The Disaster Risk Reduction in the COPE Floods Storybook for Children's Awareness to COPE With Natural Disaster

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Abstract
Geographically Malaysia is characterized by two monsoon regimes, the Southwest Monsoon and Northeast Monsoon. The Southwest Monsoon is drier in most states, which happens from the end of May to September. The Northeast Monsoon brings heavy rainfall, mainly on the east coast of Peninsular Malaysia, from November to March. However, in December 2021, continuous heavy rainfall for two days caused heavy floods that hit an unexpected area in Klang Valley. The flood victims have suffered loss and trauma, specifically young children who considered this their first unexpected natural disaster experience a natural disaster. The events make young children resilient in overcoming their saddened loss because of the flood. Thus, this study identifies children's readiness in early preparedness for floods and the usability of the COPE Floods storybook for children's awareness of flood disaster risk reduction. The COPE Floods storybook relays the DRR messages to children as the story's plotline relatable stories, coping tools and preparedness, which is easy to understand. The qualitative method was adopted using interviews to understand in depth how children cope with the loss and trauma caused by floods. The interview was done with children who have experienced floods. The findings indicate that children show awareness after having experienced the floods and mentioned that they could be well prepared if the floods happened again by following the DRR messages relay in the COPE Flood.

Keywords: Natural Disaster, COPE, Floods, DRR, Storybook

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Introduction

Malaysia has humid weather throughout the year. Typically, Malaysian climate is influenced by the winds blowing from the Indian Ocean, which cause two monsoon seasons. The southwest monsoon in between May to September and commonly cause floods on the southwestern coast of Sabah (one of the states in Malaysia). The northeast monsoon, between November to March, affects the east coast of Peninsular Malaysia. Over the past four decades, rainfall intensity has increased and has worsened the flooding (NADMA, 2021). As a result, the climate change scenarios forecast that Malaysia will experience increased natural hazards and disasters. Flood is a major natural disaster that is facing in Malaysia (Haliza Abdul Rahman, 2018). Furthermore, in recent years, the development of the urban area and the growing urban populations may be exposed to flash floods caused by heavy rainfall (Malaysia Disaster Reference Handbook, 2022). As more risk-prone areas have developed, the impact of disasters has increased worldwide.

In 2018, the National Disaster Control Center (NDCC) has recorded as many as 110 catastrophic events across the country. A total of 66 incidents or 60.5% of these were floods, 26 incidents or 22.9% of them were storms, 9 incidents (8.2%) were a fire, and 3 (2.7%) incidents were landslides (NADMA, 2018). The worst floods were recorded in the Southern Peninsular Malaysia during the 2006/2007 monsoon (Tang, 2019). In 2014, the big yellow flood is considered the worst floods once again were recorded in Southern and East Coast Peninsular for the past 50 years. This incident resulted in 25 deaths of 541,896 victims from 136, 447 families were moved to 1335 evacuation centers (NADMA, 2018).

However, in December 2021, Tropical Depression TWENTYNINE hit Peninsular Malaysia which made landfall in Kemaman District at Terengganu State on 17 December, with maximum sustained winds of 46 km (about 28.58 mi)/hour (Malaysia Disaster Reference Handbook, 2022). The disaster displaced 40 000 people to evacuation centres, including young children, old folks and vulnerable people in Terengganu and Kelantan, the north-eastern state of Malaysia (ECHO, 2021). Within three days, the storm caused severe flooding in Malaysia's five states (Kelantan, Terengganu, Pahang, Selangor, Negeri Sembilan, Kedah), partially in the towns and villages (NADMA, 2021). In addition, the heavy rainfall, which began on 18 December has lasted more than 24 hours, was equivalent to rainfall for a month (Bedi, 2022). Historically, Selangor state particularly Taman Sri Muda, Shah Alam has been the most affected by severe flooding, which caused 25 deaths (Malaysia Disaster Reference Handbook 2022).

Among the victims are children that have to share the burden created by the disasters, both in the near and long term (Back, Cameron & Tanner, 2009; Pfefferbaum, Pfefferbaum & Van Horn, 2018). Mohammadania et al, (2017) also stated that children are a major group that is affected by disasters worldwide and it seems to be a unique field to consider in understanding how children prepared for the disasters.

Natural Disaster Impact on Children

Children are more severely impacted by disasters than adults (Pfefferbaum, Pfefferbaum & Van Horn, 2018). During the experience of natural disasters, young children are especially vulnerable in receiving the resources for disaster preparedness and response (Wiessbecker et al., 2008). Researchers at Lancaster University (2016) found that children that were affected by floods impacted their well-being. These include loss of valued personal and family

possessions, familiar spaces, lack of education provision, the experience of fear, anxiety, lack of sleep and recreation and deterioration in the diet. Although children's well-being is affected, children are not passive victims (Peek, 2008).

According to Lancaster University's researchers (2016), children play an important role in helping their families, neighbours and communities to recover from flood disasters. Children at this stage would be able to respond positively towards any pre-occurrences of a natural disaster if only they receive early prevention (training and psychoeducation) and exposure that can prepare them to face the crisis of a natural disaster. For example, researchers in Bangladesh have analysed that children play a significant role in Disaster Risk Reduction during floods in Bangladesh (Martin, 2010). To educate children on DRR knowledge, activities like games, storytelling and puppets would enhance their understanding of the importance of early preparedness.

COPE Floods storybook

COPE is a storybook series about natural disasters with Disaster Risk Reduction (DRR) messages for children written by Martha Keswick, illustrated by Mariko Jesse, and edited by Dr Timoty Sim. There are nine series, including droughts, volcanoes, storm surges, cyclones, earthquakes, landslides, wildfires, heatwaves, and floods. COPE is the acronym for the squad, namely Candy, Ollie, Ping and Eddy. The squad is led by Grand Mistress Fu, a martial art teacher and the founder of the COPE Academy situated at Mount Emei, Sichuan Province, in China. Every COPE squad has experienced and survived a natural disaster in their hometown. Therefore, they were recruited by Grand Mistress Fu to be the Disaster Risk Reduction agents. The DRR agent's role is to spread awareness and educate children worldwide on the importance of survival in specific natural disasters at specific locations in selected countries.

In this study, the series of COPE Floods is used as floods are the prominent and frequent natural disasters in Malaysia. The story plotline is based on the Kelantan states, where the worst floods in history were when the story was written. The plotline is significant to the flood's disaster in December 2021, which has affected the uncommon flood area. Hence the objective of the study is to identify children's readiness in early preparedness for floods and the usability of COPE Floods storybook for children's awareness of flood disaster risk reduction.

Methodology

This study adopts a qualitative research design using semi-structured interviews as the main instrument to understand children's readiness in early preparation for floods. The study was conducted in a private preschool in Klang Valley in October 2022. In the study's context, four children aged six years were chosen as the purposive sampling. They were chosen based on the respondents' experience with natural disasters, preferably floods. The criteria also included the ability to read and comprehension skills to understand the story plotline. The children were coded as C1, C2, C3 and C4 to maintain their privacy and ethics in reporting incidents they have experienced in this study.

The interview protocol was designed based on the text in the COPE Floods storybook. The text was written according to the scientific advice from the meteorological experts at the Hong Kong Observatory. The text is also based on the adaptation of the big yellow flood

events in 2014 in Kelantan state. Table 1 shows the adaptation from the text to the interview questions. The data were transcribed using thematic analysis.

Table 1: The adaptation of COPE Flood text to the interview questions.

Page	COPE Flood text	No	Interview questions
12	Today we will focus on the most common natural disaster Flood …	1	What is a flood?
13	and learn the most important message … EVACUATE	2	What would you do if there was a flood?
14	Now COPE, what should you do before a Flood?	3	What should you do before a flood?
16	And during a Flood?	4	What should you do during a flood?
18	And after a flood?	5	What should you do after a flood?

Conclusion

The findings identified that children have difficulty defining floods. Researchers have to explain the floods in the context of children's level of understanding. For some time, children can recall the events that they have experienced in December 2021. Children also tell a story based on their real-life experiences and what they must prepare when floods happen again. The COPE Floods story assists children to recognize the rescue and prevention that they have gone through. Based on the interview, there are several themes that emerge.

Heavy rainfall

In children's perspective, a flood happened when heavy rainfall pours over several days non-stop. When asked what is a flood? Some children said that flood is '*heavy rainfall … many many days*' (C3) and '*non-stop raining all day long*' (C2). Meanwhile, children C1 and C4 said in a synchronized answer that '*heavy rainfall*'. The answers are predictable as heavy rainfall lasted more than 24 hours when floods happened.

Resilience

At the beginning of the session, children were consensus saying that they must follow the rescuers to safer places and must leave their homes when asked what they should do when floods happen. Besides, some children were resilient towards their flood experiences, as they can cope with natural disasters as the child was saying '*when flood we safe ourselves first, listen to the fireman, stay with mom, dad, sister and don't cry*' (C2). The child also said '*when floods, I need to save my grandma... my grandma could not walk, I am strong, and I can save my grandma*' (C1). However, the other two children were following their friends' answers and agreed to their answers.

Using the text in the COPE Floods storybook, all children read the word '*evacuate!*' in synchronisation when asked what they should do before the flood. Evacuate is no longer an alien word to children, as they were recalled, that is the word the rescuer often uses for them to save themselves and their family at the evacuation centre. In their cases, children were evacuated to the school located on higher ground. Children telling that they ride on a fireman boat to the school as they could not walk in the flood, '*it's dangerous... I might be drowning if I walk in the water*' (C4).

Early preparation

Based on children's flood experiences, they are not ready when it happened. It is a sudden event that caused them to leave their house and belongings at the evacuation centres. When asked what they should do before, during and after floods, child C3 said '*I have to pack my things and bring them with me.*' Children C1 continued by saying '*listen to the warning... news announcement.*' The answers are significant with the text in COPE Flood which stated the list of early preparations for floods. Children also chant that they cannot play with flood water and must bring the important basic needs for them such as handphone, food, clothes, torchlight and toys. This indicates basic knowledge through experience that children have gone through and are able to cope with natural disasters through early preparation.

Discussion

Children are vulnerable individuals during natural disasters as psychologically it will affect them. The six years and below are the crucial years for children to explore the world in gaining foundation knowledge for learning development. Within these crucial years, children build their psychological well-being by adapting and adopting real-life experiences in any manner that they have been exposed to. Hence, early awareness and preparation are necessary for children to build resilience and cope with confidence in what they should do during a natural disaster, particularly floods in this context.

The study shows that storytelling with picture books which illustrate disaster risk reduction messages enables children to better understand preparedness. The emphasis on before, during and after a flood in the COPE Flood storybook describes children's aware of preparation. Children have the right to know how to prepare not only to save themselves but also to help others. Given the knowledge to children may contribute to the high impact on children's well-being. These include the ability to build resilience, value family relationships, and awareness of the risk of natural disasters. Therefore, it is vital to create awareness for young children as it will build a better understanding and resilience community in future.

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