

# Elderly's Disaster Resilience in Natural Disaster: Literature Review

Istianna Nurhidayati\*, Ratna Agustiningrum, Desti Aprilia Ningtyas

*Community Nursing Department, Stikes Muhammadiyah Klaten*

*\*Corresponding author. Email : istiannanurhidayati@gmail.com*

## ABSTRACT

Elderly is one of the vulnerable groups when disaster occurs, because of life change that lead to setback. The number of elderly who live in disaster-prone areas increase the level of vulnerable. Klaten's Central Bureau of Statistic stated that the number of elderly is increasing 0.37%- 0.5% every year. The trend of increasing elderly population urges the action to facilitate positive aging. This study aims to explored factors of elderly's disaster resilience faces the natural disaster. This study used journals obtained through the PubMed and Google Schoolardatabaseswith keywords were "Resilience", "Disaster", "Elderly", and "Qualitative". The result of the study obtained seven journals that match to the inclusion criteria. The researcher assessed the seven journals with Critical Appraisal Skills Programme (CASP) and recommended five journals that eligible to do a review. It was found five factors that affected the resilience of elderly in dealing with disaster. These five factors was previous experience, cognitive flexibility, social support, optimism and spirituality. In conclusion, these five factors can improved capacity of the elderly to organize themselves from their problem, reduce the risk of disaster, and develop strength to deal with other traumatic incident in the future.

**Keywords:** *Resilience, Disaster, Elderly*

## 1. INTRODUCTION

United Nations International Strategy for Disaster Reduction (UNISDR) defines resilience / "resilience from" is the ability of a system or community exposed a hazard to survive and recover from the impacts of a hazard in a timely and efficient manner. Disaster resilience determined by the extent of individuals, communities are able to organize themselves to learn from past disasters and reduce their risk in future disasters [1].

Indonesia is one of the countries prone to disasters, this condition is supported by geographic conditions, because geographically Indonesia is an archipelago located at the confluence of four tectonic plates, the Asian Continent, the Australian Continent, the Indian Ocean Plate and the Pacific Ocean [2]. Disaster is an event that seriously threatens people's lives, whether caused by natural factors (natural disasters) or non-natural factors (man-made disasters) [3]. In 2012, there have been 357 natural disasters around the world which caused 122.900.000 victims and more than 9.655 people died with a loss of 157.300.000.000 as a result of the damage. After China, the United States and the Philippines, Indonesia is number three in the category of frequent natural disasters [4]

Natural disasters directly have a negative impact, both in the physical, biological, social environment and have a negative impact on human life and the National Disaster Management Agency reported that there were 2.175 disaster events such as landslides, earthquakes and floods in Indonesia from the beginning of the year to 4 December 2017. The incidents consisted of floods with 737 events, tornadoes with 651 events, landslides with 577 events, forest and land fires with 96 events, floods and landslides with 67 events, drought with 19 events, earthquakes with 18 events, waves pairs or abrasions with 8 events and volcanic eruptions with 2 events [5].

Law No. 24 of 2007 has classified the vulnerable groups when a disaster occurs. The group consists of children, pregnant and lactating women, people with disabilities and the elderly. The elderly are included in the vulnerable group because of the inherent dependence on the elderly. Balerante village officials explained that 2010 eruption of Mount Merapi resulted in 4 deaths, 3 of whom were elderly [6]. Life changes that lead to setback in old age interfere with the ability of the elderly to respond and adapt when, during and after a disaster occurs [7]. The number of

elderly who live in disaster-prone areas increase the level of vulnerable.

Klaten's Central Bureau of Statistics stated the number of elderly people continues to increase, in 2013 the number of elderly people was 163.966 people (14.27%), in 2014 it was 169.225 people (14.64%), 2015 was 175.554 people (15, 15%), 2016 was 181.630 people (15.61%) and in 2017 was 188.141 people or (16.12%). The number of elderly is increasing 0.37%- 0.5% every year [8]. The trend of increasing elderly population urges the action to facilitate positive aging. People who living in the disaster area are very affected by the impact of the disaster. Changes occur and people must survive and adapt to these changes in order to survive. High hazard area, have vulnerability, natural disasters do not have a broad impact if communities have disaster resilience [9].

Older people tend to display greater levels of resilience in dealing with trauma than younger people [10]. One of the factors that contribute to the resilience of the elderly is the influence of past behavior and experiences, such as previous trauma and disaster experiences. After Hurricane Katrina they found no difference in Activity Daily Living (ADL), differences depression [11].

Research in South Africa by shows that resilience to disasters is important [12]. Resilience to disasters helps reduce the negative impact of a disaster such as PTSD, resilience can significantly reduce numbers PTSD (p value <0.0001) and other adverse effects even casualties, resilience can help them recover more quickly [13]. Therefore, this study aims to exploring the resilience of the elderly against natural disasters

**2. METHOD**

Literature was searched in May - June 2020. The literature search used two databases, PubMed and Google Scholar EN and IN. Search for articles or journals using keywords and boolean operators (AND, OR) "Resilience" AND "Disaster" AND "Elderly" OR "Older Adults" AND "Qualitative" as keywords for international literature searches. "Resilience" AND "Disaster" AND

The method used is literature review. Literature review is research which critically examines or reviews knowledge or ideas or findings contained in the body of literature, and formulates theoretical and methodological contributions to certain topics [14]. The focus of the literature review is to find theories, laws and propositions, principles or ideas used to analyze and solve the research questions formulated. Strategies used to search articles or journals are using PICOS framework :

Tabel 1. Inclusion and Exclusion Criteria

Kriteria	Inklusi	Ekklusi
Population	Elderly who face natural disaster	Elderly not affected with natural disaster
Intervention	-	-
Comparison	No comparator	-
Outcome	Factors contribute to elderly's resilience who face natural disaster	Not describe factors contribute to elderly's resilience who face natural disaster
Study Design	Kualitatif study	Kuantitatif study and <i>literature review</i>
Publication years	Post 2011	Pre 2011
Language	English and Indonesian	Language other than English and Indonesian

"Elderly" AND "Qualitative" as keywords for national literature searches. This is journal search flowchart.

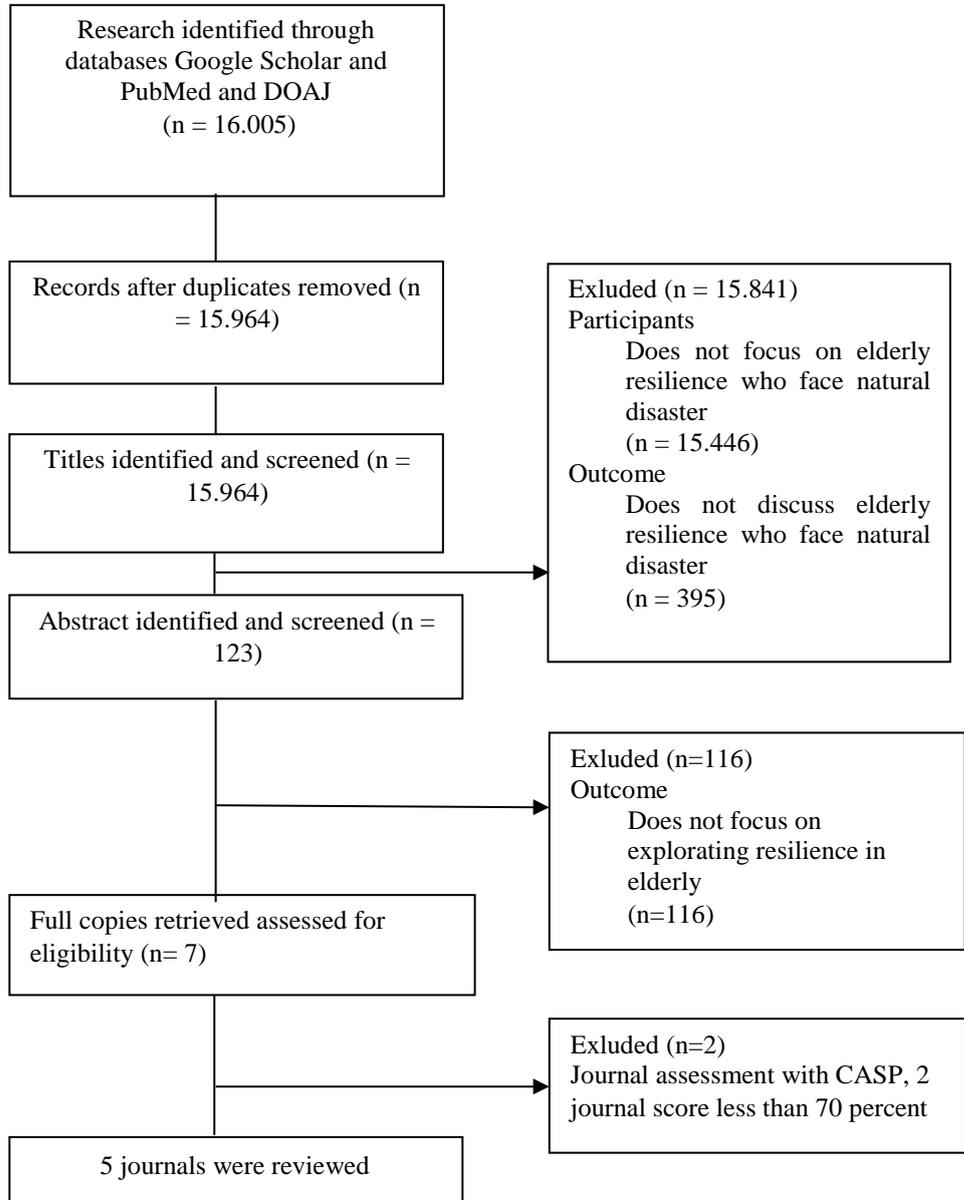


Figure 1. Journal search flowchart

### 3. RESULTS

This literature review identifies five factors that affect the resilience of the elderly against natural disasters, previous experience, cognitive flexibility, social and family support, optimism and spirituality.

#### 3.1. Previous Experience

Factors driving the resilience of the elderly in facing disasters are their life experiences and previous experiences of disasters [15]. This is in line with research conducted [16] that previous disaster experiences protect the elderly from negative emotional reactions, their lifelong experiences can be utilized by the elderly as the best resources to support

them. Six out of ten elderly participants who were flood survivors in Brisbane had experienced floods in 1955, 1974 and 2011. Participants explained in their interview "... during the 1974 flood the fence post sank in 8 minutes, so that during the 2011 floods, my wife and I immediately rushed to evacuate"[16].

### 3.2. Cognitive Flexibility

Cognitive flexibility can be a factor affecting the resilience of the elderly [15]. Research participants expressed "there is no point in us worrying and fear that it will drag on, it will not help" this shows the need for adaptive attitudes during disaster recovery. Adaptation and flexibility cognitive are needed to meet and survive [17]. [16] in their research revealed the same thing, times will change, so that we cannot rely only on help and become dependent, we need independence so that we don't always become a burden. Cognitive flexibility is a factor that affects the resilience of the elderly in dealing with disasters. Elderly showed pictures of flowers, which means before the disaster he worked as a flower seller and after the disaster he decided to keep selling flowers in Kasetu by continuing to sell flowers they could develop their skills at agriculture [17]. This is in line with research [18] which explains that tough elderly people are those who can use resources to get what they need. Cognitive flexibility can prevent them from identifying themselves as victims, but instead they can accept and reframe their fate.

### 3.3. Social and Family Support

Social and family support, this is based on the expressions of the 5 researchers, namely [15], [17], [18], [19] and [16]. Elderly flood survivors in Brisbane mentioned that the family helped them gather information, make plans and survive [16].

### 3.4. Optimism

Optimism, this is based on research [19] which explains that the participants express their optimism or self-confidence. In line with [17], the research participant stated that he believed he could work hard wherever he was.

### 3.5. Spirituality

Another factor that affects the resilience of the elderly is spirituality. This was revealed by [18], a research participant explained the importance of trusting in a higher power. "Believe there is a God" and the phrases "if we believe in Allah and if we have faith then God will protect us" made them stronger.

## 4. DISCUSSION

Knowledge is one of the greatest assets of the elderly. They generally have the ability to reflect on past disasters, the elderly have the experience, knowledge and skills to understand local environmental hazards and their impacts [20]. Disaster experience will be a useful lesson in the future [21]. Adaptation capacity or the ability of individuals to adapt to disasters and cope with the impacts that occur includes institutional memory, which is storing and remembering experiences [22]. With previous experiences of disasters, the individual will experience trauma in itself. The trauma experienced will provide a response and learning to make it as information. The information obtained will result in what actions to take when the disaster recurs.

Cognitive flexibility is an individual's ability to think followed by actions in accordance with the situation at hand [23]. The ability to think flexibly supports individuals in solving problems during traumatic conditions such as disasters. Cognitive flexibility or cognitive reframing or reinterpretation in dealing with disasters, makes them not as victims but as someone who is empowered. If a person is able to identify the problem accurately, he will not make the same mistake and they will be able to get out of difficult conditions (reaching out) [24]. Cognitive flexibility in the elderly is that when the elderly think flexibly, the efforts of the elderly who are oriented towards problem solving or adjustment will be better, because with good cognitive flexibility it can lead the elderly to absorb information and re-evaluate the information obtained, so that individuals will adapt in new ways according to the situation they face.

Through the community, individuals will feel valued by others, individuals will feel a relationship and support that helps them adapt to existing conditions and overcome the negative consequences that individuals often face [25]. The family is the first circle because the family environment is the environment closest to the individual. Close relationship with family has caring, support and care. The researcher assumes that people who have high trust in their environment tend to have a lot of social support and will think that the social environment can provide support to them and feel valued. Social support has a positive effect that this traumatic disaster is not only experienced by one person, they can help and strengthen each other.

Ability to resilience or tough is influenced by the optimism factor [24]. It is mentioned that tough people are those who are optimistic [24]. They are sure that conditions will change for the better. They have hope for the future and are confident that they will rule over parts of their lives. An optimistic person has the possibility that optimism implies that a person has confidence in his ability to overcome adversity. Optimism can reflect a sense of ability and belief in the ability to solve problems on their own. But unrealistic optimism will also lead one to ignore the real threat that needs to be prepared.

Spirituality as a factor affected elderly resilience. This is contrary to research which states that spirituality is a factor in unexpected findings, the theory in his research has stated that spirituality can affect the resilience of the elderly, but spirituality is not found in his findings [17]. This may be due to the research was conducted in Japan, where many Japanese people claim to be not religious and do not actively participate in religious organizations while in Indonesia, there are six religions that are believed by people, including Islam, Catholic, Christiany, Hindu, Buddish, and Konghuchu. Thus, it is very possible that spirituality is a factor that influences the resilience of the elderly.

## 5. CONCLUSION

The literature review results from the selected articles, there are five factors related to the resilience of the elderly when facing disasters, cognitive flexibility, or cognitive reframing, and social support. The findings were revealed by researchers to help the elderly in gathering information, making plans and surviving. Optimistic, these findings are expressed by researchers as a good hope in all things that can support their resilience, and spiritual, these findings expressed help them face difficulties.

## REFERENCES

- [1] E. Combaz, *Disaster resilience: Topic guide*. Birmingham. UK: Birmingham UK: University of Birmingham, 2014.
- [2] BNPB, "Potensi dan Ancaman Bencana.," 2017.
- [3] BNPB, *Buku panduan pengenalan karakteristik bencana dan upaya mitigasinya di Indonesia*. Jakarta: BNPB, 2010.
- [4] CRED, *Disaster Manegement: A Disaster Manager's Handbook*. Manila: ADB, 2012.
- [5] S. Suwarningsih, L. Nurwidiasmara, and Z. Mujahidah, "Lansia Dalam Menghadapi Bencana Di Kota Bogor," *J. Ilm. Kesehat.*, vol. 11, no. 2, pp. 134–146, 2019.
- [6] I. Nurhidayati and E. Ratnawati, "Kesiapsiagaan Keluarga dengan Lanjut Usia pada Kejadian Letusan Merapi di Desa Balerante Kecamatan Kemalang," *J. Keperawatan dan Kesehat. Masy.*, vol. 7 No. 1, 2018.
- [7] National Disaster Management Authority (NDMA), "National Policy Guidelines on Vulnerable Groups in Disasters.," *Pakistan: National Disaster Management Authority*, 2014. .
- [8] B. P. S. K. Klaten, *PROFIL LANSIA*
- [9] G. Wiarto, *Tanggap Darurat: Bencana Alam*. Yogyakarta: Yogyakarta: Gosyen Publishing, 2017.
- [10] K. A. (Eds. . Resnick, Barbara, Gwyther, Lisa P., Roberto, *Resilience in Aging*. New York: SpringerLink, 2011.
- [11] J. E. NG Castle, "The health consequences of relocation for nursing home residents following Hurricane Katrina. *Res Aging*," 33, vol. 6, pp. 661–667, 2011.
- [12] J. K. Kamara, N. Wali, K. Agho, and A. M. N. Renzaho, "Resilience to climate-induced disasters and its overall impact on well-being in Southern Africa: a mixed-methods systematic review protocol," pp. 5–10, 2018.
- [13] G. L. Wrenn *et al.*, "The Effect of Resilience on Posttraumatic Stress Disorder in Trauma-Exposed Inner-City Primary Care Patients," *J. Natl. Med. Assoc.*, vol. 103, no. 7, pp. 560–566, 2011.
- [14] M. I. Farisi, "Pengembangan Asesmen Diri Siswa (Student Self-Assessment) sebagai Model Penilaian dan Pengembangan Karakter," *Kongr. Ilm. Nas.*, pp. 1–10, 2012.
- [15] E. Combaz, *Disaster resilience: Topic guide*. Birmingham, UK: Birmingham UK: University of Birmingham, 2014.
- [16] BNPB, "Potensi dan Ancaman Bencana.," 2017.
- [17] BNPB, *Buku panduan pengenalan karakteristik bencana dan upaya mitigasinya di Indonesia*. Jakarta: BNPB, 2010.
- [18] CRED, *Disaster Manegement: A Disaster Manager's Handbook*. Manila: ADB, 2012.
- [19] S. Suwarningsih, L. Nurwidiasmara, and Z. Mujahidah, "Lansia Dalam Menghadapi Bencana Di Kota Bogor," *J. Ilm. Kesehat.*, vol. 11, no. 2, pp. 134–146, 2019.
- [20] I. Nurhidayati and E. Ratnawati, "Kesiapsiagaan Keluarga dengan Lanjut Usia pada Kejadian Letusan Merapi di Desa Balerante Kecamatan Kemalang," *J. Keperawatan dan Kesehat. Masy.*, vol. 7 No. 1, 2018.
- [21] National Disaster Management Authority (NDMA), "National Policy Guidelines on Vulnerable Groups in Disasters.," *Pakistan: National Disaster Management Authority*, 2014.
- [22] B. P. S. K. Klaten, *PROFIL LANSIA KABUPATEN KLATEN 2017*. 2017.
- [23] G. Wiarto, *Tanggap Darurat: Bencana Alam*. Yogyakarta: Yogyakarta: Gosyen Publishing,

- 2017.
- [24] K. A. (Eds. . Resnick, Barbara, Gwyther, Lisa P., Roberto, *Resilience in Aging*. New York: SpringerLink, 2011.
- [25] J. E. NG Castle, "The health consequences of relocation for nursing home residents following Hurricane Katrina. *Res Aging*," 33, vol. 6, pp. 661–667, 2011.
- [26] J. K. Kamara, N. Wali, K. Agho, and A. M. N. Renzaho, "Resilience to climate-induced disasters and its overall impact on well-being in Southern Africa: a mixed-methods systematic review protocol," pp. 5–10, 2018.
- [27] G. L. Wrenn *et al.*, "The Effect of Resilience on Posttraumatic Stress Disorder in Trauma-Exposed Inner-City Primary Care Patients," *J. Natl. Med. Assoc.*, vol. 103, no. 7, pp. 560–566, 2011.
- [28] M. I. Farisi, "Pengembangan Asesmen Diri Siswa (Student Self-Assessment) sebagai Model Penilaian dan Pengembangan Karakter," *Kongr. Ilm. Nas.*, pp. 1–10, 2012.
- [29] C. P. Heppenstall, T. J. Wilkinson, H. C. Hanger, M. R. Dhanak, and S. Keeling, "Impacts of the Emergency Mass Evacuation of the Elderly From Residential Care Facilities After the 2011 Christchurch Earthquake," pp. 419–423, 2013.
- [30] L. Brockie and E. Miller, "Understanding Older Adults' Resilience During the Brisbane Floods: Social Capital, Life Experience, and Optimism," vol. 11, no. 1, 2017.
- [31] C. L. Mann *et al.*, "Fukushima Triple Disaster and the Road to Recovery: a Qualitative Exploration of Resilience in Internally Displaced Residents," 2017.
- [32] C. L. Thomas, "Exploring Resiliency Factors of Older African American Katrina Survivors Exploring Resiliency Factors of Older African American Katrina Survivors," no. October 2014, pp. 37–41, 2012.
- [33] S. Hrostowski and T. Rehner, "Journal of Gerontological Social Work Five Years Later: Resiliency Among Older Adult Survivors of Hurricane Katrina Five Years Later: Resiliency Among Older Adult Survivors of Hurricane Katrina," no. December 2014, pp. 37–41, 2012.
- [34] Jessica Hartog, *Disaster resilience in an ageing world: How to make policies and programmes inclusive of older people*. 2014.
- [35] G. Mahendra, "Kapasitas Kelembagaan dan Kearifan Lokal dalam Antisipasi Penanggulangan Bencana Merapi Tahun 2010 Di Kabupaten Klaten (Studi Kasus Di Desa Balerante Kecamatan Kemalang)," *J. Ilmu Pemerintahan. Diakses pada Hari Rabu 20 Februari 2019 Pukul 2230*, 2014.
- [36] P. Longstaff, N. Armstrong, K. Perrin, W. M. Parker, and M. Hidek, "Building Resilient Communities: A Preliminary Framework for Assessment," *Homel. Secur. Aff.*, vol. 6, no. 3, 2010.
- [37] M. Syah, *Edisi Revisi: Psikologi Pendidikan dengan suatu pendekatan baru*. Bandung: Bandung : PT. Remaja Rosdakarya, 2013.
- [38] S. M. Nasution, *Resiliensi Daya Tahan Menghadapi Trauma Kehidupan*. Medab: USU Press, 2011.
- [39] A. V. M. Rini, "Resiliensi Siswa SMA Negeri 1 Wuryantoro," *Universitas Sanata Dharma Yogyakarta*, 2016.