

Community Empowerment in Disaster Management: A Systematic Review

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Abstract

The 2030 Agenda for Sustainable Development acknowledges and reaffirms the critical need to reduce disaster risk. There are also several Sustainable Development Goals and targets that can help to reduce disaster risk and build resilience. In this article, the authors will focus mainly on community empowerment in disaster management. Community plays an important role during disaster, before and after disaster occurs. This is in line with the goals of the Sendai Framework (2015-2030) which emphasizes on the role of society in disaster management by empowering local communities according to culture and local context. However, there were still insufficient studies on community empowerment in disaster management in Malaysia. Hence this article conducted a systematic review on the community empowerment in disaster management. This systematic review will focus on the development, empowerment and resilience practices among affected communities by promoting the use of internal and external sources which are in the community itself. This study guided by Reporting standards for Systematic Evidence Syntheses or ROSES review protocol. There are three main processes in the systematic searching strategies process namely identification, screening and eligibility. The searching process in these three databases namely Scopus, Web of Science and Google Scholars have resulted in a total of 156 articles. Overall, there were only 16 selected articles. The themes of the study stipulates that there are three major contributions towards this article namely disaster prone, community development and local knowledge. Community support should be seen as a process of facilitating resilience within individuals, families and communities which enables them to bounce back from the impact of crisis and helps build social support networks after disasters. This will help to deal with such events in the future.

Keywords: Community Empowerment, Disaster Management, Resilient, Sustainable Development Goals, Systematic Review

Introduction

Community plays an important role before, during and after disaster occurs. Natural disasters can strike at any time and without warning. Several regions throughout the world have seen an increase in the number of unanticipated natural disasters that harm the environment and cause socioeconomic damages. When unforeseen natural disasters strike, the afflicted communities often fall into a condition of passive victimhood. Community practise in the area of social work refers to interventions on a community level that advance our discipline's values, ethics, and objectives, such as service, social justice, individual dignity and worth, the importance of human relationships, integrity, and competence (Gamble & Weil, 2010). In the context of disaster management, a community is defined as a group of people who share similar characteristics and live in a disaster-prone area (Wiwandari et al., 2019). According to Betty Pfefferbaum et al (2015), community resilience has been acknowledged and promoted as a disaster management concept and approach. The major approaches for improving society's disaster resistance capacity are to accurately estimate disaster risk at the community level, improve community management capacity, and develop community capacities in disaster preparedness, reduction, response, and recovery (Xi Zhang et al., 2013). The term "community empowerment" is frequently used to describe communities that are resilient. A resilient community, according to Paton and Johnston (2001), is one that can rise and recover from critical conditions such as disasters.

According to Wiwandari et al (2019), in disaster management, there are at least two key concepts to consider regarding community resilience. It is closely related to the adaptation process, and thus a resilient community may have a good adaptive capacity to deal with disaster. Second, a community is understood as a social learning process in which people absorb the disturbance together, resulting in collective actions. Community participation in the development and implementation of disaster plans ensures ownership, which can enable communities to prevent, reduce, and effectively respond to stress, shocks, and potentially disastrous events because the community is the primary resource and frontline actor in community-based approaches (Azad et al., 2020). According to Fahrudin (2016), flood victims who are actively involved at the community level (bottom-up) are more capable of fixing problems that arise after floods. However, there were still insufficient studies that systematically review the existing literature on community empowerment in flood disaster management. The review is guided by the central research question – What are the factors that empower the community to participate in disaster management? The goal of this study was to reduce the gap by thoroughly evaluating prior related studies to acquire a better understanding of community empowerment in disaster management.

Research Gap-the Existing Studies Related to Community Empowerment in Disaster Management

Although there are many studies that focused on the community empowerment in disaster management but there were still an insufficient amount of scholars who reviewed systematically the existing studies. To review past studies systematically is important and according to Robinson and Lowe (2015) traditional literature review faces several issues related to rarely comprehensive, highly susceptible to reviewer bias and seldom taking into account differences in the quality of studies. The present paper attempts to contribute to the existing body of knowledge by developing a systematic literature review on the community empowerment in disaster management. A systematic literature review is one of the ways to

review existing literature in more systematic ways. Moreover, according to Dewey and Drahota (2016), systematic literature review is a process that classifies, selects, and critically appraises the previous studies to answer the formulated question. In systematic literature review, the protocol or plan is specified before the review process. Systematic literature review is an organised and transparent process where the searching effort is conducted over several databases and similar processes can be replicated and reproduced by other researchers. It covers a rigorous search strategy that enables researchers to answer a defined question (Xiao & Watson, 2019). The systematic review offers details on the performed review process for example keywords used, articles selection for others to reproduce the investigation, confirm the analysis or study the generality. The review is guided by the central research question – What are the factors that empower the community to participate in disaster management? This study aimed to fill the gap by reviewing previous related studies systematically to gain more understanding of community empowerment in disaster management.

Methodology

The review protocol – ROSES

The ROSES (Reporting Standards for Systematic Evidence Syntheses) review methodology was used to guide the current study. ROSES is a system for systematic review and mapping in the realm of environmental management (Haddaway et al., 2018). ROSES is designed to encourage researchers to provide the right information at the right amount of detail. The authors began their Systematic Literature Review (SLR) by creating acceptable research questions based on the ROSES review process. The authors next go into the systematic search technique, which is divided into three parts: identification, screening (inclusion and exclusion criteria), and eligibility. The authors then go into the technique they used to assure the quality of the articles they were going to review. Lastly, the authors explain how the data were abstracted for the review and how the abstracted data were analysed and validated.

Formulation of Research Questions

The formulation of research question for this study was based on PICO. PICO is a tool that assist authors to develop suitable research question for the review. PICO is based on three main concepts namely Population or Problem, Interest and Context. Based on these concepts, the authors have included three main aspects in the review namely Community (Population), empowering community in disaster management (Interest) and empowering the community to participate in disaster management (Context) which then guide the authors to formulate its main research question - What are the factors that empowering the community to participate in disaster management?

Systematic Searching Strategies

There are three main processes in the systematic searching strategies process namely identification, screening and eligibility.

Identification

The process of identifying synonyms, related terms, or variations of the study's major keywords, which are community empowerment, disaster management, and resilience, is known as identification. Its purpose is to provide a database with more alternatives for finding similar articles to review. The keywords were created based on Okili's (2015) study question,

and the identification method relied on an online thesaurus and expert-suggested terms. The authors managed to enrich the existing keywords and developed fill search string (based on Boolean operator, phrase searching, truncation, wild card, and field code functions) on main databases namely Scopus and Web of Science. Due to various advantages such as advanced searching functions and wide coverage, these two databases have the potential to be the leading databases in a systematic literature review (indexing more than 5000 publishers). It ensures the quality of the article and has an interdisciplinary focus (Martin-Martin et al., 2018; Gusenbauer & Haddaway, 2019). The third database, namely Google Scholar as additional database is in inline with suggestion by Haddaway et al (2015) who noted the ability of Google Scholars to act as supporting database in systematic review process. Furthermore, the selection of Google Scholar is based on several advantageous. First it produces enormous results as Gusenbauer (2019) in their study concluded that 389 millions documents are available in this database. Orduna-Malea et al (2017) on the other hand concluded that there are 165 millions articles journals available in Google Scholar while Google Scholar seems excellent at retrieving known scholarly items (including from established publishers) compared with discovery tools (Loan & Sheikh, 2018). The searching process in these three databases namely Scopus, Web of Science and Google Scholars have resulted in a total of 156 articles.

The search string

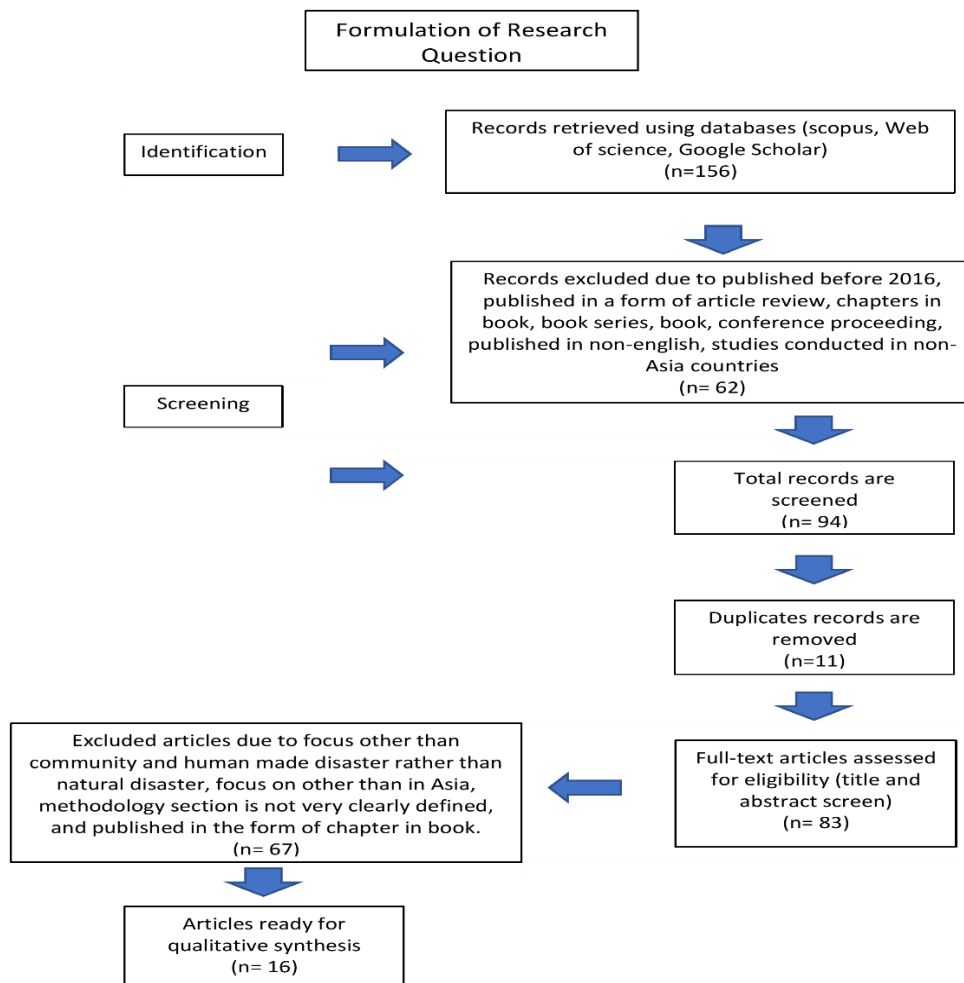
Database	Search string
Scopus	TITLE-ABS-KEY (("community empowerment" OR "people empowerment") AND ("disaster management" OR "tragedy management" OR "emergency management" OR "flood management") AND ("resilient" OR "resilience"))
Web of Science	TS = (("community empowerment" OR "people empowerment") AND ("disaster management" OR "tragedy management" OR "emergency management" OR "flood management") AND ("resilient" OR "resilience"))

Screening

This study screened all the 156 selected articles by choosing the criteria for articles selection which is done automatically based on the sorting function available in the database. The selection criteria are based on the research question as suggested by (Kitchenham and Charters, 2017). As it is almost impossible for the researchers to review all the existing published articles, hence Okoli (2015) suggested the researcher should determine the range of period that they are able to review. Hinggin and Green (2011) on the other hand stated that restriction on timeline publication should be activated only if it is known that related studies could only have been reported during a specific time period. Based on the searching process on the selected data, it was realized that the number of studies related to community empowerment in disaster management have multiplied starting from 2016. Meanwhile, the reason for limitation the search to 2020 was due to the searching process that started in November 2021. Therefore, based on this, the timeline between 2016 to 2020 was selected as one of the inclusion criteria. Furthermore, to ensure the quality of review, only articles with empirical data and published in a journal are included. Moreover, only articles published in english are incorporated in the review to avoid confusion in understanding.

Eligibility

Eligibility is the third process where the authors manually monitored the retrieved articles to ensure all the remaining articles (after the screening process) are in line with the criteria. This process was done by reading the title and abstract of the articles. This process excluded 66 articles due to focus other than community and human made disaster rather than natural disaster, focus on other than in Asia, methodology section is not very clearly defined, and published in the form of chapter in book. Overall, there were only 16 selected articles.



The inclusion and exclusion criteria.

Criteria	Inclusion	Exclusion
Timeline	2016-2020	Before 2015
Document type	Article journal (empirical data)	Article review, chapter in book, book series, book, conference proceeding
Language	English	Non-English

Data Abstraction and Analysis

This study relied on integrative review. This technique allowed diverse research designs (quantitative, qualitative, mixed-method) to be included in the review. According to Whitemore and Knaf (2005), the best way to synthesise or analyse integrative data is by using qualitative or mixed-method techniques that enable the researcher to conduct iterative comparisons across the primary data sources. The present study selected the qualitative technique. The researcher read the 16 articles thoroughly particularly in the sections of abstract, results and discussions. The data abstraction was conducted based on the research questions, it denotes that any data from the reviewed studies that are able to answer the research questions were abstracted and placed in a table. Subsequently, the researcher performed thematic analysis that identified themes and sub-themes based on efforts related to noting patterns and themes, clustering, counting, noting similarities, and relationship that existed within the abstracted data (Braun & Clarke, 2006). Thematic analysis is considered as the most suitable in synthesizing a mixed research design (integrative) (Flemming et al., 2018). It is explained as a descriptive method that reduces the data in a flexible mode that merges with other data analysis techniques (Vaismoradi et al., 2013). The development of themes was done using this technique in a group consisting of corresponding author and co-authors with the theme of the findings. During the development of the themes, the researcher discussed any inconsistencies, thought, puzzles, or any ideas that could be associated with the interpretation of the data until the point of agreement on the adjustment of the developed themes and sub-themes.

No	Author(s)	Year of published	Country	Types of disaster	Types of community	Finding
1.	Ahadzie et al	2016	Ghana	Floods	Urban	According to the findings, both urban communities are aware that they are at significant danger of flooding and live in a constant state of fear throughout the rainy season.
2.	Phibbs et al	2016	New Zealand	Earthquakes	Urban	Both public health and emergency management have problems in designing and executing policies that include

						structural change, community resilience, and addressing individual risk factors.
3.	Yoon et al	2016	Korea	Natural disaster	Urban	Identifying the level of community resilience to natural disasters would give emergency managers and decision-makers with strategic directions for strengthening community resilience to natural disasters while lowering disaster-related negative impacts.
4.	Wedawatta et al	2016	Bangladesh	Natural disaster	Rural	Multi-purpose cyclone shelters, permanent embankments, and enhanced transportation infrastructure were among the infrastructural and structural protection requirements emphasised.
5.	Lam et al	2016	United State of America	Coastal hazards	Rural-urban	to quantify resilience to climate-related hazards using a new model

						dubbed the resilience inference measurement (RIM) model
6.	Lukasiewicz et al	2017	Australia	Natural disaster	Urban	The NSDR's emphasis on government at the centre of disaster risk management clashes with its other, less well-explained emphasis on community empowerment.
7.	Abu Talib et al	2018	Malaysia	Floods	Rural	The creation of an Integrated Community Centre (ICC) has been identified as a potential urgent solution for community empowerment. The ICC will be used as a multipurpose centre that includes a transit centre, a disaster mobile clinic, training and education, and a religious centre.
8.	Liu et al	2018	China	earthquakes	Rural-urban	extends the resilience triangle concept to present a two-stage stochastic programme for developing a community recovery

						measuring methodology.
9.	Scott et al	2018	Australia	Extreme weather	Urban	The use of an assets-based approach to community development offers a lot of potential for guiding community-directed recovery programmes that can help with long-term resilience.
10.	Imperiale & Vanclay	2019	Italy	earthquakes	Urban	Decision-makers frequently employ a "command-and-control" strategy and rely on emergency powers. Because of these institutional systems, disaster relief organisations carry out top-down planning with little transparency or accountability. There is no systematic way to reducing disaster risk, community empowerment, or building resilience.

11.	Whittaker et al	2020	New Zealand	Earthquakes	Urban	Because of the increased frequency and severity of disasters, the focus has shifted from disaster recovery and response to disaster prevention. Preventive disaster management is critical for lowering and eliminating community disaster risk.
12.	Imperiale & Vanclay	2020	Italy	Earthquakes	Urban	The mechanism they use results in a lack of awareness of local people's ability to learn and transform, as well as how community wellness, vulnerabilities, and resilience influence disaster risks.
13.	Islam and Wahab	2020	Bangladesh	Cyclone	Rural	The recovery process was slowed by factors such as the project's short duration, a lack of coordination among recovery interventions, the lack of a national recovery

						planning and framework, poor interfacing between government extension services at the local level, failure to adapt to livelihood transformation, and the lack of a long-term solution to the problem.
14.	Darab et al	2020	Australia	Floods	Urban	It offers useful insights into community resilience and a community development approach, both of which must be actively nurtured in order to mitigate the effects of disasters.
15.	Liu et al	2020	China	Natural	Rural	Household livelihood resilience appears to differ between relocated and nonrelocated respondents, according to the findings. Respondents who have been relocated had lower resilience scores.
16.	Ke et al	2020	Taiwan	Natural	Urban	The resilient community as the central

						focus of local disaster management efforts has showed promise in terms of bridging inner/outer resources holistically and systematically responding to disasters.
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Results and Discussion

Background of the Selected Articles

Based on the systematic review, the finding of the study stipulates that there are three major contributions towards this article namely disaster prone, community development and local knowledge.

The Themes

Disaster-prone

In disaster-prone areas, protecting the most vulnerable individuals during catastrophes and calamities has been a major priority. People have varied ideas and experiences when it comes to natural disasters, which influences their perceptions of what is more vulnerable. The phrase "resilience" has become a buzzword with a variety of meanings, and various research have attempted to define it. Discussions on community resilience need to go from conception to operationalization if academic progress is to be made. Resilience is a patchwork of definitions and meanings with little orthodoxy in its conceptualization and application, which accounts for much of its policy appeal. Resilience is currently influencing a wide range of academic fields, including mechanics, ecology, and psychology, as well as disaster risk reduction sciences, sustainability sciences, and others. Local resilience planning groups, which bring together stakeholders with an interest in a specific area, are emerging as a viable option for enhancing community resilience.

The Sendai Framework's goal of preventing and reducing existing disaster risks, reducing population exposure and vulnerability to disasters, and increasing population preparation all hinge on building resilience. Community who are resilient, particularly those who are resilient to natural hazards, must rely on external resources and capabilities during times of crisis because they lack them. The resilience of a community is influenced by both internal and external variables. One such big challenge is improving community resilience, or the ability of place-based communities to preserve and even improve their members' livelihoods in the face of both slow and abrupt economic, social, and ecological changes. Scholars studying resilience who are attempting to bridge the gap between natural and social sciences to better understand these dynamics emphasise their interconnectedness with social-ecological systems. Communities that are particularly sensitive to the effects of disaster must adapt in

order to become more disaster-prone. Effective government policies and strategies are important, but they are not sufficient in and of themselves. The community must be made aware of the dangers, educated on the possible response choices, and given the authority to act on their own. In climate adaptation science and policy, urban resilience has become a popular concept.

Community Development

Integrating indigenous and scientific knowledge, as well as the ideals of inclusion and collaboration, leads to a more resilient and empowered community. Community felt it was necessary to raise standards in order to ensure their existence. Traditional livelihood practices, insufficient resources, low-level skills, and unwillingness to take risks in initiating new activity were impediments to break down and or modify socio-economic-cultural barriers (i.e., traditional livelihood practices, insufficient resources, low-level skills, and unwillingness to take risks in initiating new activity). The practice of resilience was lifted from the family to the community level as a result of community attachment. Strong community linkages and existing leadership structures spurred action during times of crisis; the flood-related requirements were not being met by larger national organisations; therefore, communities came up with their own solutions. Efforts to improve community resilience measures should be aware of these trade-offs and explicitly account for how they balance validity, reliability, ease of use, and utility.

The Sendai Framework for Disaster Risk Reduction prioritises disaster risk knowledge and understanding, so baseline data to benchmark resilience-building efforts and clear targets are essential. Community resilience was defined as a process that connects a network of adaptive capacities (resources with dynamic properties) to adaptation in the aftermath of a disturbance or adversity.

Local Knowledge

There is a growing recognition of the importance of knowledge derived from individuals, groups, and organisations in a region in environmental and disaster management, as consultation with those affected by events may provide invaluable knowledge in the development of future disaster management strategies (Mercer, 2007; Moreno, 2018; Ruddle, 2000; Weichselgartner and Obersteiner, 2002). If the interaction of individuals living within a geographically defined location is defined as a community, then local knowledge encompasses all members of that community, regardless of culture or ethnic background. As Berkes et al (2000) note, The important aspect is whether or not local knowledge exists that helps monitor, interpret, and respond to dynamic changes in the environment, not whether a practice is traditional or contemporary. A community's knowledge is the sum total of all of its members' knowledge. Individuals from various cultures and backgrounds, as well as different experiences, viewpoints, values, and beliefs, make up each community, each with their own local knowledge. Furthermore, because different groups are not mutually exclusive, people cannot simply be classified into them. People, regardless of their cultural background, may have lived in a community for generations or for a short time, and each brings their own set of values, beliefs, and community experiences, all of which are significant. Local knowledge is a dynamic process that changes with a person's physical social and emotional experiences (Fazey et al., 2005). It is holistic, functional and adapts to changes in social and natural environments (Rist, 2006; Santha et al., 2019). The knowledge of the individual is

shaped by their experiences that change and evolve over time (Santha et al., 2019) and can also include a combination of both scientific knowledge and local knowledge developed from the daily practice of living on and managing the land (Santha et al., 2019). Implementation of community involvement and the use of local knowledge in disaster management is not always straight forward in practice. There are a variety of local factors unique to each community and in this regard, there is no correct way to implement Community based disaster management or other participatory measures (Maskrey, 2011; Pelling, 2007; Santha et al., 2014; Van Riet et al., 2012). Furthermore, whilst local communities can be active in disaster management there are limits as to what they can achieve as they do not control resources and cannot influence decision making processes at a national scale (Maskrey, 2011). There are also many challenges which need to be addressed when using local knowledge to inform policy and risk reduction strategies.

Recommendation

This study suggested several recommendations for the consideration of future scholars. Future scholars should concentrate on other natural disasters such as volcanoes, tsunami, earthquakes that make a huge impact towards the community. Additionally, future studies should include non-natural disaster management that can develop community resilience. More studies are needed to review community empowerment in disaster management. The systematic review process revealed that future studies should consider conducting more disaster management studies toward empowering the community. Future scholars can investigate the negative impact of communities who are not resilient towards disaster. For example, they rely much on assistance from the government. Based on the review, most existing studies focused on post disaster approach. Future scholars can do research more on community empowerment in natural disaster management. Aside from that, the centre can bring together local communities, hold awareness programmes for adults and children such as Disaster Risk Reduction and Preparedness, as well as cultural and religious events. Instead of relying on the ruling authority, community participation is one of the most important factors in reducing disaster impact on the affected community. Other than that, future scholars can improve the method while conduction systematic literature review. For example, expand the search strings and use more databases.

Limitation of the study

There are limitation of the study while conduction systematic literature review. The limitations of this study's design are acknowledged. The search criteria were purposefully broad in order to include a wide range of studies and maximise the generalizability of the findings. The importance of other study designs in complex interventions is well understood, but the large number of sources necessitates the use of a narrative synthesis method, which has significant drawbacks. With so many different study designs, assessing quality is challenging, and data extraction is strongly reliant on the reviewers' interpretation of the literature, which might induce bias. The limitation is to access the article journals.

Conclusion

In conclusion, the main purpose of this study is to systematically review the community empowerment in disaster management. This review adds to the growing literature in the field of social work studies and betterment the understanding regarding community empowerment that bring huge impact towards disaster management. Based on the

systematic review, themes that are found in this systematic review are disaster-prone, community development and local knowledge. Based on the themes of this article, The community must be made aware of the threats, educated on the many reaction options, and given the authority to act independently. Urban resilience has been a popular idea in climate adaptation science and policy. Efforts to develop community empowerment measures should be conscious of these trade-offs and explicitly account for how validity, dependability, ease of use, and utility are balanced. While local communities can participate in disaster management, their abilities are limited because they lack control over resources and cannot influence national decision-making processes. Authors can conclude that resilience, community development and disaster management are some main factors that make a huge impact toward building community resilient in disaster management. Nonetheless, the existing evidence suggests that resilience will make a huge impact from bottom to top approach to manage pre, during and post disaster. Furthermore, government help in the form of social, economic, and environmental support is essential to boost disaster management adaptation.

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