

Children Psychological Preparedness for Disaster

Putri Waliyyan Estafetta*

*Guidance and Counseling, Postgraduate Program
Universitas Negeri Yogyakarta
Yogyakarta, Indonesia
putriwaliyyan@student.uny.ac.id**

Diana Septi Purnama

*Guidance and Counseling Department
Universitas Negeri Yogyakarta
Yogyakarta, Indonesia
dianaseptipurnama@uny.ac.id*

Saryono

*Physical Education, Health, and Recreation Department,
Faculty of Sport Sciences
Universitas Negeri Yogyakarta
Yogyakarta, Indonesia
saryono@uny.ac.id*

Soni Nopembri

*Physical Education, Health, and Recreation Department,
Faculty of Sport Sciences
Universitas Negeri Yogyakarta
Yogyakarta, Indonesia
soni_nopembri@uny.ac.id*

Abstract— Indonesia is one of natural disaster-prone countries. Children are extremely vulnerable, especially psychologically, to the impacts of disaster. Therefore, the aim of this study is to identify psychological preparedness level of elementary school students in the event of disaster. Subject of this study was 782 students of grade IV, V and VI of elementary schools in 10 elementary schools in 10 provinces in Indonesia. Data were collected by using children psychological preparedness scale and then analysed using descriptive statistics data analysis technique. Results indicated that students from grade IV, V, and VI were prepared for disaster and demonstrated a percentage of 54% with grade V (five) students demonstrated the highest preparedness level of 63.1% and female students showed higher psychological preparedness compared to male students. Elementary schools play a huge role in improving children's psychological preparedness for disaster. Several activities can be done to psychologically prepare children for disaster which include simulations and mitigation trainings integrated into school subjects in elementary school level.

Keywords— preparedness, disaster, children, psychological

I. INTRODUCTION

Indonesia is one of countries that is at constant risk of natural disasters. Geographically, Indonesia sits in the Pacific Ring of Fire, making it notoriously prone to natural disaster. According to the National Disaster Management Agency (BNPB), Indonesia is most prone to disasters such as earthquakes, fires, tsunamis, floods and flash floods, landslides, and volcanic eruption [1]. In 2018, the agency recorded 2,572 events of natural disaster causing 4,814 of fatalities and missing persons, 21,000 of people injured and more than 300,000 houses damaged. Hydro meteorological disasters are most likely to happen, with possibilities reaching up to 96.8% [2]. Three major disasters including earthquake in West Nusa Tenggara, earthquake, tsunami and liquefaction in Central Sulawesi, as well as tsunami in Sunda Strait had struck consecutively, causing plenty of deaths and damages. Data released by BNPB indicated that many areas across Indonesia are potentially affected by natural disaster.

Besides, as a meeting point of several tectonic plates including Indo-Australian in the south, Pacific in the east, and Eurasian in the north, Indonesia is also prone to disaster caused by tectonic and volcanic activities.

With such conditions, psychological preparedness of people living in the country is crucial. Preparedness is a series of activities to anticipate disasters through efficient and effective steps [3]. Preparedness is crucial due to the high number of casualties and losses of material in every occurrence. The level of preparedness of both the people and the government of Indonesia for disaster is relatively low. Some regions still scored low in the parameter of preparedness [4]. Multiple potential disasters and the lack of preparedness will dramatically influence the people in the country, especially psychologically. Children are among people most susceptible to disaster risks [5]. Disasters are stressful for not only individuals who suffer from losses but also the community at large [6]. Children also suffer from the negative psychological and social impacts of disaster in their lives [7].

Children need to be mentally prepared for disasters to lessen the impacts on them. Sabri (2014) found that more than half of elementary school students lack of knowledge about disaster preparedness [8]. Children are vulnerable to disaster due to their lack of understanding of risks in the surrounding, making them less prepared for disaster [9]. Without early disaster preparedness, it is possible for children to suffer from stress, anxiety, fear, and inability to think clearly which can later affect their decisions and reactions, or even endanger their lives in the long-term if they keep being unprepared [10]. Psychological preparedness helps people to think more clearly and reduce the risks of severe injuries and losses of life and property. Staying calm and close to other family members and people will also help them who may not be mentally prepared for the accident [10].

Providing children with knowledge of disaster and risk mitigation as early as possible can help improve their

psychological preparedness through provision of understanding and instructions related to steps in handling threats in the surrounding in order to minimize the risks of disaster. Children need to understand and be prepared for disasters as they may strike at any time. Psychological preparedness should be built as soon as possible and involve all school members. Psychological aspect that needs to be emphasized is better understanding of psychological responses to disaster warning situations to help people feel more confident, more in control and more psychologically prepared as well as to help prepare more effective plans for emergency situations [11]. Therefore, this study attempts to investigate psychological preparedness in general and compare levels of psychological preparedness based on grade and gender of the children.

II. METHODS

This study adopted a survey method and used questionnaires to collect information from respondents. Data were collected by using a children psychological preparedness scale. Subjects of the study were grade IV-VI students who studied in disaster-prone areas, had experienced disaster, and studied in schools safe from disaster according to data from BNPB and the Ministry of Education and Culture. The total number of subjects participating in this study was 782 students in 10 (ten) elementary schools spread in 10 provinces in Indonesia including Aceh, North Sumatra, West Sumatra, DKI Jakarta, West Java, DI Yogyakarta, East Borneo, Central Sulawesi, Bali, and West Nusa Tenggara, as seen in Table 1 below.

Table 1. Research Subjects by School Grade

PROVINCES	GRADE IV		GRADE V		GRADE VI	
	M	F	M	F	M	F
Aceh	18	18	17	9	17	14
North Sumatera	14	11	14	12	9	14
West Sumatera Barat	4	7	11	8	13	9
DKI Jakarta	18	13	31	22	14	15
West Java	12	15	16	14	0	34
D.I Yogyakarta	19	18	0	30	20	15
Bali	12	12	0	0	20	6
West Nusa Tenggara	4	5	4	7	3	6
Central Sulawesi	12	18	6	9	11	14
East Borneo	20	13	20	14	14	17

Instrument of this study was psychological preparedness scale which consisted of 10 (ten) items. The instrument was adopted to measure children psychological

preparedness level. Children psychological preparedness is manifested in items including: (1) know what to do in certain situations (2) is able to save oneself from various situations; (3) is able to manage one’s feelings in any situations; (4) remain calm while facing problems; (5) is able to control fear and anxiety; (6) demonstrate ability to believe in oneself through tough times; (7) calm people who experience problems; (8) is aware of one’s own anxiety; (9) face multiple hardships; (10) attempts to avoid multiple threats. Validity and reliability of instrument in this study were tested using SPSS for Mac OS X. The validity measured was item validity meanwhile reliability test in this study relied on Cronbach’s alpha technique with a coefficient of 0.75 for psychological preparedness scale.

Data in this study were analysed using a scoring method wherein respondents’ responses were assigned scores ranging from 0 for “does not suit me at all”, 1 for “does not suit me”, 2 for “suits me”, to 3 for “suits me well”. From the total scores, researcher determined the highest and lowest scores to state intervals and determine level of psychological preparedness. Consisting of 10 items, the lowest and the highest scores of this psychological preparedness scale would be 0 and 30 respectively.

$$i = \frac{range}{k}$$

Note:

- i* = class interval
- range* = highest value - lowest value
- k* = number of classes

In addition, data were also analysed using a percentage technique by taking the frequency in the category divided by the total number of children. Division of categories are presented in Table 2 below.

Table 2. Category of Psychological Preparedness Level

No.	Category	Score Interval
1	Very Prepared	24 – 30
2	Prepared	16 – 23
3	Less Prepared	8 – 15
4	Ill-prepared	0– 7

III. RESULT AND DISCUSSION

Results of this study measuring children psychological preparedness indicated that, in general, 422 children (54%) were considered prepared while 229 children (29.2%) were very prepared. However, 124 (15.9%) and 7 (0.9%) of children participants were less prepared and ill-prepared respectively as can be seen in Figure 1.

multiple threats. Validity and reliability of instrument in this study were tested using SPSS for Mac OS X. The validity measured was item validity meanwhile reliability test in this study relied on Cronbach’s alpha technique with a coefficient of 0.75 for psychological preparedness scale.

Data in this study were analysed using a scoring method wherein respondents' responses were assigned scores ranging from 0 for "does not suit me at all", 1 for "does not suit me", 2 for "suits me", to 3 for "suits me well". From the total scores, researcher determined the highest and lowest scores to state intervals and determine level of psychological preparedness. Consisting of 10 items, the lowest and the highest scores of this psychological preparedness scale would be 0 and 30 respectively.

$$i = \frac{\text{range}}{k}$$

Note:

- i* = class interval
- range* = highest value - lowest value
- k* = number of classes

In addition, data were also analysed using a percentage technique by taking the frequency in the category divided by the total number of children. Division of categories are presented in Table 2 below.

Table 2. Category of Psychological Preparedness Level

No.	Category	Score Interval
1	Very Prepared	24 – 30
2	Prepared	16 – 23
3	Less Prepared	8 – 15
4	Ill-prepared	0 – 7

IV. RESULT AND DISCUSSION

Results of this study measuring children psychological preparedness indicated that, in general, 422 children (54%) were considered prepared while 229 children (29.2%) were very prepared. However, 124 (15.9%) and 7 (0.9%) of children participants were less prepared and ill-prepared respectively as can be seen in Figure 1.

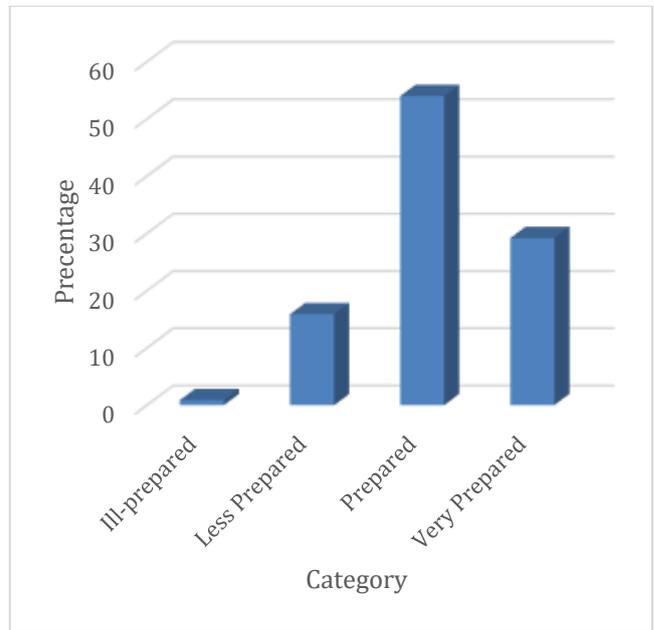


Figure 1. Children Psychological Disaster Preparedness Level in General

Based on school grade, grade V students were more psychologically prepared than students from other grades and demonstrated a percentage of 63% meanwhile grade VI and grade IV students demonstrated a percentage of 62% and 43% respectively as can be seen in Figure 2.

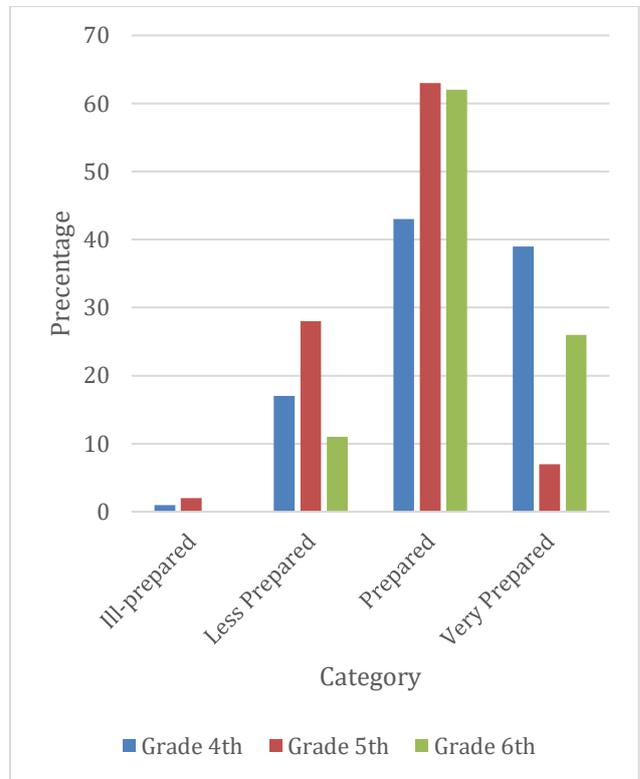


Figure 2. Differences in Psychological Preparedness Based on Grade

Referring to gender, it is clear that female participants who were psychologically prepared were up to 29.28% compared to men who accounted for 26.60% of total preparedness level as can be seen in Figure 3.

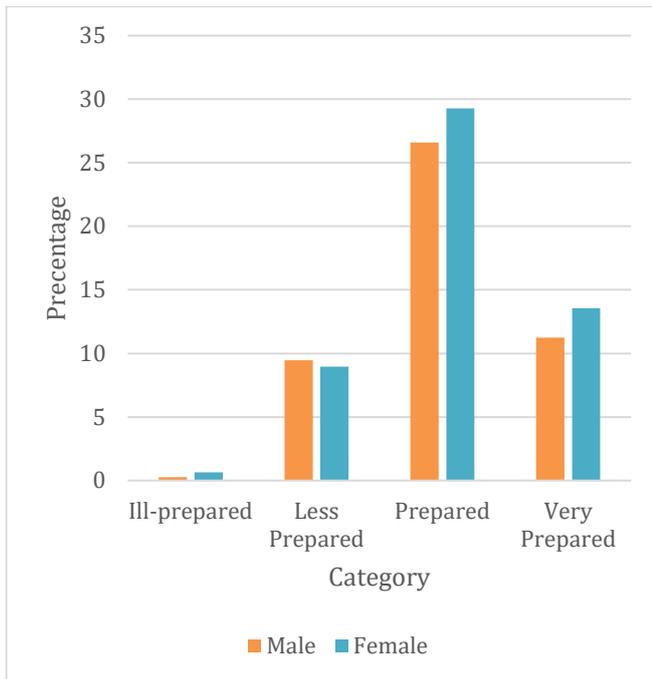


Figure 3. Differences in Psychological Preparedness Based on Gender

Discussion

From the results, it is clear that, in general, children in this study were prepared for disaster. It indicates that half of elementary school students, especially those in grade IV, V, and VI, are psychologically prepared for disasters. This result ties well with previous studies conducted by Astuti and Sudaryono (2010) and Sarwidi et al., (2013) wherein students and teachers demonstrated knowledge about disaster mitigation and awareness of disaster risks. Elementary school students are among people most susceptible in disaster emergency situations. Psychological preparedness indicates psychological conditions characterized by the ability to anticipate and to respond quickly and accurately to stimulus in cognitive, affective, or psychomotor manner. Psychological preparedness is linked to one’s internal aspects including preparedness, anticipation, and awareness. It is manifested in one’s strategies to control his psychological responses to emergency situations such as disaster [12].

In this study, grade V and VI students demonstrated more than 50% psychological preparedness for disaster while those from grade IV demonstrated below 50% level. It shows that age has significant influences on individual behaviour. One’s age influences his ability to interact and to socialize with others [13]. The older someone is, the better the chances he will get to acquire information. It is because of the opportunities to learn from every experience one gets. Higher preparedness level among grade V and VI students compared to those in grade IV is also caused by the fact that students in grade IV are transitioning from lower

to upper grade and therefore lack of experiences and information about disaster preparedness.

From gender perspective, psychological preparedness is different between men and women. Results demonstrated that female students were more psychologically prepared for disaster compared to male students. However, the difference was not significant. It shows that male and female children are gender-equal in psychological preparedness. Men and women complete one another to help survivors of natural disasters. It can be done through division of responsibilities such as men’s assignment to help at disaster sites. Some studies found that women are more likely than men to experience psychological vulnerability to disaster. Both are involved and complete each other.

A study conducted by Khoirul, et al (2019) who observed both male and female children found that male children cried more when they were babies and were more skilled while learning to walk compared to female children. However, as they grew older, female adults and elderly cried more than male adults. Some studies argued that the high number of natural disaster victims was caused by the victim’s lack of knowledge about earthquake and tsunami threats [14].

Schools play a strategic role in disaster mitigation efforts. They can provide information by displaying posters or signs to help raise awareness of how important disaster mitigation is. Posters and signs need to be duplicated and maintained so that people, either those living in disaster-prone areas or those living in safe zones are aware and understand the dangers of natural disaster. Active dissemination of information needs to be done each month in different locations in both disaster-prone and safe zones and involve multiple stakeholders including the Regional Disaster Management Agency (BPBD), the Office of Social Affairs, the Indonesian National Armed Forces (TNI), and the Indonesian National Police (Polri). Disaster simulation drills are conducted to prepare people for real conditions when disaster strikes. They are held to prepare the conditions of the people when facing disasters and to minimize panic caused by the disaster that can add the number of victims.

Knowledge about disaster needs to be spread to the people living in disaster-prone areas as early and regular as possible through either school media, informal media, or social media. Education for disaster preparedness is important because it helps cultivate responsiveness to disaster to avoid fatal risks. People who are aware of disaster preparedness will not only know and understand the disaster, but, more importantly, demonstrate ability to face the risks of disaster with preparedness and responsiveness to minimize more severe damages.

V. CONCLUSION

In general, according to their grade, the children participants were psychologically prepared for disaster. From gender perspective, female children were psychologically more prepared than male children for disaster, but with only less significant difference. This indicated that female and male children are gender-equal in

psychological preparedness and have their own roles and responsibilities in disaster-related area. Schools play a huge role in maintaining children psychological preparedness. Very poorly and less psychologically prepared children need to be involved in activities for anticipation and mitigation of disaster risk to increase their knowledge and improve their attitude. In education, the knowledge can be implemented through disaster simulations; meanwhile, anticipation of disaster can be done through disaster mitigation/preparedness trainings integrated into school subjects for elementary school students.

ACKNOWLEDGEMENT

Author wishes to express his gratitude to the Ministry of Research, Technology and Higher Education who have supported funding in the implementation of this research and BNPB who have provided information and access to areas and schools prone to disaster. The author also thanks schools that have collaborated and are willing to provide time and place to conduct research. Thanks to Universitas Negeri Yogyakarta, lecturers of guidance and counseling study programs, lecturers of physical and sports education courses, research team friends from the guidance and counseling graduate study program and all parties involved so that this research can be carried out well.

REFERENCES

- [1] BNPB, "Buku Pedoman Latihan Kesiapsiagaan Bencana: Membangun Kesadaran, Kewaspadaan, dan Kesiapsiagaan dalam menghadapi Bencana." Direktorat Kesiapsiagaan, Deputi Bidang Pencegahan dan Kesiapsiagaan, Badan Nasional Penanggulangan Bencana: 2017
- [2] Rosyida, A., Nurmasari, R., Suprpto, "Analisis Perbandingan Dampak Kejadian Bencana Hidrometeorologi dan Geologi Di Indonesia Dilihat Dari Jumlah Korban dan Kerusakan (Studi: Data Kejadian Bencana Indonesia 2018)," BNPB: 2018
- [3] Undang-Undang NO. 24 2007 tentang Penanggulangan Bencana.
- [4] Makki, S, "LIPI : Kesiapsiagaan Bencana Indonesia Masih Rendah" (Accesed: 12 October 2019). Retrieved from: <https://www.cnnindonesia.com/teknologi/20181227124247-199-356730/lipi-kesiapsiagaan-bencana-indonesia-masih-rendah>
- [5] K. R. Roman, E. Alisic, B. Towers, V.A. Johnson, D. M. Johnston, "Diaster Preparedness for Children and Families: Critical Review, (Accesed: 11 October 2019). Retrieved from: <https://www.researchgate.net/publication/277087861>
- [6] Khankeh HR, Khorasani-Zavareh D, Johanson E, et al, "Disaster health-related challenges and requirements: A grounded theory study in Iran," *Prehospital and Disaster Medicine* 26(3): 151–158, June 2011
- [7] Mondal, R., et al, "Acute stress-related psychological impact in children following devastating natural disaster, the Sikkim earthquake (2011) India," *Journal of Neuosciences in Rural Practice*, 4, 19-23, 2013 <http://dx.doi.org/10.4103/0976-3147.116434>
- [8] Sabri. (2014). Pengaruh Pengintegrasian Materi Kebencanaan ke Dalam Kurikulum Terhadap Kesiapsiagaan Bencana Gempa Bumi dan Tsunami pada Anak SD dan Menengah Di Banda Aceh. Tesis tidak dipublikasikan. Banda Aceh: Program Studi Magister Ilmu Kebencanaan Program Pascasarjana Universitas Syiah Kuala Darussalam Banda Aceh
- [9] Hermon, D., A. Putra, and O. Oktorie, "Suitability Evaluation of Space Utilization Based on Environmental Sustainability at The Coastal Area of Bungus Bay in Padang City, Indonesia," *International Journal of GEOMATE*. Volume 14. Issue 41. p: 193-202. Geomate International Society, January 2018
- [10] Australian Psychological Society, "Psychological preparation for natural disaster", (Accesed: 13 October 2019). Retrieved from: <https://www.psychology.org.au/getmedia/c24bf1ba-a5fc-45d5-a982-835873148b9a/Psychological-preparation-for-natural-disasters.pdf%2011>
- [11] Raser, J.P., & Morrissey, S.A, "The Crucial Role of Psychological Preparedness for Disaster". *Australi an Psychological Society*. Retrieved on August 19, 2009, from: http://www.psychology.org.au/inpsych/psychological_preparedness/
- [12] Suhaimia, A. W, et al, "The Importance of Psychological Preparedness Among Flood Victims".
- [13] Hurlock, Elizabeth, B., "Psikologi Perkembangan Suatu Pendekatan Sepanjang Rentang Kehidupan." Edisi Kelima, Jakarta: Erlangga. 2012
- [14] Febriana., et al. "Kesiapsiagaan Masyarakat Desa Siaga Bencana Dalam Menghadapi Bencana Gempa Bumi di Kecamatan Meurake, Kota Banda Aceh." *Jurnal Ilmu Kebencanaan Pascasarjana Universitas Syiah Kuala*, Vol. 2, No.3, 41-49. (2015).