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Article Reviews

Factors Related to Community Preparedness in Dealing with a Mountain Disaster Erupting: A Literature Review

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Abstract

Indonesia is an archipelagic country with the longest volcano in the world. Indonesia has 127 active volcanoes or about 13% of the world's active volcanoes in Indonesia. That makes this country has the largest number of volcanoes in the world. To prevent the occurrence of many casualties during a volcanic disaster, community preparedness is needed in dealing with disasters. Therefore, this study wants to know the factors related to community preparedness in dealing with volcanic eruption disasters based on a literature review. There are several search engines to find relevant journal articles, including Google Scholar, Proquest, and Pubmed, then established inclusion and exclusion criteria using the PICOS method to select and evaluate the quality of papers related to the topic. The search keywords employed were "preparedness factors" and "volcanic eruptions" for Google Scholar and "preparedness factors" and "volcano eruption" for ProQuest and PubMed. The journal article search instrument or tool used is zetero. Through study literature, it shows that there are factors related to the community's preparedness to face a disaster of volcano eruptive; It is the factor of knowledge and attitude. There are several differences in the research findings for knowledge and attitude factors. One researcher establishes a link between preparedness and knowledge and attitudes, and several knowledge and attitude studies do not discuss the link between community preparedness and volcanic eruptions. Meanwhile, there is no mention of the relationship between community preparedness and volcanic eruptions in the policy and guiding considerations, disaster plans, early warning systems, or resource mobilization capabilities. There is a link between knowledge and attitudes toward community preparedness to face a volcanic eruption. In contrast, from 6 articles, there was no discussion about the relationships between policy factors and guidelines, disaster plans, early warning systems, and resource mobilization capacity for community preparedness to face a disaster of volcanic eruptions.

Keywords *Factor Preparedness, Volcanic Eruptions*

INTRODUCTION

Indonesia is an archipelagic country with the longest volcanic arc in the world. Indonesia has 127 active volcanoes, or approximately 13% of the world's active volcanoes are located in Indonesia, making this country the owner of the most volcanoes in the world. In 1815 Mount Tambora on the island of Sumbawa, West Nusa Tenggara, erupted with 10,000 fatalities and in 1883, Mount Krakatau erupted with 36,000 deaths (BNPB,2022).

To prevent the occurrence of many fatalities during a volcanic eruption, community preparedness is necessary to deal with disasters (Soekardi & Dewi, 2020). Preparedness is an act of active protection carried out when a disaster occurs and provides short-term solutions to assist in long-term recovery (Fitriadi et al., 2017).

Several factors influence community preparedness in dealing with volcanic eruptions; as the results of previous research conducted by the Community Health Center in the working area of the Ternate City Health Service, 24 respondents had good knowledge. In comparison, 17 respondents had sufficient knowledge of volcanic eruptions (Husen et al., 2020). The results of a previous study

conducted at Campus 2 of Respati University, Yogyakarta, were 50 respondents, 49 respondents had high knowledge, while 23 respondents on preparedness were mostly lacking (Rahil & Amestiasih, 2019). As well to the results of previous research conducted in Klangon Hamlet, Pandansari Village, Ngantang District, Malang Regency (10 KM radius from the crater of Mount Kelud), 134 respondents had good knowledge, and more than half of the 134 respondents had an attitude of preparedness. In addition, the results of research conducted previously in Yogyakarta, researchers found that almost all people did not understand the principles of disaster management regulated in the Law on disaster management when dealing with the eruption of Mount Merapi, especially in the emergency response section, in Sleman Regency and Magelang Regency (Triyana & Wibowo, 2011).

Based on the background of the existing problems, the study conducted a literature review on factors related to community preparedness in dealing with volcanic eruptions to broadly identify factors related to community preparedness in dealing with volcanic eruptions.

LITERATURE REVIEW

All articles that were the sample of this study were non-experimental studies that used several research methods, including quantitative descriptive (Rahil & Amestiasih, 2019; Larasati, 2020; Runiari & Ruspawan, 2021; Tyas & Pujianto, 2020), qualitative descriptive (Irawan et al., 2022) and combination or Mixed Methods which combined quantitative and qualitative methods (Kaelan et al., 2020). The sampling technique in this study used several sampling methods, such as total sampling (Kaelan et al., 2020; Runiari & Ruspawan, 2021), random sampling (Rahil & Amestiasih, 2019; Larasati, 2020), purposive sampling (Runiari & Ruspawan, 2021; Tyas & Pujianto, 2020), surveys and in-depth interviews (Irawan et al., 2022).

The population used in this research journal article varies, namely nurses (Kaelan et al., 2020), the general public (Larasati, 2020), pregnant women and health workers (midwives) (Runiari & Ruspawan, 2021), campus academics (Rahil & Amestiasih, 2019), school principals, teachers, parents, elementary school students and the surrounding community (Irawan et al., 2022), junior high school students (Tyas & Pujianto, 2020). Then the sample used in this research journal article ranged from 30-250 respondents.

While the method of collecting data in research also varies, namely using questionnaires (Rahil & Amestiasih, 2019; Runiari & Ruspawan, 2021; Tyas & Pujianto, 2020), combining questionnaires, observation and interviews (Kaelan et al., 2020), questionnaires and documentation studies (Larasati, 2020), in-depth interviews and documentation (Irawan et al., 2022).
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RESEARCH METHOD

This research uses the literature review method, which will be carried out in February-March 2022. The research is assisted by a journal article search tool, namely zetero, to make it easier for researchers to do citations and find the information available on a website page and save it on a computer or a kind of personal digital library just one click away. Researchers searched through the databases, namely Google Scholar, ProQuest, and PubMed, which are suitable for review by specifying keywords, criteria inclusion, and criteria exclusion. The following are the criteria for inclusion and exclusion.

Table 1. Criteria Inclusion and Exclusion

Criteria	Inclusion	Exclusion
Population	Articles published in national journals from database or	Articles published in national journals from database or search

	search engine which are different and related to the research variables, namely preparedness factors, volcanic eruptions	engine which are different and not related to the research variables, namely preparedness factors, volcanic eruptions
Intervention	No intervention	There is an intervention
Comparation	There is no comparison factor	There is a factor of comparison
Outcome	There is community preparedness before a volcanic eruption occurs	There is no community preparedness before a volcanic eruption occurs
Study design	Do not use Pra-experimental, Systematic or Literature Review (bibliography)	Use Pra-experimental, Systematic or Literature Review (bibliography)
Publication Year	Journal published in 2016 to 2021	Journals published before 2016
Language	Indonesian and English	Besides Indonesian and English

Keywords on Google scholar are "preparedness factors" and "volcano eruption". Whereas the keywords on ProQuest and PubMed are "preparedness factors" and "volcano eruption". Figure 1 presents the research flowchart.
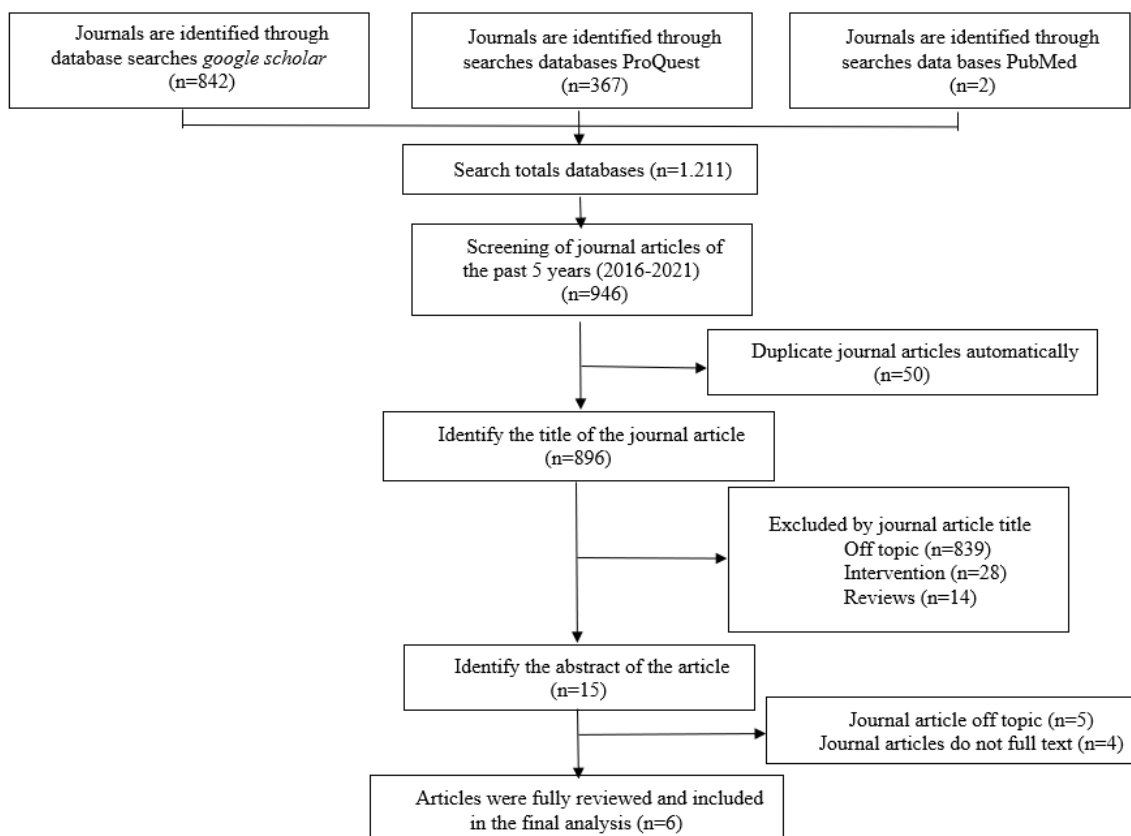

Figure 1. Research Flowchart

Table 2. Result of Journal Analysis

No	Name and Year	Title	Design	Sampling	Instrument	Results
1	Kaelan et al. (2020)	Determinant Factors of Nurse Preparedness for the Mount Eruption (Gamalama) Disaster at the Public Health Center in the Ternate City Health Office	*Mixed Methods or* combination method that combines quantitative methods with qualitative methods	*Total sampling* with a total sample of 41 respondents	Questionnaires, observations and interviews	The knowledge variable becomes a very influential variable related to preparedness. While this type of qualitative research uses explanatory methods, from the results of questions and answers with respondents who have low skills due to limited training and disaster simulations for respondents, the management of the Puskesmas should have held training and simulations in stages.
2	Larasati, 2020	Study of the Level of Community Preparedness in Facing the Eruption of Mount Kelud in Disaster Prone Areas (KRB) II in Kebonrejo Village, Kepung District, Kediri Regency	Quantitative descriptive	*Random sampling* with a total sample of 100 respondents	Questionnaire and documentation study	Respondents' preparedness was in the high category, however in several factors it was in the low category, namely the emergency response plan and early warning system factors. The emergency response plan factor for the respondents was that they did not have information on evacuation guides but relied on the knowledge that they generally made. While the early warning system factor, respondents used traditional techniques such as loudspeakers and kentongan.
3	Runiari & Ruswan (2021)	Preparedness of Pregnant Women and Health Workers for Mount Agung Eruption	Using a quantitative descriptive approach, cross sectional	Pregnant women with techniques*purposive sampling* with a total sample of 250 respondents while health workers (midwives) with techniques*total sampling* with a total sample of 30 respondents	Questionnaire	The preparedness of pregnant women and their families in the face of the eruption of Mount Agung was in the good category, namely 132 respondents (52.80%), the sufficient category, 72 respondents (28.8%) and 46 respondents (18.4%) were in the poor category. The preparedness of health workers towards the eruption of Mount Agung was in the good category, namely 25 respondents (83.3%) and 5 respondents (16.6%) in the sufficient category, no respondents were in the less category. Therefore, the preparedness of health workers is better than that of pregnant women and their families.
4	Rahil & Amestiasih (2019)	Knowledge and Preparedness of the Academic Community in Facing the Mount Eruption Disaster at Campus II Respati University Yogyakarta	Quantitative descriptive analytic approach, cross sectional	*Random sampling* with a total sample of 50 respondents	Questionnaire	The knowledge of 49 respondents (98%) is in the high category, while the preparedness of 23 respondents (46%) is mostly in the less category.
5	Irawan et al. (2018)	School Preparedness toward Kelud Eruption Hazard (Case Study on Kelud Disaster Prone Area)	Qualitative descriptive	Survey methods and in-depth interviews using a qualitative approach	In-depth interviews and documentation	Preparedness before a disaster is still low. The knowledge of the respondents only came from the experience of the eruption of Mount Kelud in 2014.
6	Tyas & Pujianto (2020)	Students Perception Toward Their Preparedness for Volcanic Eruption Disaster	Quantitative descriptive	Purposive sampling with a total sample of 90 students	Questionnaire	Respondents' understanding of volcanic eruption disaster preparedness for knowledge and attitudes of respondents about disaster risk is very good with a value of 3.28. Respondents' knowledge and attitudes towards the early warning system are in good criteria with a value of 3.08. Factors of knowledge and

attitudes of respondents about the disaster emergency response plan in the good criterion value of 2.98. While the knowledge factor and the attitude of the respondent will mobilize resources, the value is 2.88 with good criteria.

FINDINGS AND DISCUSSION

1. **Determinant Factors of Nurse Preparedness for the Mount Eruption (Gamalama) Disaster at the Public Health Center in the Ternate City Health Office**

   This research was conducted at the Puskesmas in the working area of the Ternate City Health Service using a combination research method combining quantitative methods and qualitative methods. The population in this study were all nurses in the three Community Health Centers in the working area of the Ternate City Health Office, consisting of the Siko Nursing Health Center, the Sulamadaha Health Center, and the Kalumpang Health Center. While the sampling technique used Total Sampling with a total sample of 41 respondents. Then for data collection methods used by researchers, namely questionnaires for quantitative methods as well as observation and interviews for qualitative methods (Kaelan et al., 2020).

   The results of this study prove the preparedness of nurses in three Community Health Centers in the working area of the Ternate City Health Office; out of a total of 41 respondents in the ready-to-standby group of respondents with good knowledge, seven respondents as well as in the group of respondents who were not ready to standby as many as 17 respondents. On the other hand, for knowledge, the respondent and those who were not ready to stand by, as many as 17 respondents were quite ready. This study proves that there is a relationship between knowledge and the preparedness of nurses at the Public Health Center in the working area of the Ternate City Health Office. Whereas preparedness of nurses in three Community Health Centers in the working area of the Ternate City Health Service from a total of 41 respondents in the skilled respondent group was ready to standby as well as in skilled group respondents were not ready to stand by, the difference is ten respondents. For unskilled respondents on standby, the comparison is seven respondents, and those who are unskilled are not ready to standby as many as 24 respondents. This study proves that there is no relationship between skills and nurse preparedness at the Community Health Center in the working area of the Ternate City Health Office.

2. **Study of the Level of Community Preparedness in Facing the Eruption of Mount Kelud in Disaster Prone Areas (KRB) II in Kebonrejo Village, Kepung District, Kediri Regency**

   This research was conducted in the Kebonrejo, Kepung District, Kediri Regency, using a quantitative descriptive research method. The population in this study was 2,496 residents of the Kepung District. The sample size was calculated using the Slovin formula and the random sampling technique, so there were 100 respondents in this study. Then the data collection method was used, namely questionnaires and documentation studies (Larasati,2020).

   The results of this study prove that community preparedness is in the high category. However, it is in a low category in several factors, namely the emergency response plan and early warning system factors. Factors in the community's emergency response plan, there is no guideline for community evacuation, only relying on generally carried out

experience. The factor of the early warning system is that the community only uses traditional methods such as *kentongan* and speakers and the community is less conditioned when the Mount Kelud eruption disaster occurs.

3. **Preparedness of Pregnant Women and Health Workers for Mount Agung Eruption**
   This research was conducted in the working area of the Bebandem Health Center, Rendang Health Center and Selat Health Center, Karangasem Regency, Bali Province, using a descriptive quantitative research method with a cross-sectional approach. The sampling technique used purposive sampling with a total sample of 250 second and third-trimester pregnant women residing in the three areas of the puskesmas consisting of 91 respondents from the Bendadem Health Center, 80 respondents from the Rendang Health Center and the Selat Health Center, 79 respondents and a sample of health workers (midwives) 30 respondents were taken using a total sampling technique. Then the data collection method used is a questionnaire (Runjari & Ruspawan, 2021).

   This study's results prove pregnant women's preparedness based on some criteria in the good category. Respondent's knowledge of disasters was mostly in the good category (56.8%) and only 16.8% in the less category. Family disaster preparedness plans are in a good category (58.8%). Disaster warning in good category (58%). Resource mobilization in the good category (45%). So overall preparedness of pregnant women and their families ahead of the eruption of Mount Agung in the good category (52.8) and 18.4% in the less category.

   In comparison, the preparedness of health workers based on criteria is mostly in the good category and none in the less category. Knowledge of health workers about disasters in the good category (80%) and 20% in the sufficient category. Preparedness plan for health workers in the good category (83.3%). Disaster warning in good category (83.3%). Resource mobilization in the good category (80%). Therefore, the overall preparedness of health workers on the eve of the Mount Agung eruption was in a good category (83.3%) and 16.6% in the sufficient category. It can be concluded that in this study, the preparedness of health workers was better than that of pregnant women and their families.

4. **Knowledge and Preparedness of the Academic Community in Facing Mount Eruption Disasters at Campus II Respati University Yogyakarta**
   This research was conducted at Campus II, Respati University, Yogyakarta, using a quantitative descriptive-analytic research method with a cross-sectional approach. The population in this study is the Academic Community of Campus II, Respati University, Yogyakarta. The sample size was calculated using the Slovin formula and random sampling technique, so there were 50 respondents in this study. Then for the data collection method, namely two questionnaires, knowledge and preparedness (Rahil & Amestiasih, 2019).

   The results of this study prove that the majority of the knowledge of the Academic Community at Campus II at Respati University Yogyakarta when approaching a volcanic eruption is in the high category (98%), while the preparedness of the Academic Community at Campus II at Respati University Yogyakarta when approaching a volcanic eruption is mostly in the less category (46%).

5. **School Preparedness toward Kelud Eruption Hazard (Case Study on Kelud Disaster Prone Area)**
   This research was conducted (Irawan et al., 2022) at SDN Puncu 1 and SDN

Pandansari 3 using a descriptive qualitative survey method and in-depth interviews with school principals, teachers, parents, students and the community living around the school. The results and discussions of this study prove that preparedness in the face of a disaster is still low. Respondents' knowledge was only based on the experience of the Kelud eruption in 2014.

6. **Student's Perception Toward Their Preparedness for Volcanic Eruption Disaster**
This research was conducted at SMPN 2 Cangkringan using a quantitative descriptive research method. The sampling technique used purposive sampling with a total sample of 90 respondents. Then the data collection method was used by researchers, namely questionnaires (Tyas & Pujinato, 2020).

The results of this study prove that respondents' perceptions of volcanic eruption disaster preparedness, knowledge and attitudes towards disaster risk meet the very good criteria with a value of 3.28. Knowledge and attitudes towards early warning systems meet the good criteria with a value of 3.08. Knowledge and attitudes towards disaster emergency response plans meet the good criteria with a value of 2.98. While knowledge and attitudes towards resource mobilization meet the good criteria with a value of 2.88.

Discussion
1. **Knowledge and Attitude**
All journal articles in this study discuss knowledge and attitudes towards community preparedness in dealing with volcanic eruptions. The research showed that out of 41 respondents, 24 respondents (100%) had good knowledge of the three Community Health Centers working areas of the Ternate City Health Office. Meanwhile, in the group of respondents who had sufficient knowledge, there were 17 respondents (100%). The possibility of increasing disaster preparedness for nurses with good disaster knowledge is higher than for nurses with sufficient disaster knowledge (Kaelan et al., 2020).

In the research conducted by Larasati (2020), the knowledge factor of the Kebunrejo Village community about the risk of a Mount Kelud eruption disaster shows that the results of the respondents are in the high category, meaning that the respondents know the risk of a Mount Kelud eruption disaster. The level of knowledge possessed by respondents can generally influence the attitude and concern of the community to be ready and alert in anticipation of a volcanic eruption.

Then the research conducted showed that the preparedness of pregnant women who knew about disasters was in the good category (56.8%), and 16.8% were in the less category (Runiari & Ruspawan, 2021). This is because most respondents know the meaning of disaster, natural events that cause disasters, signs and symptoms and the dangers of volcanic eruptions. Knowledge of disaster risk greatly influences attitude and concern for disasters, so being prepared and alert in anticipating volcanic eruptions is very important. In the research conducted, the majority of the knowledge of the academic community at Campus II, Respati University, Yogyakarta, was in the high category (98%) (Rahil & Amestiasih, 2019). This is because most of the respondents have a high school education. Education is directly related to knowledge because it can affect the dissemination and reception of information.

Meanwhile, the results of interviews with teachers' knowledge of disaster mitigation were still very limited. Instead, the teacher should act as a mediator and facilitator supporting the student learning process. The teacher's role is to provide broad

and in-depth lessons so that if the teacher does not have sufficient knowledge about disasters, students will have obstacles or difficulties in obtaining knowledge about disasters (Irawan et al., 2022). Then the results of the interviews showed that students have early knowledge of the types of hazards and the impact of the eruption of Mount Kelud. Moreover, all students do not know the proper steps to deal with danger before a disaster occurs.

Furthermore, in the research conducted, knowledge is the key factor of preparedness (Tyas & Pujianto,2020). The knowledge that should be possessed includes the type, source, location and physical vulnerability of buildings because knowledge can influence the attitude and concern of the community to be ready and alert in anticipating disasters. Of the 6 articles, 3 articles were found which show good category knowledge results (Kaelan et al., 2020; Runiari & Ruspawan, 2021; Tyas & Pujianto, 2020), then 2 articles showed high category knowledge results (Rahil & Amestiasih, 2019; Larasati, 2020), and one article which showed limited knowledge results, because knowledge was only based on eruption experience year 2014 (Irawan et al., 2022).

Knowledge is an essential part of community preparedness. Experience with various hazards provides very important knowledge that every human being must possess, especially in areas threatened by disaster. Disaster knowledge influences people's attitudes and attention to preparedness in predicting disasters (Fauzi et al., 2017). The research results from the six articles that were the sample in this study showed a relationship between knowledge and attitudes and community preparedness in dealing with volcanic eruptions.

2. **Policies and Guidelines**

Of the six journal articles in this study, only 1 article discussed policies and guidelines for community preparedness in dealing with volcanic eruptions, namely research (Larasati, 2020), with the results of policy research and guidelines influencing the high category but tending to be low. This is because, from the experience of the Kebunrejo village government, they already have policies and guidelines related to disaster management. However, some people, in general, do not understand these policies. This is because, in experience in several places, the majority of the people do not understand the existing policies and the people have never participated in activities which are local government policies.

Policies and guidelines are real efforts to implement a disaster preparedness movement. The policies needed are general education policies, emergency response plans, disaster warning systems, resource mobilization, funding, implementing agencies, and infrastructure for disaster emergencies. Policies can be made in various types, but it will be more valuable if it is clearly stated in regulations such as decrees and regional regulations, accompanied by a description of tasks that explain clear responsibilities, tasks and skills. For the policy to be implemented optimally, operational guidelines are needed.

One of the policies made by the leaders of government institutions, namely Law No. 24 of 2007 concerning disaster management, became the basis for the existence of Regional Regulation No. 8 of 2010 concerning BPBD DIY agency regulations (Apriyanti, 2019).

3. **Plans Before Disaster Emergency Events**

Of the six journal articles in this study, two discussed plans ahead of emergency incidents on community preparedness in the face of volcanic eruptions. The research results of the emergency response plan met the very good, good, and low criteria. Those that meet the low criteria are the role of students when choosing an evacuation route and the ability of

students to help the rescue team in the event of a volcanic eruption. Students still think that this is the government's and related agencies' responsibility. On the other hand, disaster risk reduction is the obligation of all parties (Tyas & Pujianto,2020). This is in line with research conducted on the factors that resulted in planning for disaster emergency events in the low category (Larasati, 2020).

From the two articles, 1 article was obtained, which stated plans for disaster emergency events were in a good category, and 1 article stated plans for disaster emergency events were in a low category (Larasati, 2020). An emergency response plan is a plan that is owned by a person or community when an emergency occurs in an area due to a natural disaster (Erlia et al., 2017). According to Muis and Anwar (2018), emergency planning understands what steps have been prepared before a natural disaster. Emergency plans, namely aid, rescue and evacuation, so that victims can be minimized.

4. **Early Warning System**

Of the six journal articles in this study, three discuss early warning systems for community preparedness in the face of volcanic eruptions. The research results conducted disaster warnings are in a good category (58%) (Runiari & Ruspawan, 2021). Disaster hazard warnings include warning signs, and the distribution of information is usually mostly obtained from village officials, the police and the local government. Early warning is very important because it can reduce casualties, property losses, and environmental damage. Therefore, exercises and simulations of early warning are needed if a disaster occurs. This is in line with research conducted early warning includes the delivery of timely information and through trusted institutions so that people who experience a hazard can take action to prevent or reduce risk (Tyas & Pujianto,2020). As well as planning efficient emergency response efforts through sources of information from traditional and local sources.

In the research, the early warning system was in a low category because when a volcanic eruption occurred, it was difficult for the community to be evacuated even though the government had directed them. The community prefers to evacuate after the disaster occurs, and some stay at home to protect their property and livestock so that when a disaster occurs, they do not evacuate to the places that have been provided (Larasati, 2020).

Of the three articles, two showed the results of the early warning system in the good category (Runiari & Ruspawan, 2021; Tyas & Pujianto, 2020), while 1 article showing the results of the early warning system in the low category (Larasati, 2020). The warning system includes warning instructions and the distribution of information in the event of a disaster. A correct warning system is a system in which the community understands the instructions to be conveyed with these early warning signs and knows what to do if, one day, a disaster early warning sign sounds or lights up (Erlia et al.,2017). An early warning system requires training and simulation of what needs to be done if one hears a disaster warning, where and how to protect oneself in special circumstances according to where the community is at the time of a disaster (Muis & Anwar, 2018).

5. **Resource Mobilization Capacity**

Of the six journal articles in this study, 3 articles discussed resource mobilization for community preparedness in dealing with volcanic eruptions. The research results show that mobilizing resources is in a good category (45%) (Runiari & Ruspawan, 2021). Mobilization of resources and human resources (HR), capital, and influential facilities ahead of an emergency is a capability that can support preparedness. On the other hand, resource mobilization can also become an obstacle if the mobilization does not go well.

In the research conducted, the factors that cause resource mobilization are in a

good category because family members participate in seminars, training, skills, and agreements between families to conduct simulation exercises and control disaster preparedness bags regularly (Tyas & Pujianto,2020). Whereas, in research conducted, resource mobilization is in the high category but leads to the low category. This is due to the community's lack of training in disaster management simulations and understanding of the proper way to deal with a volcanic eruption (Larasati, 2020).

Of the three articles, two articles showed the results of resource mobilization in the good category (Runiari & Ruspawan, 2021; Tyas & Pujianto, 2020), and 1 article showed the results of resource mobilization in the high category (Larasati, 2020).

Mobilization of resources is more about capabilities and additional resources in the community, such as using skills such as infrastructure, as well as funds (Muis & Anwar, 2018). Meanwhile, the resources needed are individuals or communities during repair efforts or surviving when a disaster or emergency occurs, sourced from internal or external sources. Source the resources in question are human resources, funding or equipment resources, as well as technical guidance resources and learning provisioning (Erlia et al., 2017).

CONCLUSIONS

Based on the literature review, it was found that there was a relationship between knowledge and attitudes towards community preparedness in dealing with volcanic eruptions. In all the articles, nothing discusses the relationship between policy and guidance factors, planning ahead of disaster events, early warning systems, and capacity mobilization of resources for community preparedness in the face of volcanic eruptions. For other researchers, it is suggested to study journal articles regarding factors influencing disaster preparedness other than volcanic eruptions.

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