

RESEARCH ARTICLE

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The Preparedness Level of Families with Disabilities Children in Facing the Earthquake and Tsunami Disaster in Padang, West Sumatra

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Abstract

Disability groups are groups vulnerable to disaster risk. Most families with disabilities feel worried about defending themselves in the event of a disaster. They are less socialized with disaster mitigation efforts. This research has provided an overview of the preparedness of families with disabilities children in increasing disaster resilience. Analytical research was conducted on families with disabilities children in the city of Padang. Data collection tools in this study used a standard questionnaire from LIPI-UNESCO / ISDR. The data were processed by a computer and analyzed using multiple regression statistical tests. The results showed the preparedness of families with disabilities children in the face of disasters; it was seen that the knowledge category was ready (42.2%), the preparedness plan category was not ready (37.8%), the disaster warning category was not ready (46.7%), the resource mobilization category was not ready (82.2%), the tsunami disaster preparedness index value is 57% (ready category). This research recommended local governments must provide special treatment for people with disabilities by increasing training, seminars, and disaster simulations.

Keywords: family role; disability children; preparedness.

Introduction

According to WHO (2011), disaster is a sudden phenomenon that has a very severe impact on the environment in which you live and requires assistance from outside the community where the incident occurred (WHO, 2011). Disasters are caused by natural and/or non-natural factors that can cause casualties, environmental damage, property losses, and psychological impacts (BNPB, 2018).

Based on data from the World Health Organization (WHO) in 2011, there were around 1 billion people (approximately 15%) people with disabilities worldwide, most of whom are in developing countries (WHO, 2011). When a disaster occurs, not everyone can save themselves easily, such as children, pregnant women, the elderly, and people with disabilities. People with disabilities are a high-risk group who are not seen during a disaster. It was reported that after the 2004 Indian Ocean tsunami, many people with disabilities were unable to escape from the waves and drowned. At Sambodhi Residence in Galle, Sri Lanka, only 41 out of 102 people with disabilities survive; many of those who died were unable to escape (UNISDR, 2014).

The evacuation efforts that the government has implemented have not paid attention to how to rescue groups of people with disabilities. Accessibility of evacuation routes is also considered not representative of the interests and needs of persons with disabilities during a disaster. So the vulnerability and special needs of persons with disabilities need to be considered in planning disaster management programs (Probosiwi, 2013). So that there is awareness, understanding, and disaster mitigation, they must receive appropriate assistance, assistance, and evacuation services; easy access, good refugee locations, water, and sanitation (Herlina and Susanti, 2017).



In an emergency situation, fast and precise decision-making is needed to reduce risk. All family members with disabilities must make a collective agreement to be better prepared for disaster emergencies. The incident scenario was made jointly by all family members and shared roles in each scenario according to the type of disaster. A Family with disabilities children have to be prepared as having knowledge and attitudes towards disasters, first aid skills, mobilizing family members and evacuation skills, preparing food needs that can be stored and durable, and preparing first aid kits at home (UNISDR, 2014).

According to the World Health Organization (WHO), the number of people with disabilities in Indonesia is 10 per cent of Indonesia's population, which is around 23.76 million people; the increasing number of people with disabilities in Indonesia is due to changes in health conditions, malnutrition, heredity, and natural disasters (WHO, 2011). Of this number, 17,369 are persons with disabilities in West Sumatra Province, consisting of persons with physical disabilities, mental disabilities, blind, mute or deaf, chronic diseases, and multiple (Kemenkes, 2014).

Considering that Padang City, West Sumatra Province is an area prone to disasters in the form of tsunamis, it is necessary to know the role of families with disabilities children in increasing disaster resilience. This research will provide an overview of the role of families of persons with disabilities in disaster management and disaster risk reduction efforts before a disaster occurs to anticipate the impact of disasters. Furthermore, it is hoped that it can bridge the needs and interests of persons with disabilities against disasters.

Children with disabilities have been overlooked in DRR initiatives and often have difficulties obtaining access to preparedness resources in the face of disaster. This study examined the understanding, perception, experience, and preparedness of children with disabilities in the face of a disaster. With notable variations, children show good awareness and understanding of natural hazards and self-protective actions for disasters and play an important role in DRR initiatives (Ronoh, Gaillard, and Marlowe, 2015).

Data and Methods

The study used an analytical approach to see the effect of families' role with disabilities in preparedness towards family resilience simultaneously during the study. The population in this study were all families who have children with disabilities in the Special Schools in Padang, totaling 2450 families. The number of samples in this study was calculated using a large formula so that the number of samples obtained was 45 families with children with disabilities. The sample collection technique in this study uses a probability sampling technique with a proportional random sampling method. The data collection technique used a standard questionnaire in the form of a Likert scale consisting of 107 question items. The data were analyzed descriptively by determining the percentage based on the categories very ready, ready, almost ready, not ready, not ready. This study uses univariate analysis, which aims to explain the characteristics of each research variable. The research variables consisted of 1) knowledge and attitudes about disaster risk (KA); 2) emergency response plan (EP) ; 3) disaster warning system (WS); and 4) resource mobilization (RMC). The data is processed with a computer program. This study used univariate analysis. Furthermore, the results of the preparedness of families with members with disabilities can be seen from the calculation using the following formula (LIPIUNESCO / ISDR, 2006): $\text{Index} = 0.45 * \text{KA index} + 0.35 * \text{EP index} + 0.15 * \text{RMC index} + 0.05 * \text{indexWS}$. Based on the index value for tsunami disaster preparedness (LIPI-UNESCO / ISDR, 2006), it is classified as very ready if the index value is ≥ 80 -100%, ready category ≥ 65 -79%, almost ready category ≥ 55 - 64%, category less ready ≥ 40 -54% and the category not ready $<39\%$.

Results

Based on the results of the research that has been done, the following results are obtained. Respondent demographic characteristics can be seen in Table 1.

Table 1. Demographic characteristics of respondents.

Demographic characteristics of respondents	n (45)	%
Sex		
Male	9	20.0
female	36	80.0
Profession		
civil servant	2	4.4
private	10	22.2
housewife	33	73.3
Education		
Elementary school	1	2.2
Yunior high school	2	4.4
Senior high school	34	75.6
college	8	17.8
number of a family member		
<= 5	37	82.3
>5	8	17.7
Participation in disaster training		
Ever	10	22.2
Never	35	81.8

Table 1 shows the characteristics of family respondents with disabilities children of generally female sex (80%), having a housewife job (73.3%), generally senior secondary education (75.6%), and having several family members less than five people (82.3%). And in general, respondents did not receive/participate in disaster training.

Knowledge disaster mitigation

Disaster mitigation knowledge with 12 indicators on the definition, type, causes of disasters, and actions when earthquakes and tsunamis occur. Each indicator has a yes with a score of 1 and no score of 0. Answers to questions on disaster mitigation knowledge will be grouped into five categories, namely unprepared, less ready, almost ready, ready and very ready.

The results showed that generally respondents mentioned the definition of a disaster, the types of earthquake and tsunami disasters, earthquakes cannot be predicted, actions will be taken if an earthquake occurs, take shelter in a safe place. The source of knowledge about the earthquake and tsunami was TV and other family members.

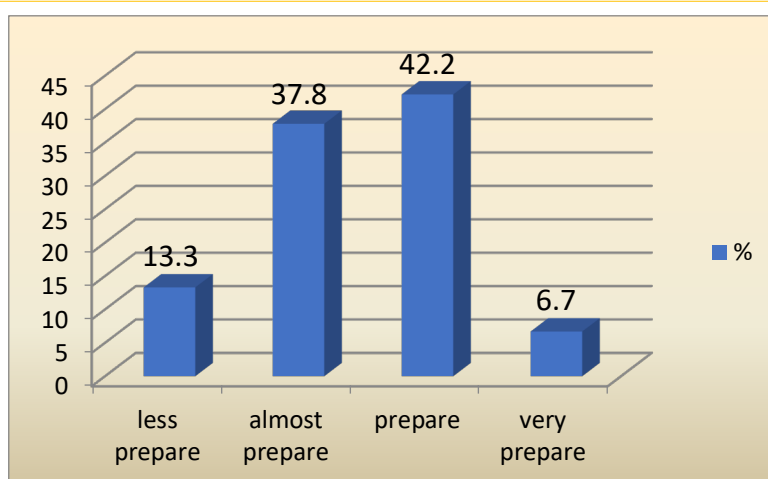


Figure 1. Knowledge of families with disabilities children about disaster mitigation in Padang City.

Fig. 1 shows the level of knowledge of families with disabilities children, who were generally categorized as ready (42.2%).

Family disaster preparedness plan

Family disaster preparedness plan with three indicators: family vigilance plans, disaster family rescue actions, and rescue locations for family members. Each indicator has a yes answer with a score of 1 and no score of 0. Answers to the questions Family disaster preparedness plan will be grouped into five categories, namely not ready, not ready, almost ready, ready, and very ready.

The results of the study of family preparedness plans generally state that this family already has a plan, namely preparing actions that household members must take, namely preparing important documents, building earthquake-resistant houses and rescue locations in the event of an earthquake is a safe open field.

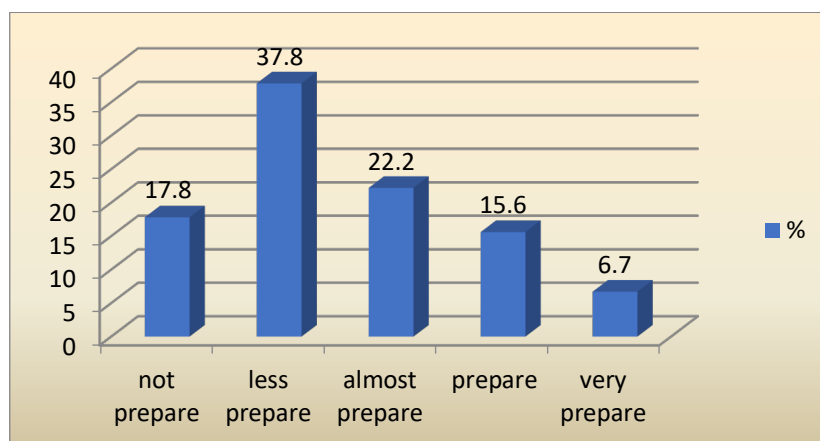


Figure 2. Preparedness plan for families with disabilities in Padang City.

Figure 2 shows the level of preparedness plan for families with disabilities children. The results showed that they were generally categorized as less ready (37.8%).

Disaster alert

Disaster warnings with five indicators are warning signs, sources of information, actions to hear warnings, cancellation of warnings. Each indicator has a yes answer with a score of 1 and no score of 0. Answers to the questions: The family disaster preparedness plan will be grouped into five categories: not ready, ready, ready, ready, and very ready.

The results showed that family disaster warnings generally stated a lack of familiarity with tsunami warning signs, sources of disaster warning information came from mosques, churches, temples, no cancellation of tsunami warnings, and no signs or information that things were safe.

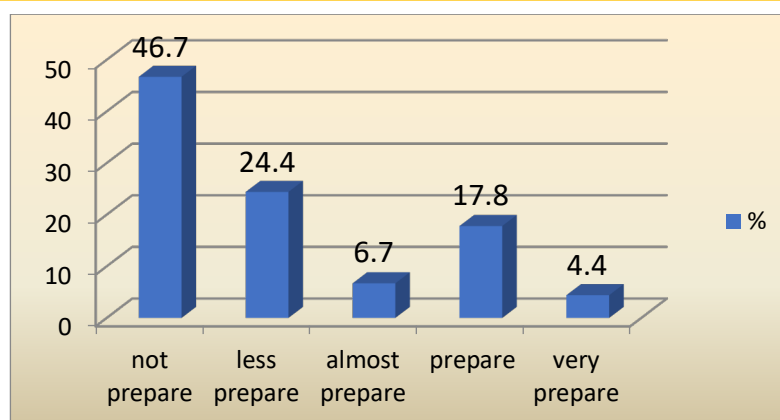


Figure 3. Distribution of disaster warning categories for families with disabilities children in Padang City.

Fig. 3 shows the disaster warning level for families with disabilities children, indicating that disaster warnings owned by respondents are generally categorized as unprepared (46.7%).

Resource mobilization

Mobilization of resources with 5 indicators on participation and types of disaster training, assets for disaster preparedness, and other family assistance. Answers to the questions Family disaster preparedness plan will be grouped into five categories, namely not ready, not ready, almost ready, ready, and very ready.

The results showed that the mobilization of family resources in facing disasters was a small number of household members who had attended disaster training generally. The assets that could be utilized were insurance, food and clothing supplies, and going to safe places / hilly areas/far from the coast.

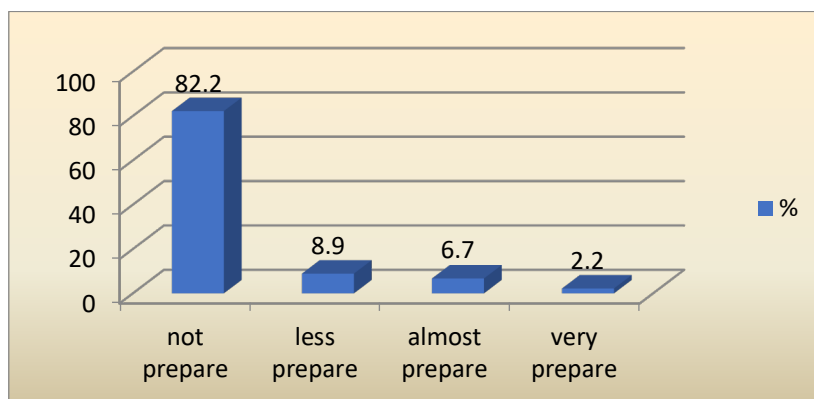


Figure 4. Resource mobilization for families with disabilities children in Padang City.

Fig. 4 shows that respondents' level of mobilization of resources is generally categorized as unprepared (82.2%).

The index of preparedness of families with disabilities in Padang City

Table 2. Average preparedness of families with disabilities in Padang City.

	KAP	EP	WS	RMC
Respondent	45	45	45	45
Mean	65,87	53,76	43,94	38,48

From Table 2, furthermore, the index of family preparedness with members with disabilities in Padang City is calculated using the formula (LIPI-UNESCO / ISDR, 2006) as the following:

$$\text{Index} = 0,45 * \text{index KAP} + 0,35 * \text{index EP} + 0,15 * \text{index RMC} + 0,05 * \text{index WS} \quad (1)$$

Thus, applying the Eq. 1, the index:

$$\text{Index} = 0,45 * 65.87\% + 0.35 * 53.76\% + 0,15 * 43.94\% + 0,05 * 38.48\% = 57.0\%$$

From the calculation that has been done above, the index of families with children with disabilities results are 57.0% which are included in the almost ready category.

Discussion

Knowledge of disasters in families with children with disabilities

The results showed that most of the families with children with disabilities had knowledge of disaster mitigation in the ready category (42.2%). The families with disabilities children only know that when an earthquake occurs, they run out of the room and do not know a safe place (for example, under a sturdy table), and do not know about earthquake-resistant buildings/houses. And generally, the source of information about disaster mitigation is

obtained from television and relatives. This study shows families with disabilities children have a higher risk of disaster hazards.

Disaster mitigation knowledge is significant for families with children with disabilities to reduce the death toll from vulnerable family members. According to Adiwijaya (2017), disaster knowledge is the ability to remember events or series of events that threaten or disrupt people's lives and livelihoods caused by natural or non-natural factors or human factors. From the results of other studies, it is also stated that families with children with disabilities need to anticipate and plan for handling in the face of disasters (Wolf-fordham et al., 2017).

Experience in several disaster events provides a very meaningful lesson regarding the importance of knowledge about natural disaster mitigation that every individual, especially vulnerable groups, must possess. Disaster knowledge is useful for influencing people's attitudes and concerns for disaster preparedness (Seneviratne, Baldry, and Pathirage, 2010). Mass media's role ensures that persons with disabilities receive proper and fair information (Battle, 2015). Thus, it can be concluded that the knowledge of families with disabilities about disaster preparedness is expected to reduce risks when a disaster occurs through good communication. The disaster communication and information needs and preferences of families with children and youth with special healthcare needs remain understudied. Targeted communication before, during, and after disasters has the potential to improve their preparedness and overall outcomes (Hipper et al., 2018).

Plans for disaster emergencies in families with disabilities

Based on the results of the study, the preparedness plan for families with children with disabilities was generally categorized as less ready (37.8%). Generally, families with disabilities children do not yet have a disaster preparedness plan related to securing important documents and preparing families to save themselves from earthquake disasters.

Plans for a tsunami emergency for families with children with disabilities can minimize the number of casualties when a disaster occurs and make the family more responsive to disasters. The community's readiness and skills, especially for families with children with disabilities, are the main keys to safety in dealing with disaster emergencies. Opportunities exist to strengthen community resilience and broader inclusion of people with disabilities into preparedness planning, training, and exercises. Coordinated planning and channeling of resources to meet the local needs will strengthen community-level emergency planner's capacity to minimize the impact of disasters on the entire community (Kruger et al., 2018).

Family preparedness plans should be drawn up and communicated by family members at home, relatives on emergency contact lists, and authorities. Emergency plans are made jointly by all families with children with disabilities and share roles in each plan according to the type of danger that threatens. After an emergency plan has been agreed upon, the family needs to carry out regular simulations to not panic in an emergency (CINCH, 2002).

Also, in line with Sari and Satria (2018) shows the preparedness of families with disabilities children in the face of the tsunami disaster in the ready category. An emergency response plan is a plan owned by an individual or community in dealing with emergencies in an area due to natural disasters. Emergency response plans are very important, especially on the first day of a disaster or a period when outside assistance has not arrived (Erlia, Kurmalawati, and Aristin, 2017).

Disaster warning system for families with disabilities children

The disaster warning system for families with disabilities children is generally categorized as unprepared from the research results. Generally, families with disabilities do not know the warning signs of local, regional, and national disasters. The families with disabilities children said that the early alert system's source came from mosques, churches, and temples.

Disaster warning systems are an important part of an individual, and community preparedness in facing disasters. Families with disabilities children can anticipate the impact that a disaster will have on the family to better prepare for disasters. According to BNPB (2018), disaster warning can connect the preparedness stage and early warning signs.

Mobilization of resources for families with disabilities

This study's results indicate that the mobilization of resources owned by families with disabilities children is generally categorized as unprepared. Only a small proportion of families with disabilities children have attended training, seminars, or meetings related to disaster preparedness. A small proportion of families with disabilities children have prepared food and clothing supplies and determining evacuation routes. And a small proportion of disabled families have secured their assets and investments in the form of insurance.

The low effort of families with disabilities children in carrying out disabilities is due to the lack of information related to disaster preparedness. Available resources, both human resources and funding, essential facilities, and infrastructure in an emergency have the potential to support natural disaster preparedness (Paramesti, 2011). Children with disabilities have difficulty in mobilizing due to physical limitations (disabilities), so it needs special attention. Families with disabilities children must create good relationships with family friends, social workers in an emergency. The families with disabilities children keep a good list of important needs and provide their needs to other family members. According to Utomo and Buana (2017), important emergency needs include a. Special supplies and equipment, such as batteries for hearing aids, b. Doctor's prescription, c. Names, addresses, telephone doctors, and paramedics, d. Detailed information about special medication, e. Contacting government offices to combine children with disabilities. f. Wearing a wristband so that rescue workers can easily identify it, g. Storing paper and stationery to write messages.

Families with disabilities children need special support and attention during emergencies (Schalik, Westbrook, and Young, 2012). In times of disaster, disabilities need help from others to be able to save themselves. They need someone close to them so they feel safe. Children with disabilities will be easier to communicate and understand by families because they better understand their needs in certain situations.

Disaster Knowledge Composite Index (KAP) of families with children with disabilities against earthquake and tsunami disasters Preparedness for earthquake and tsunami disasters is obtained from the results of an index study through four parameters where three of them have a high index value, namely disaster mitigation knowledge (KAP), which is 65.7% in the almost ready category, Family Disaster Preparedness Plan (EP) 53,76% 76% in the ready category, 43.96% categories of disaster warning (WS) being less ready and the ability to mobilize resources (RMC), namely 38.48% in the unprepared category Meanwhile, from the data above, the calculation of the preparedness index for families with children with disabilities is the average value of each parameter and uses the formula set by LIPI / UNESCO (2006). From these calculations, the tsunami disaster preparedness index value is 57%. This value is included in the ready category. This indicates that families with children with disabilities are ready for the earthquake and tsunami disaster. Family preparedness in the face of earthquake and tsunami disasters is greatly influenced by the existence of a good knowledge factor, almost where all families have experienced earthquakes and tsunami. Increasing knowledge through skills and training does not necessarily differentiate between families with disabilities and families where there are no members with disabilities. There are no significant differences in adopting varied preparedness activities between households with disabled members and households without disabled members. Also, the role of risk perception and prior disaster experience in the adoption of emergency preparedness is explored (Han et al., 2017).

This is shown to reduce vulnerability/threat due to disasters, knowledge of disasters, preparedness plans, disaster warnings, and mobilization. The existence of fragility will cause economic and social disruption—moreover, families with disabilities children have limitations, so their resilience is even higher. Pre-disaster social support

networks have been shown to reduce the risk of mental health disorders after disaster outcomes for individuals with low socioeconomic status (Chan et al., 2015) and the elderly (Hikichi et al., 2016). Similar social support networks may protect against medium-term physical health impacts from disaster for parents.

According to Puspitawati (2021) states that the types of threats/vulnerabilities consist of 1. The fragility of economic aspects, namely macro pressures, including pressure on the production, distribution, and consumption of the family economy, 2. The fragility of environmental aspects, namely the pressure from natural eco-systems, and 3. The social aspect's fragility, namely the force of social stability and social problems in the community (Steve Ronoh, Gaillard and Marlowe, 2015). Changing the mindset and perspective of families with disabilities must start from small things, such as planning, mapping, and solving disaster emergencies. Besides, efforts to empower persons with disabilities are also needed through increasing knowledge and inclusive education for persons with disabilities, providing access to jobs and a decent living (Irwanto, Fransiska, and Lusli, 2016).

Problems of persons with disabilities in accessing disaster management include (1) lack of sensitive disaster preparation programs for persons with disabilities; (2) lack of accessibility of information and teaching/learning materials related to DRR. The information available is less accessible to persons with disabilities with certain criteria such as blind, intellectual, and deaf persons; (3) in rescue actions when a disaster occurs, the immediate environment for persons with disabilities is not fast and precise in assisting evacuation; and (4) lack of specific data collection regarding the identity and conditions of persons with disabilities (Wulandari, 2017). Brilleman (2016) explained that individuals with disabilities have a risk of death by 1.65 times (Brilleman et al., 2017).

Persons with disabilities are a group that is not included in disaster management and preparedness planning due to the negative views attached to them. So that the evacuation, emergency response, and rehabilitation processes are often not following their needs. Policymakers, such as legislative institutions, are considered to have insufficient protection and fulfillment of persons with disabilities rights. This can be due to a lack of understanding of the existence and protection needs of persons with disabilities, a lack of advocacy carried out by persons with disabilities (Rahma, 2018).

Conclusions

The research results show that the knowledge of families with disabilities children is categorized as ready (42.2%). Disaster preparedness plans for families with disabilities children are categorized as less prepared (37.8%). Disaster warnings owned families with disabilities children were categorized as unprepared (46.7%). Resource mobilization owned by families with disabilities children was categorized as unprepared (82.2%). The research also found that the tsunami disaster preparedness index value is 57% (ready category). Researchers recommend families with disaster information that is easily understood according to their limitations, such as using fun posters and TV commercials, not scary ones. Sources of information are not only at home but at special schools. Local governments must provide special treatment for families with disabilities children through disaster simulations.

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References

- Adiwijaya, C. (2017). Pengaruh Pengatahuan Kebencanaan Dan Sikap Masyarakat Terhadap kesiapsiagaan menghadapi Bencana Tanah Lonsor, Prodi Manajemen Bencana, 3 Nomor 2, pp. 81–101.
- Battle, D. E. (2015). Persons With Communication Disabilities in Natural Disasters , War , and / or Conflict, Communication Disorders Quarterly, 36(4), pp. 231–245. doi: 10.1177/1525740114545980.
- BNPB. (2018). Modul 3 Pengembangan Sistem Peringatan Dini.

- Brilleman, S. L., Wolfe, R., Moreno-Betancur, M., Sales, A. E., Langa, K. M., Li, Y., ... & Iwashyna, T. J. (2017). Associations between community-level disaster exposure and individual-level changes in disability and risk of death for older Americans. *Social Science & Medicine*, 173, 118-125. doi: 10.1016/j.socscimed.2016.12.007.
- Chan, C. S., Lowe, S. R., Weber, E., & Rhodes, J. E. (2015). The contribution of pre-and postdisaster social support to short-and long-term mental health after Hurricanes Katrina: A longitudinal study of low-income survivors. *Social Science & Medicine*, 138, 38-43. doi: 10.1016/j.socscimed.2015.05.037.
- CINCH (2002) Emergency Preparedness for Families of Children with Special Needs.
- Erlia, D., Kurmalawati, R. & Aristin, N. F. (2017) Analisis Kesiapsiagaan Masyarakat dan Pemerintah Menghadapi Bencana Banjir di kecamatan martapura Barat Kabupaten Banjar. *Jurnal pendidikan Geografi*, 4(3), pp. 15–24.
- Han, Z., Wang, H., Du, Q., & Zeng, Y. (2017). Natural hazards preparedness in Taiwan: A comparison between households with and without disabled members. *Health security*, 15(6), 575-581. doi: 10.1089/hs.2017.0025.
- Herlina, B. D. & Susanti, S. S. (2017) Kesiapsiagaan Bencana Tsunami pada Tuna Netra.
- Hikichi, H., Aida, J., Tsuboya, T., Kondo, K., & Kawachi, I. (2016). Can community social cohesion prevent posttraumatic stress disorder in the aftermath of a disaster? A natural experiment from the 2011 Tohoku earthquake and tsunami. *American journal of epidemiology*, 183(10), 902-910. doi: 10.1093/aje/kwv335.
- Hipper, T. J., Davis, R., Massey, P. M., Turchi, R. M., Lubell, K. M., Pechta, L. E., ... & Chernak, E. (2018). The disaster information needs of families of children with special healthcare needs: a scoping review. *Health security*, 16(3), 178-192. doi: 10.1089/hs.2018.0007.
- Irwanto, I., Fransiska, A. & Lusli, M. (2016) Analisis Situasi Penyandang Disabilitas di Indonesia : Sebuah Desk Review.
- Kemenkes. (2014) Penyandang Disabilitas pada anak, pp. 1–8.
- Kruger, J., Hinton, C. F., Sinclair, L. B., & Silverman, B. (2018). Enhancing individual and community disaster preparedness: Individuals with disabilities and others with access and functional needs. *Disability and health journal*, 11(2), 170-173. doi: 10.1016/j.dhjo.2017.12.005.
- Paramesti, C. A. (2011). Kesiapsiagaan Masyarakat Kawasan Teluk. *Perencanaan wilayah dan Kota*, 22(2), pp. 113–128.
- Probosiwi, R. (2013). Keterlibatan Penyandang Disabilitas dalam Penanggulangan Bencana (Persons with Disabilities Involvement on Disaster Prevention), *Jurnal penanggulangan bencana*, 4(November).
- Rahma, A. (2018). IMPLEMENTASI PROGRAM PENGURANGAN RISIKO BENCANA (PRB) MELALUI PENDIDIKAN FORMAL. *Varia Pendidikan*, 30 No.1(Juli), pp. 1–13.
- Ronoh, S, Gaillard, J. C. & Marlowe, J. (2015). Children with disabilities and disaster preparedness : a case study of Christchurch. *New Zealand Journal of Social Sciences*. Taylor & Francis, 10(2), pp. 91–102. doi: 10.1080/1177083X.2015.1068185.
- Ronoh, Steve, Gaillard, J. C. & Marlowe, J. (2015). Children with Disabilities and Disaster Risk Reduction: A Review. *International Journal of Disaster Risk Science*, 6(1), pp. 38–48. doi: 10.1007/s13753-015-0042-9.
- Sari, D. P. & Satria, B. (2018). Kesiapsiagaan Bencana Gempa Bumi dan Tsunami pada keluarga dengan Anak

- disabilitas. *JIM FKEP*, III(3), pp. 215–222.
- Schalik, Ow., Westbrook, C. & Young, B. (2012) *Communication with Individuals with Intellectual Disabilities and Psychiatric Disabilities: A Summary of the Literature*.
- Seneviratne, K., Baldry, D. & Pathirage, C. (2010). Disaster knowledge factors in managing disasters successfully. *International Journal of Strategic Property Management*, 14(October 2014), pp. 376–390. doi: 10.3846/ijspm.2010.28.
- UNISDR (2014) *Living with Disabilities and Disasters*.
- Utomo, H. & Buana, F. C. (2017) *Standar layanan kesiapan keluarga hadapi bencana*. Jakarta: Kementerian Pemberdayaan Perempuan dan Perlindungan Anak.
- WHO. (2011). *World report on disability 2011*. doi: 10.1136/ip.2007.018143.
- Wolf-fordham, S. et al. (2017). HHS Public Access Author manuscript *J Emerg Manag*. Author manuscript; available in PMC 2015 July 01. Published in final edited form as: *J Emerg Manag*. 2015 ; 13(1): 7–18. doi:10.5055/jem.2015.0213. Emergency preparedness of families of children with devel. *J Emerg Manaj*, 20(1), pp. 48–55. doi: 10.1007/s10995-015-1800-4.Alcohol.
- Wulandari, R. (2017). Analisis Kesiapan Pemerintah Daerah Dalam Penanggulangan Daerah Dalam Penanganan Penyandang Disabilitas Menghadapi Bencana Gempa Bumi. *Prodi Manajemen Bencana*, 3 Nomor 1, pp. 23–41.