900 and 2015 [1]. No country is immune to disasters, and designing and implementing efficient disaster preparedness and mitigation strategies and programs are vital to ensure community well-being and to help build social resilience to disasters [2]. However, individuals and families within a community have varying levels of disaster vulnerability that affect how they prepare for, respond to, and recover in the aftermath of a disaster [3]. The varying levels of vulnerability toward disasters is referred to as “vulnerable paradigm” which states that vulnerable people (marginalized groups)

are more adversely impacted by disasters compared to others in a community [4].

Vulnerability refers to ‘the degree to which a population, individual or organization is unable to anticipate, cope with, resist and recover from the impacts of disasters’ [5, P.5]. Key dimensions for assessing disaster vulnerability include employment, income level, housing (e.g. homelessness), cultural background, level of education, age, gender and disability [3,6]. Among these, a person's socio-economic status often plays a direct role in their level of disaster vulnerability due to their limited access to material and social resources as well as their ability to participate in and contribute to society [7]. Therefore, people from low socio-economic (LSE) backgrounds are often at a higher risk of ‘negative experiences, effects, and reactions before, during, and after a disaster’ [8, P.3]. LSE status can be indicated by a relatively low household income level [9]. For example, in Australia, the threshold is when the annual combined pre-tax household income is less than AU\$66,667 [10,11].

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Individuals and families from low socio-economic backgrounds are often economically disadvantaged, sometimes intergenerationally, causing them to be the least prepared for and able to respond to a disaster [12]. People of LSE group status often have limited resources and face a variety of day-to-day survival challenges, leading to a resultant reluctance to invest in disaster preparedness activities which is deemed a low financial priority [13]. For example, Beckjord, Howard [14] reported cases where low-income people, when provided with pre-packed meals to use in the event of an emergency, often consumed those meals ahead of time because they could not afford to feed themselves on a regular basis. Similarly, due to limited resources, individuals with low socioeconomic status are less likely to respond to emergency messages even if they receive them. For example, individuals may not evacuate because they lack access to adequate transportation or may require special assistance that they feel are unlikely to be met if they evacuate [15,16]. Despite an established relationship between a person's socio-economic status and disaster vulnerability, very little is understood about the disaster information seeking needs and preferences among low socio-economic population groups. Taking an exploratory approach, this paper addresses this knowledge gap through a comparative study of LSE and non-LSE population groups to identify key disaster information sources and how it shapes levels of disaster awareness.

2. Social and economic factors and information seeking behaviour in shaping levels of disaster awareness

Regardless of the type of disaster (e.g. human-induced or natural), the disaster management process typically has a four-phase life cycle: mitigation, preparedness, response and recovery [17,18]. While, each phase is equally important and warrants significant time and resource commitments, the mitigation and preparedness phases are the focus of this paper due to its potential to reduce the emotional and material loss from a disaster, while empowering communities to take direct and necessary action to reduce their vulnerability [19,20].

Disaster awareness is a critical factor to efficiently implement mitigation and disaster preparedness phases, particularly among people of low socio-economic backgrounds. Findings of previous studies suggest that disaster awareness is influenced by a variety of factors such as education level, age, gender. For example, Gerdan and Çakın Oya [21] found varying levels of disaster awareness among University personnel and students that could be correlated to education level, with academic staff having higher levels of disaster awareness than administrative staff. Other research studies have focused on the influences of demographic characteristics and social indicators on the vulnerability of people in the mitigation phase of disaster management. To illustrate, it was documented that the elderly aged between 75 and 84 years old had high levels of awareness of the type and nature of disasters they could experience in their neighbourhood, compared to other age groups in the sample [22]. Likewise, a recent qualitative research study has shown that older residents (over 73 years old) had a high level of personal responsibility over all four phases of the disaster lifecycle (i.e. mitigation, preparedness, respond, and recovery) [23].

While demographic characteristics are significant factors in dealing with environmental hazards, an individual's level of disaster awareness can also be affected by their socio-economic status. People from LSE backgrounds often face a number of daily challenges that impact directly on their ability to prepare for, respond to and recovery from a natural disaster. These daily challenges are caused by a variety of factors that include, but are not limited to: a lack of housing affordability and lack of options leading to people inhabiting disaster-prone areas e.g. low-lying areas susceptible to flooding; limited access to resources; lower literacy levels; populations that require assistance to maintain independence on a day-to-day basis (e.g. due to language barriers, mobility or health issues); lack of insurance coverage; limited access to mass media; limited communication with disaster response groups in

the lead up to, during and after a disaster; and pre-existing psychological, social or political/ legal contexts that shape reactions to a disaster situation [14]. For example, due to a lack of housing affordability, LSE populations are more likely to live in poorer quality housing in vulnerable locations (e.g. low lying areas next to a river), which increases the likelihood of experiencing greater impacts and losses from a disaster [24].

LSE populations also often have to deal with poverty on a daily basis, and often cannot afford to purchase and stockpile extra food and other materials, such as extra medication as preparation for a disaster situation [25]. They often have a higher risk tolerance, are less motivated to obtain and act on disaster information, have a reduced propensity to and are least empowered to take appropriate action to safeguard themselves and their families during a disaster [16]. LSE populations often have lower education and literacy levels and may not fully understand the content of material provided about disaster preparedness, and are more likely to suffer from poor health before and after a disaster [26]. This is often underpinned by a strong distrust of and a sense of being let down by formal government systems and processes. These factors, in addition to many contextual situations, usually mean that LSE populations are more likely to experience serious consequences during and post-disaster [15,16].

While an individual's socio-economic status can be predicted by a number of factors, income level is the primary predictor [27]. To examine the role of income, past researchers have considered income as an independent variable using regression analysis, which has resulted in conflicting findings. For example, Lindell and Hwang [28] found no correlation between income and flood mitigation and flood insurance purchase, but counterintuitive negative correlation with wind mitigation. Wouter Botzen and Van Den Bergh [29], on the other hand, found a marginal positive relationship between income and mitigation and preparedness strategies (insurance demand) (See Bubeck, Botzen [27]. However, Phillips, Metz [30] showed that people in the lowest income quartile have limited resources for taking preparedness and response actions in the event of a disaster. Globally, based on the dataset from 73 nations between 1980 and 2002, Kahn [31] found that rich nations suffered less deaths from natural disasters. It is clear that income plays a significant role in disaster management. However, there is little evidence of how socio-economic status governs the relationship between people's information seeking behaviour and disaster awareness levels [32].

Past research suggest that people turn to a variety of different, but widely available disaster information sources such as the internet, TV, newspapers [33]. People's choice of an information source was found to be most influenced by factors such as trustworthiness and reputation of that source [34], and the information seeker's background (e.g. economic and social) [35]. This finding suggests that while a person's economic background can influence their information seeking behaviour [36]; very little is currently understood about how a person's information seeking behaviour shapes their overall levels of disaster awareness. This is critical as a person's level of disaster awareness ultimately influences the approach and nature of actions taken to mitigate and prepare for a disaster, and can contribute towards reducing the disaster vulnerability of people, particularly those from low socio-economic backgrounds [37,38]. Further, a better understanding of key differences in the information seeking behaviours, if any, of both LSE and non-LSE population groups can assist in the adoption of targeted and effective approaches to better communicate to enhance their levels of disaster awareness [39].

Underpinned by the concepts articulated above, this study addressed two fundamental research questions:

- 1) To what extent do socio-economic factors impact on the level of disaster awareness?; and
- 2) To what extent does a person's socio-economic background influence their disaster information seeking needs and preferences?

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