Jurnal Aisyah: Jurnal Ilmu Kesehatan

Volume 8, Issue 4, 12 2023, p. 1695–1703
ISSN 2502-4825 (print), ISSN 2502-9495 (online)

The Influence of Knowledge, Attitude and Self Efficacy On The Preparedness Of The Elderly In Facing Disaster

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ABSTRACT

In occurance of calamity, the elderly develops a particularly vulnerable population. Handling to initiative catastrophe victims properly and immediately will result in fewer casualties. Mitigating preparedness, particularly for the elderly, is one step used to lessen the effects of disasters. Many elderly people suffer because they are not well prepared to deal with disasters, such as by not having an emergency plan or appropriate knowledge of disasters. The main objective of this study is to determine the preparedness disaster of elderly in relation to their knowledge, attitudes, and self-efficacy. This type of research was quantitative with a cross-sectional design. The research sample consisted of 280 people using random sampling techniques. The data was analized with linear regression t-test to determine the influence of knowledge, attitude, and self-efficacy of elderly population readiness. The F-test is used to determine the simultaneous influence of knowledge, attitudes, and self-efficacy on the preparedness of the elderly in facing a natural catastrophe. The results show the characteristics of most respondents were 153 women (54.6%), the majority were elderly aged 55-65 years as many as 180 people (64.2%) and the majority of elderly people lived with their partner (husband/wife). The results showed that attitude has no influence on disaster preparedness, the calculated t value < t table (-1,351< 1,667), self-efficacy has an influence on preparedness in facing disasters with t calculated > t tabel (3,816> 1,667), the knowledge variable has an influence on the preparedness of the elderly in facing disasters with t count> t table (1,974> 1,667). These results show that there is an influence of self-efficacy on elderly preparedness. Simultaneously knowledge, attitude, and self-efficacy on the elderly preparedness in facing natural disasters with F cunt greater that F table value (6,512> 1,65) and a significance value of 0,000.

Keywords: Knowledge, Attitude, Self-Efficacy, Preparedness, Elderly

INTRODUCTION

Due to the physical location at the confluence of four tectonic plates, Indonesia is one of the nations that is susceptible to calamities (BNPB, 2017). Disasters are harmful events that affect people's lives and are caused by natural factors, resulting in deaths, property loss, environmental harm, and psychological effects (Undang Undang No. 24 Tentang Penanggulangan Bencana, 2007). In 2021 BNPB recorded 3,092 disasters, 1,298 floods, 804 extreme weather events, 632 landslides, 265 forest and land fires, 45 tidal waves, and abrasion, 32 earthquakes, 15 droughts and mountain eruptions. The impact of the disaster resulted in 8,426,609 people suffering and being displaced, 14,116 injured, 665 dead and 95 missing, 142, 179 houses damaged, 3,704 public facilities, 509 offices and 438 bridges. District X is a disaster-prone area. In 2021 there were 93 disaster events. The impact was that 47 houses were heavily damaged, 22 houses were slightly damaged, 42 houses were flooded, damage to several public facilities such as electricity poles, places of worship and offices (BPBD Kabupaten X, 2021).

Disaster preparedness is an activity before the disaster occurs with the aim of developing an operational capacity ad facilitating an effective response when overcoming the calamity, which is affected by knowledge, attitude, and self-efficacy. Improving preparedness requires knowledge. The knowledge that must be possessed about disasters are the awareness and the preparedness of disaster, including the understanding of the appropriate self-rescue actions when a disaster occurs, the actions and equipment that need to be prepared before a disaster occurs. Preparedness is a series of activities carried out to anticipate disasters through organization and appropriate and effective steps. Preparedness is an action taken in anticipation of a disaster to ensure that the actions taken can be implemented appropriately and effectively during and after a disaster occurs (*Undang Undang No. 24 Tentang Penanggulangan Bencana*, 2007). Ningtyas (2015) stated that preparedness is an effort to made to reduce the risk of disasters.

Andini et al., (2019) stated that knowledge and attitude were a part of the preparedness factors to disaster. Self-efficacy is prior ro preparedness facing the disaster. A research by Mariam et al., (2021) was found that there is an impact of knowledge, attitude, disaster training, and self-efficacy to disaster preparedness. Individual evaluation of his abilities to do his task when needed can affect his readiness to disaster. Self-efficacy can improve many plans and their perseverance in implementating the plans. Chotimah (2019) which states that there is an influence of attitudes on preparedness in facing disasters. Attitudes are divided into positive attitudes and can be negative. Someone who has a positive attitude tends to take pleasant actions, hoping for something good, while a negative attitude tends to stay away, avoiding certain objects (Notoadmodjo, 2018). Knowledge and attitude of the head of the family have an influence on internal community preparedness facing disaster (Harahap et al., 2015)

Olderly population is a vulnerable group in emergency. Handling the disaster victims with accuracy and rapidness will reduce the number of victims due to the delay of the rescue action of the vulnerable groups (Mohammad Teja et al., 2015). An action to overcome the impact of the disaster are preparedness mitigation particularly in older age population. Many of the olders become victims because of the unreadiness of facing the disaster such as do not have an emergencies planning and do not expose to sufficient information about the disaster preparedness (Suwarningsih et al., 2019). A study by Jannah & Aini (2020) has found that 81,2% of the older age population had not ready to face the disaster. Rahmadina & Susanti (2019) has stated through their study that 62,5% had not ready when faced the disaster. The conclution based on the phenomena was disaster preparedness was needed by an older age population. The purpose of this study was to determine influencing of knowledge, attitudes, and self-efficacy due to the elderly disaster preparedness.

METHOD

Participant characteristics and research design

This quantitative study uses a cross-sectional methodology (Sugiyono, 2016). Independent variable data and dependent variables are collected and assessed at one time. Expected with Using this method, it can be seen the influence of knowledge, attitudes, and self-efficacy on the preparedness of the elderly in facing disasters. The older person participants in this study were people that resided in disaster-prone locations. There were 280 responses to the survey. Random sampling was used to take the samples.

Sampling procedures

The sample size for the quantitative research was 280 respondents using G Power 3.1.9.4 software. The sample requirements include senior citizens aged 55 to 74. capable of reading and ready to respond.

Measures and covariates

The instrument used was a questionnaire of knowledge, attitudes, self-efficacy and disaster preparedness which was compiled by the researcher himself and modified by the researcher based on existing literature and had been tested for validity and reliability. The knowledge questionnaire consists of 14 question items, the attitude questionnaire consists of 10 questions. The instrument used to measure self-efficacy is an adaptation of the General Self-Efficacy Scale which measures self-efficacy as a whole, consisting of 10 items and using a Likert model scale

with five answer choices, namely: very unsuitable, not suitable, neutral, suitable, very suitable. After testing the validity of this instrument, the calculated r value was obtained from 0.496 to 0.897.

Data analysis

With the aim to determine whether knowledge, attitudes, and self-efficacy affected elderly people's preparedness for natural disasters, data analysis applied a linear regression test with a partial t test. The researchers next conducted an F test to assess whether the knowledge, attitude, and self-efficacy variables had an independent or dependent effect on how well-equipped the elderly were for natural catastrophes. Before carrying out the t test and F test, the researcher first tested the data normality and data linearity.

The researcher performed a data normality test before running the t test and F test. The findings of the Shapiro Wilk data normality test provided a knowledge significance value of 0.062, attitude significance 0.253. Self-efficacy significance 0.061. The significance of preparedness is 0.084.

RESULTS AND DISCUSSION

Variable	F	%
Gender		
Male	127	45,4%
Female	153	54,6%
Age		
55-65 tahun	180	64,2%
66-74 tahun	120	35,8%
75-90 tahun		
Live with		
Alone	30	10,71%
Husband/Wife	190	67,85%
Son/Daughter	60	21,4%

Tabel 1. Demographic Characteristics of Respondents

Based on the research results, it can be seen that the characteristics of the majority of respondents were 153 women (54.6%), the majority were elderly aged 55-65 years as many as 180 people (64.2%) and the majority of elderly people lived with their partner (husband/wife). The results of this study are in accordance with research Lisa Rahmadina & Susanti (2019) regarding the preparedness of the elderly, it was found that the majority of elderly people were 65.5% and the majority of elderly people were female, 55.1%. The elderly are a vulnerable age and have a higher morbidity rate than the younger population. According to the World Health Organization (WHO), older adults are a vulnerable population who may be at greater risk in disasters. The population aged 65 years or older will be negatively impacted over time. Older adults have less physical abilities, physiological changes including decreased bone strength, decreased muscle function predispose older people to seek help which can increase vulnerability in disasters. In accordance with research Suwarningsih et al. (2019) based on statistical tests, the average age of the elderly is obtained 54.31 years with a standard deviation of 6.854 years. The youngest elderly person is 45 years old and the oldest is 73 years old. After passing the age (40-60 years), a person's ability to capture information and thought patterns will decrease (Wawan & Dewi, 2011). In the elderly, the central nervous system has experienced several

changes such as in the elderly brain, which were in the elderly due to aging, the brain loses 100,000 neurons. Neurons can send signalsto thousands of other cells at a speed of 200 miles/hour. Severe cerebral atrophy occurs.The brain declines 100% between the ages of 30-70 years. Gradually, the dendrite protrusions of the neurons disappear followed by swelling of the dendrites and stem cells, progressive fragmentation and cell death occur. In all cells there are deposits of lipofuscin formed in the cytoplasm, probably originating from lysosomes or mitochondria. RNA, Mitochondria and cytoplasmic enzymes disappear, dialin inclusions eosinophils and lewy bodies, neurofibrillary thinning and granulovacuolar degeneration. Corpora amylase found everywhere in brain tissue. These various degenerative changes increase in more individuals from 20 years which causes impaired perception and analysis and decreased sensory input.

Variable	F	%
Knowledge		
Good	87	31,1%
Not Good	193	54,6%
Attitude		
Positve	220	78,6%
Negative	60	21,4%
Self-Efficacy		
Positve	150	53,6%
Negative	130	46,4%
Preparedness		
Good	129	46,07%
Not Good	151	53,93%

Table 2. Frequency Distribution of Preparedness, Knowledge, Attitudes and Self-Efficacy of the Elderly in Facing Disasters

Based on the table, most of the respondents' knowledge is 68.9% lacking. Most respondents' attitudes were positive at 78%, the majority of respondents' self-efficacy was 53.6% and the majority of respondents' preparedness was poor at 53.93%. The results of this study are in accordance with (Lisa Rahmadina & Susanti, 2019), it was found that 62.5% of elderly people were not prepared to face disasters. The results of this study are in accordance with (Supriandi, 2020) which showed that 81.2% of elderly people had insufficient knowledge of disaster preparedness and 84.4% of elderly people had poor attitudes towards disaster preparedness. The results of this study are also in accordance with research (Hilman Syarif, 2015) the average self-efficacy of respondents was 27.89 (±6.42). A person with high self-efficacy is better prepared to face disasters because self-efficacy increases the number of plans a person develops and their persistence in implementing them. The results of this research are also in accordance with (Simandalahi, 2022), it was found that 59.4% of respondents, 63.8% of respondents had low self-efficacy in dealing with disasters. Based on the researcher's analysis, it can be concluded that people generally reach the age of 4elderly experiencing decreased body organ function and nervous system function changes with increasing age. Maryati (2013) stated that body functions in the elderly, such as strength or energy decreases by 88%, visual function decreases, and the musculoskeletal system causes decreased muscle and joint flexibility, decreased cartilage function, reduced density bones, decreased muscle strength and progressive reduction in brain mass due to reduced nerve cells not replaceable. In the elderly, the ability to remember is one of the most frequent cognitive functions decrease. Various kinds of cognitive disorders are experienced, such as easy forgetting, disorientation, disturbances in the ability to think and solve problems. Until age affects the memory of the elderly and things must be done that can hone the cognitive abilities of the elderly to influence the preparedness of the elderly in facing disasters

Model	B	Standardized Coeficient Beta	T	Sig
Attitude	-0,21	0,015	-1,351	0,178
Self Eficacy	0,278	0,073	3,816	0,000
Knowledge	0,163	0,083	1,974	0,049

Table 3. Partial t test of the influence of knowledge, attitudes, and self-efficacy of the elderly In Facing Natural Disasters

Based on the research results for attitudes, the value obtained is t Calculated < t Table (-1.351 < 1.667) and Sig > 0.05. This means that the attitude variable has no effect on the preparedness of the elderly in facing natural disasters. For the self-efficacy variable t Count > t Table (3.816> 1.667) and sig < 0.05. Knowledge variable t Count > T Table (1.974> 1.667) and sig < 0.005. These results show that there is an influence of self-efficacy on the preparedness of the elderly. There is an influence of knowledge on the preparedness of the elderly in facing natural disasters.

ANOVA

Model	Sum of Square	Df	Mean Square	F	Sig
Regresion	54.505	3	18.168	6.512	0.000
Residual	77.067	276	2.790		
Total	824.571	279			

Table 4. Simultaneous F Test on the Influence of Knowledge, Attitudes and Self-Efficacy of the Elderly in Facing Natural Disasters

The Influence of Knowledge on Elderly Preparedness in Facing Disasters

The results of this research are in accordance with (Supriandi, 2020), it was found that there was an influence of knowledge on preparedness in facing disasters with a p value of 0.049. Improving preparedness requires knowledge. The knowledge that must be possessed about disasters is knowledge about disasters and disaster preparedness, including an understanding of appropriate self-rescue actions when a disaster occurs and the actions and equipment that need to be prepared before a disaster occurs (*Undang Undang No. 24 Tentang Penanggulangan Bencana*, 2007). Damayanti et al., (2017)) stated that individual knowledge is generally obtained from experience from various sources such as mass media, electronic media, manuals, health workers, poster media, close relatives and so on. This knowledge can help certain beliefs so that someone behaves according to those beliefs. Elderly knowledge is an important thing to improve. Knowledge will help the elderly in their daily activities and the elderly must increase their awareness in facing disasters. So that the elderly is more aware of disasters and know how to deal with disasters. Knowledge is the main key that can influence people's attitudes and awareness to be prepared and alert in facing disasters. Elderly Those who have a good attitude are elderly people who are ready to face disasters based on their existence good knowledge of the signs of a disaster so that the community is always prepared to act evacuation at any time. And it's not just knowledge that is important in dealing with disasters, Attitude in facing disasters is very important, because attitude is a state that must be prepared facing an event that is happening (Harahap et al., 2015).

The Influence of Self-Efficacy on Elderly Preparedness in Facing Disasters

The results of this research are in accordance with Simandalahi (2022), showing that there is a significant relationship between self-efficacy and community preparedness to face flood disasters (p-value 0.026 < 0.05). If someone has positive self-efficacy, they are better prepared

to face and overcome the impact of natural disasters, meaning that people who have good self-efficacy in dealing with natural disasters will have better preparedness when a disaster strikes and vice versa, when people are less well off, then preparation they will be fewer when the disaster occurs (Alwisol, 2004).

The Influence of Attitudes on Elderly Preparedness in Facing Disasters

Based on the results of attitude research, it was obtained that the calculated t value < t table (-1.351 < 1.667) and Sig > 0.05. The results of the research show that there is no influence of attitude on the preparedness of the elderly in facing disasters. This research is not in accordance with research by Chotimah (2019) which states that there is an influence of attitudes on preparedness in facing disasters. Attitudes are divided into positive attitudes and can be negative. Someone who has a positive attitude tends to take pleasant actions, hoping for something good, while a negative attitude tends to stay away, avoiding certain objects (Notoadmodjo, 2018). Knowledge and attitude of the head of the family have an influence on internal community preparedness facing disaster (Harahap et al., 2015).

The Influence of Knowledge, Attitude and Self-Efficacy on the Preparedness of the Elderly in Facing Disasters

The results of this research are in accordance with (Mariam et al., 2021) who stated that knowledge, attitude and self-efficacy simultaneously influence preparedness in facing disasters. Knowledge and attitudes are part of the disaster preparedness factors. A person's preparedness in facing disasters requires self-efficacy (Andini et al., 2019). The results of this research are also in accordance with Chotimah (2019) who found that knowledge and attitudes have a simultaneous influence on preparedness in facing disasters. Knowledge is an important factor in influencing preparedness in facing disasters (LIPI–UNESCO/ISDR, 2006). Individuals with high self-efficacy feel they can prevent damage and become independent if a disaster occurs through their own preparation and efforts. People's beliefs about their efficacy influence their alertness to potential threats and how they perceive them using cognitive processes. Self-efficacy manages strong stressors and influences not only how threats are interpreted but also the extent to which they cope. The stronger the sense of self-efficacy, the more courageous the individual will be in facing problematic situations that increase stress.

LIMITATION OF THE STUDY

This research is limited to only using questionnaires without providing treatment or knowledge intervention to respondents. Researchers also did not provide interventions in the form of disaster preparedness training.

CONCLUSIONS AND SUGGESTIONS

Attitude has no effect on elderly preparedness in facing natural disasters. Knowledge and self-efficacy have a positive influence on elderly preparedness in facing natural disasters. Knowledge is an important factor in influencing preparedness in facing disasters. Knowledge is the main key that can influence people's attitudes and awareness to be prepared and alert in facing disasters. Body functions in the elderly, such as strength or energy decreases by 88%, visual function decreases, and the musculoskeletal system causes decreased muscle and joint flexibility, decreased cartilage function, reduced density bones, decreased muscle strength and

progressive reduction in brain mass due to reduced nerve cells not replaceable. In the elderly, the ability to remember is one of the most frequent cognitive functions decrease. Various kinds of cognitive disorders are experienced, such as easy forgetting, disorientation, disturbances in the ability to think and solve problems. Until age affects the memory of the elderly and things must be done that can hone the cognitive abilities of the elderly to influence the preparedness of the elderly in facing disasters. Elderly Those who have a good attitude are elderly people who are ready to face disasters based on their existence good knowledge of the signs of a disaster so that the community is always prepared to act evacuation at any time. Individuals with high self-efficacy feel they can prevent damage and become independent if a disaster occurs through their own preparation and efforts. People's beliefs about their efficacy influence their alertness to potential threats and how they perceive them using cognitive processes. Self-efficacy manages strong stressors and influences not only how threats are interpreted but also the extent to which they cope.Someone who has positive self-efficacy is better prepared to face and overcome the impacts of natural disasters. Simultaneously knowledge, attitude, and self-efficacy influence preparedness in facing disasters.

ETHICAL CONSIDERATIONS

This research has passed the ethical test by the Health Research Ethics Committee of the Health Polytechnic of the Ministry of Health of Medan with number 01/1736/KEPK/ POLTEKKES KEMENKES MEDAN YEAR 2023.

FUNDING STATEMENT

This research was funded by DIPA Poltekkes Kemenkes Medan (List of Filling in the implementation of the Medan Poltekkes Budget with No. 024.12.263211/2023. Nomor 30 November 2022. Poltekkes Kemenkes Medan dengan MAK Nomor 5034. DDC.001.052.A. 52.12.19.

CONFLICT OF INTEREST STATEMENT

Sitohang stated that there is no conflict of interest in this research. All authors declare that they have no conflicts of interest.

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