

PSYCHOMOTOR READINESS OF THE COMMUNITY AGAINST THE EARLY WARNING SYSTEM FACING FLOOD DISASTER

Nurul Aini Mehat
Tuan Pah Rokiah Syed Hussain¹

*School of Government, College of Law, Government and International Studies
Universiti Utara Malaysia*

ABSTRACT – *The frequency of extreme flood events has left psychomotor impression on community. This situation requires researchers to explore the psychomotor aspects of community members (in terms of initial preparation and financial ability) by testing new variables based on information dissemination and community response capability. This study examined the relationship between information dissemination factors and response capability with community psychomotor readiness to face flood disaster. A survey was conducted on 343 respondents in Kemaman District in Terengganu State, Malaysia. The findings show that the more people received warning information, the more prepared for flood disaster; the fastest community's ability to respond to the flood disaster, the better initial preparation has been done in the face of the flood disaster; the sooner the dissemination of warning information is issued, the more family financial resources can be saved in the face of floods; The higher the ability of a person to react in action, the better their financial ability is related to the flood disaster. In conclusion, the study points out that, in the context of the relationship test found that initial preparations of respondents in relation to flood disasters are determined by the factors of information dissemination and financial ability, however the aspect of financial ability is dependent on both factors.*

Keywords: *Self-Readiness, Psychomotor Flood Victims, Early Warning Systems, Information Dissemination, Response Capability.*

INTRODUCTION

Floods are among the most dangerous natural disasters in the globe today. Several academic scholars have highlighted the importance risk management strategies on flood disasters. Among them are the development of early warning systems globally, regionally and locally (Melorose, 2015). The goal is to reduce risks and disasters, and even increase the country's resilience to protect people from flood disaster. Floods is a common thing in almost in the world and its negative effects on sustainable development more especially developing countries with the high management costs, lack of advanced technology and limited infrastructure. More evidently, inadequacy of information with regards to the warning

¹ Corresponding author. sh.rokiah@uum.edu.my

system, especially the warning element and the ability of the community to act has led to many problems such as property loss and death (UNISDR, 2006). For example, 2,000 people died, and the economic impact was able to reach US\$40 billion and over 10,000 villages in 24 northern and central parts of Thailand with 2.45 million people affected by floods (Webster, 2011).

Another evidences, the extreme flood in 2013 which hit the State of Terengganu is due to the high intensity of rain and continuous down, resulting to 36,549 flood victims being evacuated to temporary relief centers. The incident was the worst flood in history, especially in Kg. Air Putih for the last 90 years. Other villages are Kg. Teladas, Dadong and Pasir Gajah which recorded a rise in the water level reached 4.0 meters (DID, 2013). Floods continue to terrorize and strikes in third wave in Kemaman District, especially in Kg. Padang Kubu with a depth of 0.30 to 0.50 meters. This situation worsened when the rising river water was quickly due to clashes with the high tide. The amount of rainfall recorded at the rain stations reached 777.0 millimeters per day, particularly at Hulu Jabor rain station, Kemaman. The amount of rainfall for three days at the Hulu Jabor and Banho Bridge rain station is almost equal to the average amount of rain for five to six months received by the State of Terengganu. Floods continue to terrorize when the 2014/2015 episode once again hit the State of Terengganu and has led to a total of 68,184 flood victims being evacuated to a temporary flood relief center. A total of five accident events that resulted in loss of life due to drowning have been recorded; Assets damage report by DID is RM12,200,000.00 and damage report for Irrigation and Drainage Infrastructure is RM5,810,340.00 and the reservoir level has reached the maximum level of 145.0 meters and starts spillway (DID, 2014). However, the empirical research on the readiness of the community to cope with this disaster in the context of the psychomotor readiness of the flood victims still remains a question mark because the cases loss of property and loss of lives are still high. This study argues that among the possible cause that requires the proof of analysis is the mechanism of information dissemination by the government and the community's response capability to the flood disaster. Thus, the objective of the study is to determine the relationship between psychomotor readiness (in terms of initial preparation and financial ability) with the causal factors, namely the dissemination of information and the response-ability to the flood disaster.

Psychomotor readiness refers to the potential of physical maturity or preparation and cooperation to do something (Hicks & King, 2011). If they fail to take appropriate action with regard to dealing with flood situations, then the efforts such as training and learning regarding cognitive and affective components need to be seen again. If the aspect of psychomotor someone is not well controlled, it is able to leave the impression psychological and emotional distress that can impair the individual's resilience to rise to build a new life after the flood. Among the studies related to the effects of floods such as Dorji (2006) in Bhutan have found that victims face mental health problems especially traumatic throughout life. The study by Chan and Parker (2000) found that it can give a problem to someone internally. Other studies have also been touched on the trauma problem caused by floods such as the study conducted by Acharya et al. (2006), Aizhong Liu et al. (2006), Li et al. (2010) and Walsh (2007).

In the context of forming a high psychomotor readiness, someone must have a keen mind and a positive attitude (Hogg et al., 2010; Lee Shok Mee, 1997; Mohd Sharani Ahmad & Zainal Madon, 2003; Schacter et al., 2011) which is efficient and effective in doing things (Parsons, 1968; 1975). This situation can be formed in a flood victim when faced with a large scale disaster, loss of life or property. Therefore, the importance of early preparation according to Phahrolrazi Mohd Zawawi (2014) and Tuan Pah Rokiah Syed Hussain (2010), it must involve planning, action and measures taken to cope with any eventuality when floods occur. This is because the initial preparation is an action to ensure the need for adequate flooding and property security is well maintained. In addition, psychomotor concepts are also concerned with the preparation, cooperation and awareness such as financial matters that in turn provide individual scope to take action (Coppola, 2015; Khan, 2008). This is because financial resources are very important for the current situation and after the disaster, every family should have a savings to make it easier for them to respond to this unforeseen situation. Hence, this study establishes the psychomotor readiness of the community in the face of flood disaster by placing two aspects, namely initial preparation and financial ability.

STUDY SITE AND METHODOLOGY

This study selects Kemaman District as one of the districts in the State of Terengganu which is one of the risky areas and exposed to the monsoon flood events in the East Coast of Peninsular Malaysia. In fact, this area often suffered huge losses to the population. Kemaman District, located at 4°140 N, 103°250 E, about 170 km south of Kuala Terengganu has a total area of 2,536 square kilometers with a population of 253,559 people and has 12 Mukim in it. The state of the terrain consists of three main areas, coastal, hinterland, and hillside that are extremely risky for extreme flood events. The research instrument uses a survey form that aims to prove the relationship between the psychomotor aspect and the aspect of information dissemination and response capability. The total number of samples was 343 peoples and used convenience sampling technique. Pearson correlation analysis is used to determine the relationship between information dissemination factor and response capability with psychomotor readiness aspect.

RESULT AND DISCUSSIONS

The results of the study found that independent variables, namely the dissemination of information and response capability, had positive relationships with the initial preparation aspect. Information dissemination variables were significant with the value of $r = .201^{**}$ at the level of $p \leq 0.00$ and the study accepted the H_1 hypothesis (Table 1). This situation shows that the independent variable for information dissemination affects positively on the aspects of the initial preparation of the respondents in the preparation of the disaster. Hence, the more people receive warning information and consider the truth, then the more prepared to face flood disaster than respondents who only hear information from unofficial sources. This will only make the respondents panicked and nervous. A study by Kuppuswamy and Rajarathnam (2013) found that sharing of early warning information prior to the disaster by agencies involved in the community was important to reduce the risk of loss of property and life. The findings of this study are in line with Venkatesh and Davis (2000) and Lin and Huang (2008), a person would have a better response of technology if technology features can fulfilling their

expectations and they will be more likely to choose a technology that could help them in such situation.

H₁ There is a significant relationship between the aspects of information dissemination with the initial preparation aspect in the face of flood disaster

Table 1.

Influence of Information Dissemination and Response Capability with Psychomotor Readiness

Variables	Initial Preparation		Financial ability	
	r	sig.	r	sig.
Information dissemination	.201**	.000	.174**	.001
Response capability	.305**	.000	.180**	.001

** The correlation is significant at the level of $p \leq 0.01$ (2-tailed).

Analysis of community response capability variables has found that the ability of the community to fast respond to the floods, the better initial preparation has been done in the face of the flood disaster. This is obvious because the analysis showed that the variables of response capability is significant with $r = .305$ at $p \leq 0.00$ level and accepting H₂. This is because the response capability someone depending on the initial preparations taken to ensure adequate flood current needs and property safety is well maintained. Through the early warning system, it empowers individuals and communities threatened by hazards to react in sufficient time and in an appropriate manner to reduce the possibility of personal injury, loss of life, property damage and loss of livelihood (Perez et al., 2007). This study found that if a person had made initial preparation, it can help speed the process of response in emergencies and improve a person's readiness to face the floods. This can be attributed to Parsons (1968, 1975) states that a high psychomotor readiness, allows a person to take action act efficiently and effectively.

H₂ There is a significant relationship between the aspect of response capability and the initial preparation aspect in the face of flood disaster

The results of the study on the relationship between the financial ability variables and the dissemination of information in the State of Terengganu also found a significant and positive relationship between financial ability and dissemination of information is the value of $r = .174$ ** at $p \leq 0.01$ and accepts H₃. This situation involves adequate financial readiness among members of the community to face the flood disaster. Hence, the sooner the release of warning information is issued, the more family financial resources can be saved in the face of flood disaster. In this regard, early notification and dissemination of warning information, makes the community aware and more sensitive to having financial resources or savings as the basis of preparation for the flood or emergency. The findings of this study are in line with Finucane's opinion (2011), stating that one's habit of failing to perform a task or action to

create a comprehensive readiness (including the ability of a self-financially self-financier), even for the benefit of themselves or their families.

H₃ There is a significant relationship between the aspects of dissemination of information with the financial capability aspect in the face of flood disaster

Analysis of financial ability variables with response capability have shown to be significant in positive form with response capability variables. This significant relationship with the value of $r = .180^{**}$, $p \leq 0.00$ and accepting H₄. This situation illustrates that the higher response capability of a person to react in action, the better their financial ability is related to the flood disaster. Therefore, financial aspects are important in enhancing the psychomotor readiness of the community as it acts as an indicator or directs the individual to consider the use of available resources that can be used in the circumstances required at the time of the flood or emergency situation, each family should have a savings or savings to make it easier for them to respond to the situation.

H₄ There is a significant relationship between the aspect of response capability and the financial ability aspect in the face of flood disaster

CONCLUSION

Flood disaster has indeed had a profound impact on the daily lives of the community. With the rising number of losses and deaths requiring a solid action in the country's flood management to reduce this situation. In fact, Rausand (2011) considers the parties involved to provide risk control measures to minimize potential harm to society, the environment or other assets. Among them, involving local governments, central and state government agencies, public or private associations, community groups such as local community leaders and individuals to make them more prepared for the flood phenomenon (Sharifah Meryam Shareh Musa, 2011). Overall, the results show that in the context of the relationship test, the initial preparations of the respondents and financial ability related to the flood disaster were determined by both factors, namely the dispersion factor and the response capability. Hence, all the relationships that take place are in the positive form as discussed above.

REFERENCES

- Acharya, L., Upadhyaya, K.D. & Kortmann, F. (2006). Mental health and psychosocial support aspects in disaster preparedness: Nepal. *International Review of Psychiatry* 18(6), 587-592.
- Aizhong Liu, M.B., Hongzhan Tan, M.B., Jia Zhou, M.B., Shuoqi Li, M.B., Tubao Yang, M.B., Jieru Wang, M.B., Jian Liu, M.B., Xuemin Tang, M.B., Zhenqui Sun, M.B. & Shi Wu Wen, M.B. (2006). An epidemiologic study of posttraumatic stress disorder in flood victims in Hunan, China. *Can J Psychiatry* 51(6), 350-354.
- Chan, N.W. & Parker, D.J. (2000). Aspek sosioekonomi bencana banjir di Semenanjung Malaysia. In. Mohd. Razali Agus & Fashbir Noor Sidin (eds.). *Perbandaran dan*

- Perancangan Persekitaran*, pp. 140-159. Kuala Lumpur: Utusan Publications & Distributors.
- Coppola, D.P. (2015). *Introduction to international disaster management*. B978-0-12-801477-6.00001-0.
- DID (Department of Irrigation and Drainage). (2013). *Annual Flood Reports 2013/2014*. Hydrology Division, Department of Irrigation and Drainage: Negeri Terengganu.
- DID (Department of Irrigation and Drainage). (2014). *Annual Flood Reports 2014/2015*. Hydrology Division, Department of Irrigation and Drainage: Kota Bharu.
- Dorji, C. (2006). Mental health and psychosocial aspects of disaster preparedness in Bhuta. *International Review of Psychiatry* 18(6), 537-546.
- Finucane, A.M. (2011). The effect of fear and anger on selective attention. *Emotion* 11(4), 970-974.
- Hicks, J.A. & King, L.A. (2011). Subliminal mere exposure and explicit and implicit positive affective responses. *Cognition and Emotion* 25, 726-729.
- Hogg, M.A., Abrams, D. & Martin, G.N. (2010). Social cognition and attitudes. In, Martin, G.N., Carlson, N.R. & Buskist, W. (eds.). *Psychology*, pp. 646-677. Harlow: Pearson Education Limited.
- Khan, H., Vasilescu, L. & Khan, A. (2008). Disaster management cycle- a theoretical approach. *Management & Marketing- Craiova* (1), 43-50.
- Kuppuswamy, S. & Rajarathnam, S. (2013). Empirical investigation on factors influencing the coastal community's attitude and intention to use ICT for disaster and development communication. *International Journal of Innovation and Learning* 14(1), 19-29.
- Lee Shok Mee. (1997). *Teori dan aplikasi psikologi dalam pengajaran dan pembelajaran*. Kuala Lumpur: Kumpulan Budiman Sdn. Bhd.
- Li, X., Huang, X., Tan, H., Liu, A., Zhou, J. & Yang, T. (2010). A study on the relationship between posttraumatic stress disorder in flood victim parents and children in Hunan, China. *Australian and New Zealand Journal of Psychiatry* 44, 543-550.
- Lin, T.C. & Huang, C.C. (2008). Understanding knowledge management system usage antecedents: an integration of social cognitive theory and task technology fit. *Information & Management* 45(6), 410-417.
- Melrose, J., Perroy, R., Careas, S. (2015). *World population prospects*. United Nations 1.
- Mohd Sharani Ahmad & Zainal Madon. (2003). *Siri kemahiran belajar*. Kuala Lumpur: PTS Publications & Distributors.
- Parsons, T. (1968). *The structure of social action*. New York: The Free Press.
- Parsons, T. (1975). *Social systems and the evolution of Action Theory*. New York: The Free Press.
- Perez, R.T., Espinueva S.R. & Hernand H. (2007). Community-based early warning systems. Briefing Paper: Workshop on The science and practice of flood disaster management in urbanizing Monsoon Asia/4-6 April 2007, Chiang Mai, Thailand.
- Phahrolrazi Mohd Zawawi. (2014). Kehidupan di persekitaran banjir. *The Malaysian Insider*. <http://www.themalaysianinsider.com/rencana/> [7 Mac 2014].
- Rausand, M. (2011). *Risk assessment- Theory, methods, and applications*. Hoboken, NJ: John Wiley & Sons.

- Schacter, D.L., Daniel, T.G. & Daniel, M.W. (2011). *Psychology*. Ed. 2. New York: Worth Publishers.
- Sharifah Meryam Shareh Musa. (2011). Amalan semasa dan pendekatan baru dalam pengurusan banjir di Malaysia. *Persidangan Kebangsaan Masyarakat, Ruang dan Alam Sekitar (MATRA)*, Universiti Sains Malaysia.
- Tuan Pah Rokiah Syed Hussain. (2010). Pengaruh aspek fizikal dan gangguan manusia terhadap kejadian banjir di Lembangan Saliran Kelantan. Tesis Doktor Falsafah. Universiti Kebangsaan Malaysia.
- UNISDR, Developing Early Warning Systems: A Checklist, document to present in the third international conference on early warning – from concept to action, in Bonn, Germany, March 27-29, 2006.
- Venkatesh, V. & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science* 46(2), 186-204.
- Walsh, F. (2007). Traumatic loss and major disaster: strengthening family and community resilience. *Family Process* 46(2), 207-227.
- Webster, P. (2011). Were the 2010 Pakistan floods predicable?" *Geophysical Research Letters* 38, 41-56.
- Zhang, J., Zhou, C., Xu, K. & Watanabe, M. (2002). Flood disaster monitoring and evaluation in China. *Environmental Hazards*.