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Conceptual Framework for Motivating Actions towards Disaster Preparedness Through Risk Communication

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Abstract

The potential of risk communication as tool for reducing the devastating impacts posited by disaster hazards on human lives and property has been discussed extensively in literature. Most risk communication studies and strategies focus on awareness creation and education on disaster hazards. However, awareness creation and education on disaster hazards do not necessary translate into preparatory attitude and behaviour towards disaster hazards. Frantic efforts are required to persuade and motivate people at risk to convert hazard awareness and education into preparation towards disaster hazards. Against this backdrop, this paper develops a conceptual model through literature review to facilitate and enhance disaster preparedness through risk communication.

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Keywords: Risk Communication; Disaster Hazards; Disaster Preparedness; Persuade; Motivate

1. Introduction

The destructive impacts of natural hazards on sustainable development have been discussed widely in literature [2, 7, 11, 34]. Aversion of the negative consequences posited by natural hazards has fuelled efforts to prepare communities and people using structural and non-structural measures [20, 54]. Structural measures have progressed significantly over the last two decades yet natural hazard impacts on human lives and property have profoundly increased [58]. A shift from overdependence on structural approaches to non-structural approaches of tackling disaster hazards and its associated consequences has been suggested in literature and envisaged in recent practice [23, 15, 56]. Communication of hazard risk as one of the non-structural tools is increasingly gaining attention and currency due to its potential of mitigating disaster consequences and building disaster resilience.

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Risk communication is a two-way exchange of timely, accurate and up-to-date information regarding an impending risk through the active participations of all stakeholders to change the perception and behaviour of receivers [43]. It has been proven generally as one of the most effective tools of reducing the devastating impacts of disaster hazards on property and human lives [27, 36, 37, 38]. According to Rowan [45], the use of risk communication as a tool helps to establish trust amongst stakeholders, raise awareness, build concession and motivate preparedness actions towards a particular hazard. In recent practices, risk communication has been used to achieve the purpose of creating awareness and education on disaster hazards. Nevertheless, efforts to accomplish the purpose of motivating preparedness attitude and behaviour in people through risk communication has seen little improvement due to mistrust and low level of confidence in authorities, risk perception, breakdown of communication channels, ambiguous and unclear risk message content and loose/poor relationship between authorities and people [13, 19, 41].

Most risk communication strategies are based on information deficit model [37] with the underlying assumption that the public lacks scientific knowledge on risk and giving more information to people will facilitate preparation towards disaster hazards. Nevertheless, because the information deficit assumption model does not hold entirely, risk communication strategies should integrate motivation components. On the basis of this, the paper aims to develop a conceptual model to motivate and persuade recipients of risk messages to take preparatory steps towards disaster hazards.

2. Methodology

This paper is anchored on extensive literature review of articles, chapters, archives and books written by well renowned scholars on disaster hazard preparedness, risk perception and risk communication. In general, a total of 321 articles, books and chapters were downloaded and collated from high standard databases in social sciences and arts and humanities such as Scopus, Science direct, Environment complete, Taylor and Francis and Wiley Online Library. Selection of articles for the study was based on three major criteria, which included; 1) the article relevance to the study 2) the article is applied to risk perception, risk communication and disaster preparedness. 3) Downloaded document has citations and references of authoritative scholars in risk perception, risk communication and disaster preparedness.

3. Risk Communication: Historical and Theoretical Perspectives

Historically, the concept of risk communication is an offshoot of an in-depth study on risk management [48]. The areas of environmental management and public health predominantly made use of risk communication tool [46], thus a borrowed concept in disaster management. Before its emergence, experts and scholars attributed the growing devastating impacts of disaster on the assumption that recognition was not given to risks [47]. The provision of timely and up-to-date information from reliable sources was envisaged as the most reliable and effective solution to the problem [42]. Nonetheless, the implementation of perceived solution to avoid the increasing disaster impacts was critique [26], which eventually brought forth the mental and social constructivism models [18, 32]. While the mental model investigates into harmonization of perceptions of experts and non-professionals to ensure effective response to risk messages, the social constructivist model looks to understand the cultural and social context in which risk communicated.

The mental model or social constructivist model and sometimes both form the basis of all risk communication strategies. Conveying complex scientific knowledge about risk to tune public minds in accordance with scientific knowledge has been the cornerstone of the mental model. Though it has been justified on several grounds that risk communication, which takes into account the mental model of different group of people achieve its intended goals [32] yet it is inadequate to motivate actions toward disaster risk preparation [52]. Similarly, Douglas [10] and Beck [5] indicate that the mental model explicitly ignores the social and cultural context in which the risk is perceived, making it insufficient to achieve the overall goal of risk communication. In addition, failure of most risk communicated messages rooted on the mental model principles stems from the heterogeneous nature of communities and how people understand and respond to information [53, 55].

4. Motivational Factors of Disaster Preparedness

Risk experience and hazard awareness through public education are the two main avenues to inform people about

hazard risk and measures and to mitigate hazard risk [38]. Disaster hazard awareness and knowledge on various protective behaviours have been shown to have a positive impact on risk perception [11, 27]. Types of hazard awareness and knowledge include awareness and knowledge of hazard genesis, awareness and knowledge of the mechanisms of hazard exposure and awareness and knowledge of hazard adjustments avenues [25]. Similarly, education on disaster hazard is categorized into self-education, school education, and family education and community education. School education is most useful and forms a formidable basis in providing awareness and knowledge on disaster hazards [49]. They further posit that intensive and effective education in the four types of hazard education increases awareness, which consequently have positive influence on risk perception and disaster preparedness. On another hand, people with little or no hazard awareness and knowledge tend to have low risk perception, hence low level of disaster preparedness [6, 17]. However, several studies such as Ballantyne et al., [2] and Paton [35]) showed that awareness creation does not necessary translate into disaster preparedness. This confirms that awareness creation alone and singly does not facilitate disaster preparation but other factors complement it.

Disaster experience both direct and indirect influence the perception people hold about a particular natural hazard [3, 50]. Research by Johnston et al., [21] show a positive correlation between direct experience and increased risk perception on hazard. They further indicate that increased risk perception increases preparedness intentions. Individuals and societies who lack direct experiences of hazard manifestation perceive risk based on what they hear and read from the media as well as what they hear from experts and authorities. Indirect experiences do not affect risk perception of people and societies [50]. Nevertheless, studies by Paton et al., [39] also shows that indirect experiences have positive impacts on risk perception. Sjoberg [51] support Paton et al findings by stressing that persuasiveness of the communication source reinforces positive change in perception of people with indirect experience.

Individuals and communities do not take up protective measures towards uncertainties in vacuum but rather are motivated by a number of factors. Appraisal of threats and coping measures are the major catalyst to taking protective behaviour [44]. The assessment of risk commences with the consideration of individual's vulnerability to threat as well as threat severity. The perception of threat vulnerability and severity facilitate individual's evaluation of coping capabilities (Self-efficacy and response efficacy). When people are confident in their capabilities of performing the recommended actions, they take protective actions towards the threat [26].

Discussions

5. Risk Communications and Motivation towards Disaster Preparedness

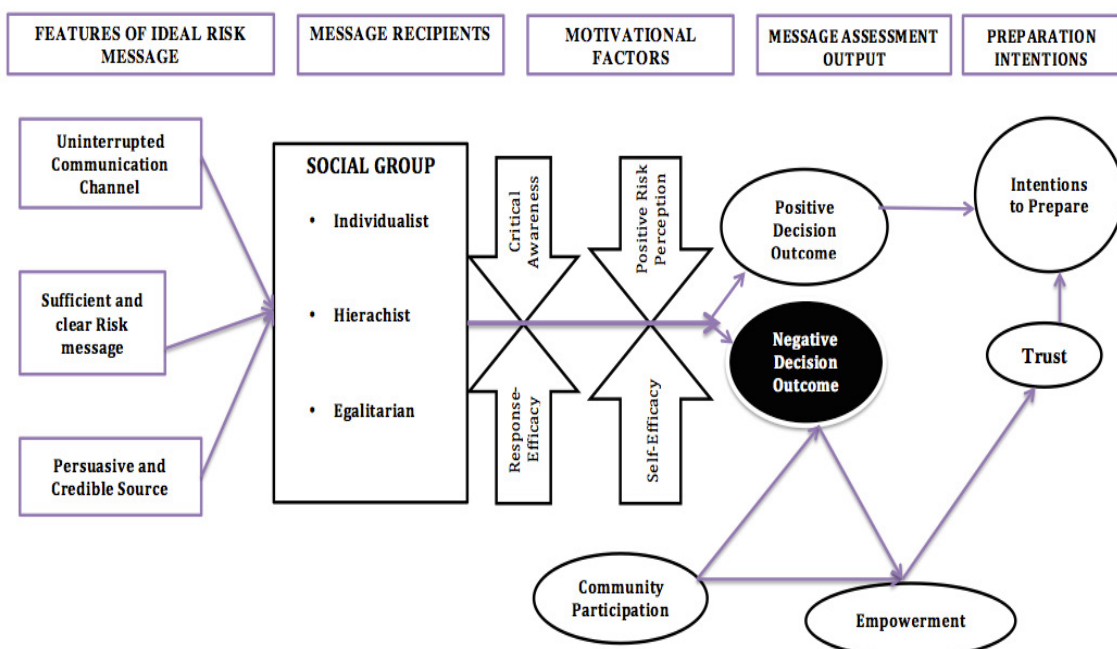
The effectiveness of conveying risk messages to at risk individuals and societies has been affected mostly by communication variables such as communication source, channel and message content [7, 13, 30]. The source of a communication encompasses all people, entities and institutions such as public authorities, flood managers, media personalities, friends, family members and neighbours that initiate a communication to the public. While the medium through which a risk is communicated is known as communication channel, risk message content incorporates the type of hazard, expected time and the recommended protective actions to prevent or mitigate the impacts in simple and clear language [25]. The model proposes that, for a communicated risk to be translated into preparedness actions, risk messages should emanate from a persuasive and credible communication source in clear and simple language through uninterrupted channels. This is because receivers of risk information first examine the credibility of the source [4, 16, 57] and the consistency of risk message to their needs and expectations [12, 28, 36].

Going by the cultural theory, receivers of risk messages in the society are categorized into four social groups namely: Egalitarian, Hierachist, Individualist and Fatalist. Each social group has it own beliefs about nature, risk and experts. For instance, while individualists fear that risk has a high potential of disrupting their freedom, fatalists also believe that nothing like risk exist in the society. Differently put, Hierachists perceive great faith and believe in expert knowledge and utterances while Egalitarians are sceptical about expert knowledge and utterances [34] The differences in beliefs among these social group means that, risk communication strategies and approaches should be diverse so as to convince each social to act on them.

One of the fundamental reasons for communicating risk is awareness creation. Awareness of people about hazard risk is not sufficient to ensure the achievement of motivating intentions towards preparation. Efforts are needed to motivate people to convert the awareness and knowledge into preparedness behaviour. It is against this backdrop that Okada and Matsuda [33] and Meredith et al., [31] opined that a communication process bankrupt when it fails to motivate and persuade people to take proactive and preparedness actions. This reiterate that risk communication policies and strategies as well as models must have a motivation component (Paton et al., 2005). The model proposes that risk perception (vulnerability and severity of hazard), self-efficacy and response efficacy is motivational factors to persuade message recipient to adhere strictly to recommended actions [14, 26, 44]. Also, critical awareness has been confirmed in other studies as a motivational factor to preparedness Paton et al., [37]. While critical awareness refers to the number of times people talk and think about a hazard, risk perception involves the thought of people about the likelihood and consequences of a hazard occurring. The motivation factors in the model are to serve as a catalyst to positive decision outcome, thus perceiving intentions towards preparations. The motivational factors together with sufficient and clear information received from the credible and persuasive sources enables people to make decision (decision outcome).

The decision outcome involves the assessment of the effectiveness or otherwise of the messages received from the sources. Whereas positive decision outcome reinforces the belief that coping strategies are effective and that preparation towards a hazard adds value to one's life, negative decision outcome means that coping strategies are ineffective and that hazards are too destructive to received adaptation. The heterogeneous nature of communities in the way they think and interpret information cannot rub off unfavourable outcome (negative decision outcome) no matter the amount of motivation available. Minds of receivers of risk messages that have negative decision outcome need to be realigned to suit positive outcome and this could be achieved through community participation. This is because people's perception about risk hazard and the approach to deal with risk is shaped by views of others in the community [28]. In situations where people are uncertain about the message received or the coping strategies, Earle [12] and Poortinga and Pidgeon [40] indicate that the first point of contact is other community members. According to Paton et al., [37], additional step is taken by others who are not convinced after contacting community members to seek further clarity from civic agencies. The interactions among community members and between community members and civic agencies empower and realign the minds of people with negative decision outcome to positive decision outcome. Furthermore, trust mediates between empowerment and intentions to prepare towards risk reduction [29, 37].

Figure 1: Motivating Disaster Preparedness Through Risk Communication



7. Theoretical Propositions

The authors of the paper make these propositions to ensure effective implementation of risk communication policies and strategies. These propositions are based on existing literature but more research is needed to support, modify or refute them.

Proposition 1: Persuasion by communication sources is critical to augment motivation factors towards disaster preparedness

Many risk communication strategies have failed to motivate people towards disaster preparedness due to their lack of persuasiveness [8]. Persuasions could be from risk message content or risk communication source or the community. Persuasion is needed together with awareness creation to motivate people to take preparedness measures towards disaster risks. Risk about hazards is uncertain and has no clear-cut way of solving, thus authorities require persuasive skills to align perception and attitude of community members in accordance with scientific outcomes [9]. The persuasive process should encourage and accommodate views of all audiences. Effectiveness of risk communication does not only depend on the best strategies available but exhaustively on the ability of communication sources and risk messages to persuade audiences.

Proposition 2: Community Participation enhances disaster preparedness with risk communication

Communication of risk occurs in all the phases of the disaster management cycle. The widely accepted view that prevention is better than cure makes it evident that communication during the pre-disaster phase is the most important among the phases. Communication during the pre-disaster phase of the disaster management cycle provides a platform where experts and community members interact to know each other better, create risk awareness, clear off any negative perception and deception and ascertain real and perceived risk as well as build trust and credibility [1, 22, 42]. Credibility and trust in authorities pave way for participation of stakeholders especially the voiceless to share experiences about actions taken for protection towards previous disasters. This gives opportunity for authorities to correct anomalies in perception and helps to institute positive beliefs and behaviours towards disaster preparedness in people. From figure 1, each social group would have people likely to make negative outcome decisions. It is important that flood managers and experts encourage all people especially those likely to make negative decisions towards preparedness to participate in discussions with them. With this, the persuasive skills of experts would be use to convince possible negative decisions outcome group to make decisions that will enhance preparedness.

8. Conclusion

The use of risk communication has contributed immensely to disaster risk reduction yet scholars have identified that its intrinsic potentials have not fully been exploited. The concept has operated on the assumption that giving more information to people will facilitate preparation towards disaster hazards. This underlying assumption does not hold entirely as awareness about natural hazard does not guarantee preparation towards them. This implies that, certain motivation factors should be in place to enable translation of hazard awareness to preparation intentions. Furthermore, because receivers of risk messages have differing perception, beliefs and attitude, initiators of risk communication should mount appropriate approach to ensure that each social group understand risk messages and take proactive actions to mitigate and prepare towards disaster hazards. In addition, experts should explicitly define responsibilities for all stakeholders and avail themselves to community members for them to clarify sections of risk communication that are unclear and ambiguous.

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