

Review Paper:

Understanding the Vulnerability, Resilience and Quality of Life of older adults during natural disasters

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Abstract

Globally, disasters constantly challenge the capacity of humans to adapt to its consequences and endure the impact. It comprises a range of impacts including loss of life and properties, risk of mental health issues like post-traumatic stress disorder, depression, grief, anxiety etc. The disaster risk relies upon the individual's exposure to disaster vulnerability and resilience. It also includes the needs of a vulnerable population including older adults and the presence of secondary stressors within the affected community. Therefore, older adults are found to be a highly vulnerable age group during every disaster. Especially in developing countries, older adults face numerous issues and challenges due to inadequate disaster infrastructure and response, which are often associated with poor quality of life outcomes.

The present study tries to conceptualize the significance of disaster vulnerability, resilience as a decisive factor for the quality of life (QoL) of older adults in the natural disaster. Further, the current study highlights the functional relationship between disaster phases, vulnerability, resilience, psychosocial factors and preparedness measures to ensure a better quality of life for older adults.

Keywords: Natural Disaster, Vulnerability, Resilience, Quality of Life and Older Adults.

Introduction

The individual's ratio of risk to susceptibility is considered as vulnerability. It has four major categorizes including physical vulnerability, social vulnerability, economic vulnerability and environmental vulnerability¹⁸. Thus, when environmental variables meet with these vulnerabilities, they produce an undesirable outcome for individuals and communities as whole.

Similarly, the climate change, urban migration, high population growth rate and higher demand for natural resources may increase the frequency and intensity of the disasters worldwide⁹. Thus, people need better defence system to tackle the disasters. Hereby the disaster resilience can help individuals, communities and countries to mitigate the severe consequences of these hazards through various strategic measures.

Similarly, government should opt strategies like "building disaster resilience" to help the communities and countries to prepare and recover from the emergencies like earthquakes, drought, floods, or cyclones in an effective manner⁹.

Genesis of vulnerability theory

The concept of the vulnerability emerged during 1970s when the losses from the disasters were frequently increasing whereas the occurrence of the disaster events remained the same throughout the world¹³. Then after, the disaster vulnerability is used to explain the overall susceptibility of individuals, communities and countries concerning the collective losses from the disaster. It is an unsafe condition, including risky locations, destabilized infrastructures and poor disaster preparedness. It also includes the magnitude of damage that affects the people's functioning, well-being and societal systems¹⁹.

Further, McEntire¹² conceptualized disaster-related vulnerability into four components: susceptibility, risk, resilience and resistance. Susceptibility indicates the possibility of people's suffering, distress and injury from the hazards whereas the risk specifies the destruction of the physical community infrastructures and individual assets. On the other hand, the resilience is the capacity of peoples or community to bounce back into their normal functioning in positive adaptive manner. Similarly, resistance highlights the strength of physical structures including buildings, roads, bridges, public housing etc. to bear adversities without any damage.

Additionally, the disaster vulnerability is constituted by both physical and social means of the environment. The physical environment includes buildings, roads, bridges, technological infrastructure etc. whereas the social environment includes the socio-economic, political and cultural aspects of the communities²¹. Therefore, based on the impact of physical and social environments on individual's susceptibility to hazard, Zakour and Gillespie²⁰ divided these vulnerabilities into two major categories such as liabilities and capabilities.

Liabilities: It includes aging population, low incomes, endemic disease, unprotected physical infrastructures and poorly functional institutions providing resources to people¹². Similarly, underdeveloped communities and regions also suffer disproportionately from social problems like hunger, mental illness issues, drug and alcohol abuse, homelessness, poverty, violence etc. Liabilities that lead to

increased susceptibility of individuals include female roles, endemic poverty, racism, trade fluctuations, underdevelopment and a history of colonial exploitation. These liabilities increase disaster susceptibility and instigate the trauma, various losses and severe stress reactions⁴.

Capabilities: Environmental capabilities are shaped by various aspects of the social, physical and natural environment, that providing necessary resources to mitigate, prepare, respond and recover from the disasters²¹. These environmental capabilities are in the form of social capital including tangible and intangible resources deep-rooted in social networks and community social structure²⁰. However, many communities are possessing considerable strengths and environmental resources but cannot access social and physical resources due to the marginal population¹¹. Additionally, the capabilities include liberal access to all forms of services, accessible client-centered services and enough social organizations that provide disaster-specific interventions and advanced coordination among disaster processes i.e. prevention, preparedness, response, relief and recovery.

Disaster Resilience

Peoples experience adverse impacts from the twists and turns of everyday life challenges in terms of deaths of loved ones, life-altering incidences life-threatening medical illnesses etc. These changes like the floods of thought, strong emotions and uncertainty affect people differently. People mainly adopt changes during life-changing situations and stressful situations in a well-settled manner due to resilience. Historically, the concept of resiliency is constructed on Bandura's self-efficacy theory². The theory describes the internal belief of the person to complete a specific task. It includes reactions like self-satisfying and self-dissatisfying to an individual's performance, perceived self-efficacy to individual's goal attainment and goal re-adjustment based on an individual's progress.

Further, the perceived self-efficacy includes people's beliefs about their capabilities or abilities to generate the required level of performance to control those actions which affect their lives. Similarly, success comes to those who believe they have enough internal courage to control the unwanted behaviors and master the given task despite endless challenges or adversities such as disaster. Bandura's² individual or environment safeguards factors are protective

factors that increase the individual's ability to resist risk, foster adaptation and capabilities organization.

Thus, the involvement of resilience in "bouncing back" from adverse life experiences leads to profound personal growth among the individuals. Similarly, the concept of resilience is not only associated with individual's capacities but also used for the larger extension such as to enhance community or country's capacities to rebuild after disasters. There are plenty of national and international organizations who are working in the field of disaster resilience and sharing their experiences globally to make earth as a safe place for everyone.

The functional relationship of disaster vulnerability, resilience and psycho-social factors determines the overall quality of life (QoL) of the older adults. The detailed structure is presented in figure 1. It noticeably highlights the need of the disaster preparedness at each phase of the disaster management cycle to shape the better outcomes for peoples, especially for the older adults.

Disaster phases and preparedness

The disaster-literature has given great exertion to the conceptualization of the recurring phases of disaster into four parts including mitigation, preparedness, response and recovery. Such conceptualization assisted the individuals and community to enhance their strengths and capacities to address the emergencies effectively. Each phase of the disaster preparedness required distinct resources including comprehensive planning, updated information, trained human resource, emergency infrastructure, health care facilities etc. Though plenty of researches have discussed these issues thoroughly, still fewer areas require special consideration and affirmative action during such emergencies. These areas also include the concerns of the vulnerable population, especially older adults. Their concerns are hardly addressed during crisis.

During every disaster, relatively older adults, people living with chronic illness, mobility issues, or cognitive impairment are permanently vulnerable to the hazards and need assistive devices or constant medical care to survive⁷. Thus, it is needed to evaluate the disaster mitigation strategies and approaches to cover those areas who have not considered as a part of disaster management policy and programme.

Definitions of Resilience		
United Nations Office for Disaster Risk Reduction (UNISDR)	2009	It is an ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions ¹⁸ .
American Psychological Association (APA)	2012	It is process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress—such as family and relationship problems, serious health problems, or workplace and financial stressors ¹ .

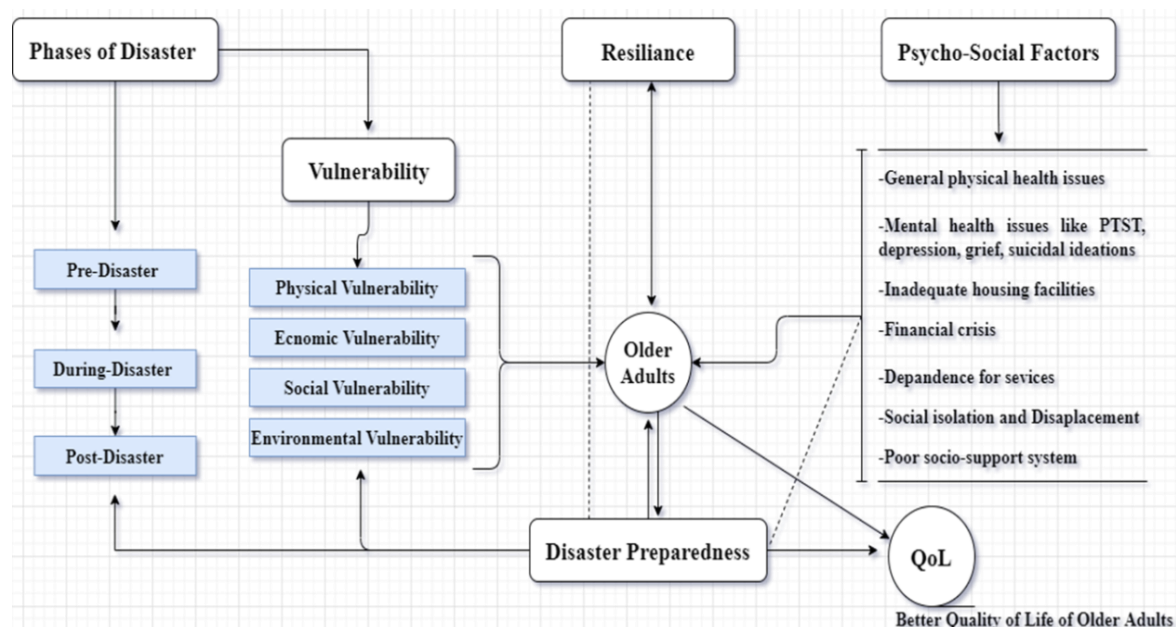


Figure 1: The functional relationship between disaster vulnerability, resilience, psycho-social risk factors and QoL of the older adults

Role of disaster vulnerabilities

The vulnerability is a human aspect of the disaster instigated by economic, social, cultural, institutional, political and psychological factors¹⁷. It shapes the individual's life and their native environment. The amount of individual's physical, economic, social and attitudinal vulnerabilities decides the magnitude of the disaster impact. The physical vulnerability depends upon the geographical location such as individual staying near the coastal line or insecure mountainous range being more vulnerable during the disasters than others. It may restrict their reach to essential services, communication, emergency networks, hospital etc. Similarly, the damages to earning sources such as farmland, livestock, capital etc. fall under the economic vulnerability of the individual and community.

Thus, the financial stability of the individuals, communities, or countries decides the degree of economic vulnerability during such disasters¹⁸. Further, inability of the individuals to resist the adverse impact of the hazards due to feeble family structure, lack of leadership, conflict resolution, poor decision-making at the family level determine their social vulnerability during the disasters.

It also includes lack of community organization and discrimination based on race, ethnicity, languages or religion at community level. Similarly, the negative attitude of the individual or community towards the changes makes them dependent and gradually leads to conflicts, helplessness, hopelessness and pessimism falling under their attitudinal vulnerability.

Thus, these vulnerabilities of the individuals or community make them highly vulnerable to numerous hazards during the emergencies. More importantly, disaster preparedness is

the only measure to enhance their awareness regarding the adversity of the situations to reduce the possible consequences of the disasters. Though the disaster cannot be controlled, but the initiation of the preventive measures at the pre-disaster phase may reduce the magnitude of the impact, especially for the vulnerable population groups.

Role of disaster resilience

The individual's capacity to cope up with life-changing situations predicts the outcomes of any disaster. Mostly, disasters like tsunami, cyclones, earthquakes, drought, floods etc. bring unfavourable situations including psychological crisis, emotional breakdown, grief etc. among the individuals. Similarly, people with a lower-income background, inadequate social support and high level of non-organizational religiosity, witnessed disaster recently and severe trauma related to disaster are at high risk of psychological adversities⁵. Even after the disaster, their psychological vulnerability is high because disaster preparedness and resilience measures are not designed according to their needs¹⁶.

Thus, their concerns must be incorporated in disaster preparedness to enhance their disaster resilience. Similarly, the efforts of the organizations like "aging-in-place" of the United States of America must be connected with preparedness measures to enhance the disaster resilience of vulnerable population including older adults¹⁶.

Role of the psycho-social risk factors

Multiple psycho-social factor increases the older adult's disaster vulnerability. Therefore, they always require special attention from the disaster planners for integration of their concerns into the plan of action. These factors may influence older adults differently, but their psychological responses are

essential in disaster preparedness planning and service deliveries³. Their pre-disaster physical health issues, including diabetes, hypertension, dementia and other life-threatening illnesses, need intensive medical supervision and care after the disaster.

Disaster may result in various health effects¹⁰ including psychological reactions of the older adults to disaster. The likelihood of post-traumatic stress disorder, depression, anxiety, substance abuse, grief, suicidal ideations is high among older adults than others, especially during post-disaster situation. These mental health concerns significantly burden individuals, families, or socio-economic networks¹³. Thus, factors that enhance older adult's psychological vulnerability during natural disasters should be identified at the preparedness level and assimilated into the action strategies. Additionally, during post-disaster factors like financial crisis, inadequate housing facilities, displacement due to hazards, social isolation from the family and friends, flawed social support system etc. should be evaluated to reduce the health vulnerability of older adults, especially mental health concerns. Therefore, effective planning and preparedness at the pre-disaster phase are essential to protect them from the worse impact of the disaster.

Quality of life of the older adults

Though, disasters negatively impact quality of life of the peoples, still older adult's quality of life depends upon their disaster risk perception⁹ toward the hazards. Disaster may have a long-lasting impact on the older adult's mental health and well-being, especially those who came directly in contact of the hazards⁶. The disorders like dysthymia, anxiety disorder and social phobia are significantly associated with the individual's poor health-related quality of life before and after exposure to the psychiatric illness¹⁵.

Thus, older adults with these disorders are highly vulnerable and need public assistance to deal with emergencies situation like natural disasters. Therefore, enhancing the perceived social support and community-level support can reduce the older adult's post-disaster stress⁶.

Conclusion

The existing disaster literature has highlighted the various aspects of the older adult's issues and concerns, especially during the natural disaster. But the cumulative effects of the disaster vulnerability and resilience on quality of life of the older adults were not investigated adequately. These broader concepts must be considered and addressed before any natural calamities to reduce the magnitude of the impact. The integrating of older adult's disaster-related vulnerability, resilience and psycho-social risk factors into the disaster preparedness measure can improve their quality of life during these disasters.

Similarly, psychiatric co-morbidities, physical health issues, social risk factors and social-support or community support systems should be considered to build a better disaster-

specific intervention plan for “during” or “aftermath” situations of the disasters.

References

1. American Psychological Association, Building your resilience, Retrieved December 8, 2021, from <https://www.apa.org/topics/resilience#> (2012)
2. Bandura A., Self-efficacy, In Ramachandran V.S., ed., Encyclopedia of human behaviour, New York, Academic Press, 71-81 (1994)
3. Bei B. et al, A prospective study of the impact of floods on the mental and physical health of older adults, *Aging & Mental Health*, **17**(8), 992-1002 (2013)
4. Bolin R.C., Race, class, ethnicity and disaster vulnerability, In Rodriguez H., Quarantelli E. and Dynes R., eds., Handbook of Disaster Research, 113–129 (2007)
5. Cherry K.E., Sampson L., Nezat P.F., Cacamo A., Marks L.D. and Galea S., Long-term psychological outcomes in older adults after disaster: relationships to religiosity and social support, *Aging & Mental Health*, **19**(5), 430-443 (2015)
6. Cherry et al, Health-related quality of life in older coastal residents after multiple disasters, *Disaster Medicine and Public Health Preparedness*, **11**(1), 90-96 (2017)
7. Columbia University, Vulnerable Populations - National Center for Disaster Preparedness, NCDP, Retrieved July 8, 2021, from <https://ncdp.columbia.edu/research/vulnerable-populations> (2020)
8. Cui K. and Han Z., Association between disaster experience and quality of life: The mediating role of disaster risk perception, *Quality of Life Research*, **28**(2), 509-513 (2019)
9. Department for International Development, Defining Disaster Resilience: What does it mean for DFID? Relief Web - Informing humanitarians worldwide, Retrieved July 8, 2021, from https://reliefweb.int/sites/reliefweb.int/files/resources/Defining-Disaster-Resilience-summary_0.pdf (2011)
10. Katz C.L., Pellegrino L., Pandya A., Ng A. and DeLisi L.E., Research on psychiatric outcomes and interventions subsequent to disasters: a review of the literature, *Psychiatry Research*, **110**(3), 201-217 (2002)
11. Klinenberg E., Heat wave: a social autopsy of disaster in Chicago, Chicago, University of Chicago (2002)
12. McEntire D.A., A critique of emergency management policy: Recommendations to reduce disaster vulnerability, *International Journal of Public Policy*, **3**(5/6), 302–311 (2008)
13. O'donnell M.L. and Forbes D., Natural disaster, older adults and mental health—a dangerous combination, *International Psychogeriatric*, **28**(1), 9-10 (2016)
14. O'Keefe P., Westgate K. and Wisner B., Taking the naturalness out of natural disasters, *Nature*, **260**, 566–567 (1976)
15. Saarni S., Suvisaari J., Sintonen H., Pirkola S., Koskinen S., Aromaa A. and Lönnqvist J., Impact of psychiatric disorders on

health-related quality of life: General population survey, *British Journal of Psychiatry*, **190**(4), 326-332 (2007)

16. Shih R.A., Acosta J.D., Chen E.K., Carbone E.G., Xenakis L., Adamson D.M. and Chandra A., Improving Disaster Resilience Among Older Adults, Insights from Public Health Departments and Aging-in-Place Efforts [Research Report], Santa Monica, California: RAND Corporation (2018)

17. Twigg J., Disaster risk reduction: mitigation and preparedness in development and emergency programming, Overseas Development Institute -ODI (2004)

18. UNISDR, 2009 UNISDR Terminology on Disaster Risk Reduction, International Strategy for Disaster Reduction (ISDR), 1–30 (2009)

19. Wisner B., Blaikie P., Cannon T. and Davis I., At risk: Natural hazards, people's vulnerability and disasters, 2nd ed., New York, Routledge (2004)

20. Zakour M.J. and Gillespie D.F., Recent trends in disaster vulnerability and resiliency research: Theory, design and methodology, In Gillespie D.F. and Danso K., eds., Disaster concepts and issues: A guide for social work education and practice, Alexandria, CSWE Press, 35–60 (2010)

21. Zakour M.J., Vulnerability and risk assessment: Building community resilience, In Gillespie D.F. and Danso K., eds., Disaster concepts and issues: A guide for social work education and practice, Alexandria, Council on Social Work Education, 15–60 (2010).

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