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The Relationship of Community Risk Perception of Climatic Disaster Towards the Intention to Participate in Flood Prevention Activities

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ABSTRACT

Climate change is highly likely to influence riverine flood hazards, leading to a general increase in flood risks. According to the report, many individuals have experienced losses due to flooding, yet some plan to take action to mitigate this risk. This study aims to identify the determinants influencing people's behavior, specifically focusing on the most influential risk perceptions within the community regarding their intention to participate in flood prevention activities. This objective is approached through the application of the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB). A survey questionnaire was administered to 343 residents of Parit Raja, Johor, and the data were analysed using correlation analysis. The results revealed positive relationships among the variables, with the perceived benefits of flood management emerging as the most influential determinant of community risk perception. Furthermore, the study recommends future research in urban areas to achieve more comprehensive outcomes. The findings from this research provide valuable insights for better addressing climate-related calamities, implementing flood mitigation measures, and protecting the ecosystem.

Keywords: Climate change adaptation, Community participation, Flood risk management, Risk perception, Theory of planned behaviour.

1. INTRODUCTION

Natural disasters caused by climate change have become more frequent and intense globally in recent years, which poses serious problems for both human society and the ecosystem. Thus, hurricanes, droughts, floods, wildfires, and heatwaves are just a few examples of the catastrophic occurrences that are not just disruptive but also transformational, changing the dynamics of our world. According to [1], more than 475,000 people had died as a direct result of more than 11,000 extreme weather events globally, with the economic damages around USD 2.56 trillion when accounting for purchasing power parity between the year 2000 and 2019. Despite the fact that the general mortality rate will rise globally due to the effects of climate change, a recent study by the Climate Impact Lab discovered that, more than anywhere else, the poorest nations located closest to or below the equator, where the climate was expected to get more extreme and more unforeseen, will experience an extreme rise in mortality rates too [2]. The numerous unexpected floods have sparked speculations about a possible connection to climate change [3]. Besides, according to the Centres for Disease Control and Prevention (CDC), the rise of sea level due to climate change was primarily caused by two factors, where the first one was by warming and expanding ocean waters, and the second, by melting glaciers and ice sheets on land.

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The climatic disaster issues of flood were current social concerns as early of the year 2023 in the country of Malaysia, which had been affected by severe flooding, especially in the states of Johor, Sabah, and Pahang [4], where tens of thousands of people were forced to leave their houses. According to the World Health Organization (WHO), from 1998 to 2017, over two billion people worldwide were impacted by floods [5]. In other cases, the residents in Kuala Krai that were impacted by the 2014 floods were also discovered remaining reliant upon the government for food, shelter, and other requirements, and they appeared to be somewhat unprepared for upcoming disasters [6]. In the field of disaster studies and risk management, resilience has long been used to describe a society's or an area's capacity to deal with and be ready for risks and catastrophic events, both anticipated and unanticipated [7]. According to [8], despite the lack of formal training and structure, the capacity of a community to take action is considered a crucial outlet for residents and organizations to become involved. His study also stated that due to the effectiveness of participating communities that have local knowledge and skills that can be applied in a recovery and response to a disaster situation, as well as the fact that government funding was limited, this participation is seen as desirable. However, the contributions of the community in this matter are frequently neglected as well as devalued [9].

In order to maintain the future sustainability of the ecosystem, it is crucial to determine communities' risk perception towards the intention to participate in flood prevention activities. Hence, this study adopted the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB) to examine the risk perception that affects the community in the town of Parit Raja, Johor, Malaysia, towards the intention to participate in flood prevention activities. The entire population of Parit Raja is 3046, according to the information provided on the Majlis Perbandaran Batu Pahat (MPBP) official website. According to the concept by [10], social psychological behaviour may influence attitude. Therefore, the change of community risk perception towards the intention to participate in flood prevention activities is connected. Through the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB) could effectively predict and explain the communities' risk perception towards the intention to participate in flood prevention activities [11] . On the other hand, the TPB and HBM model also included various variables that were detailed in the literature review to improve communities' risk perception towards the intention to participate in flood prevention activities and enhance flood risk management. After analysis of the survey questionnaire in this study, the social awareness and knowledge of Parit Raja residents towards the climate disaster issues are associated with behavioural intention.

1.1 Climate Disaster

The climatic disasters such as landslides, floods, severe weather, tornadoes, epidemics, earthquakes, wildfires, droughts, volcanic activity, storms, and mass migration (dry) have become more frequent incidents happening worldwide [12] [13]. According to the World Health Organization (WHO), floods, tropical cyclones, extreme storms, droughts, and heat waves have been largely accountable for 80% to 90% of all known disasters caused by climate disasters over the last ten years [5]. Both human lives and the ecosystem can be seen as being impacted as more climate disasters and harsh weather occur in this world. Moreover, floods and droughts seem to have become the most prevalent and frequent natural disasters that have occurred, particularly in developing nations with limited adaptation capacity and vulnerable populations, as both pose serious economic and social challenges to people. Thus, without adaptable actions, growth in the economy and population alone is predicted to cause disaster losses rising to $185 billion per year according to the World Bank and United Nations in 2010. In addition, as the natural disaster occurred in a specific region, the surrounding area will also be negatively impacted. For instance, in Australia, wildfires occurred more often between 2019 and 2020, resulting in a loss of over $41.9 billion in the country's economy where more than 18,636,079 hectares of land burned, and the destruction of over 5900 buildings occurred [13]. Moreover, the 311 earthquakes, so named because they struck Japan on March 11, 2011, caused a major tsunami, created extensive damage and brought about 25 trillion yen in economic damages, and had an intense psychological impact

on the people living there even now [14]. Therefore, although physical damages in disaster areas may be repaired in a period of time, the psychological effects seem to be more difficult to overcome [13] for the community that stayed in that region.

In recent years, the significance of climate disaster concerns in Malaysia has risen, which has multiple negative effects on the nation's ecology, economy, and social structure. These can be attributed to the occurrence of floods and droughts that had a major socioeconomic impact on the country, while landslides produced by heavy rain and high winds that occurred in mountainous and coastal areas only caused little damage [9]. In detail, the likely effects of climate change in Malaysia involve rising sea levels, reduced productivity of crops, rising disease rates within forest species, diminished biodiversity, erosion of shorelines, intensified floods, coral reef bleaching, increased illness occurrences, tidal inundation of coastal areas, reduced accessibility to water, and worsening droughts [15]. The weather in Malaysia is humid, with an average annual rainfall of 2,500 mm in Peninsular Malaysia, 3,000 mm in Sabah, and 3,500 mm in Sarawak [16], resulting in natural disasters commonly happening in Malaysia [17]. In addition, according to statistics from the National Coastal Erosion Study 2015, Sarawak, Sabah, Johor, Perak, and Terengganu are the top impacted states that are experiencing significant coastal erosion. Consequently, Malaysia is vulnerable to losing 1,350 km of coastline owing to catastrophic erosion in the coming decades if quick action is not taken as sea levels rise rapidly as a result of rising temperatures, according to environmental statistics and experts[18].

1.2 Community risk perception on climate disasters

The community risk perception of the danger of catastrophes was critical to contemporary risk management and safety issues because it influences not only the communities' attitudes and behavior but also the development and execution of government initiatives for disaster mitigation plans [19] in the future. For instance, the people who perceived a greater hurricane danger were more willing to evacuate, according to research by Burnside et al. on the effects of risk perception on hurricane evacuation decisions made by the community of greater New Orleans [20]. Therefore, the study of community risk perception was crucial to comprehend and enhance community risk perception towards risk management assessment. In 1969, Chauncey Starr published an influential early paper on the public's perception of risk, where a revealed preference method was used to study the public's risk tolerance [21]. The study prompted academics to pay greater and more attention to research on risk perception [22]. Disaster risk perception has been found to be influenced by both prior disaster experience and residing in a disaster-prone location, but these factors do not necessarily raise perception of future risks [23], [24],[20]. As an example, [25]analyzed public support for nuclear energy in the United States and discovered that individuals who acknowledged the risks of nuclear energy were more reluctant to endorse the policy that had been made. According to[26], his research revealed that among the top temperatures, decreasing agricultural yields, pests, and disease. Moreover, the communities that highly perceived the risk of flooding were more likely to take actions to reduce the flood risk compared with the communities that saw flood risk as low [25]. However, in Pakistan, especially in the Khyber Pakhtunkhwa (KP) Province, which is extremely sensitive and exposed to catastrophes, studies covering the hazards associated with extreme weather and climate events, farm-level susceptibility, and adaptation measures are rare.

1.3 Analysis of the previous study on the intention to participate in flood prevention activities

A few related previous studies were conducted and analysed as part of the research's literature evaluation to look into the communities' risk perception that influences their intention to participate in flood prevention activities. Based on research carried out by [11] that was conducted within the Marine Protected Areas (MPAs) in Malaysia, which is in Perhentian Kecil, Perhentian Besar, Tioman Island, Redang Island, and Tinggi Island, the aim is to determine the

risk perception towards the intention to participate in flood prevention activities by the community. The study involved 360 households as respondents through a survey questionnaire. Findings from the study revealed that perceived susceptibility, perceived severity, perceived benefits, and previous flood risk experience have a significant influence on the communities' intention to participate in flood risk management. This implies that if the community can understand the danger of flood disasters and the gravity of the issues that they may face, it will result in a stronger behavioral adjustment. Beside it, research done in the community of Gombak riverside in Kuala Lumpur by [27], was purposed to study the relationship between risk perception of climatic disaster, previous flood risk experience, subjective norm, government, and society to evaluate the potential plans by the community to 'participate' in flood prevention activities and 'intention (e.g. interest) to participate in flood prevention activities. The data of the research survey was collected from 350 household heads residing as respondents. Based on the analysed result, the risk perception of climatic disaster, previous flood risk experience, and Government and Society had positive and significant influence towards the intention to participate in flood prevention activities, except for subjective norms.

Moreover, the awareness campaigns before the flash flood tragedy incident also had a significant influence on all these factors. The study's findings are perfect for being integrated into a national framework because they demonstrate the significance of stakeholder involvement and society perception in flood prevention efforts as a means of reducing the effects of environmental disasters by conducting an adaptive flood risk management plan. Other research carried out by[28] was intended to investigate the factors that are associated with intention to assist in flood disaster management. The study used a survey approach by distributing a questionnaire to 859 respondents who lived in three cities of Seoul, Suwon, and Yongin in Mactromill Embrain at South Korea. The finding revealed that participation intention was impacted by trust, knowledge, and stigma, although these impacts were reliant on social capital and the local environment. Participation increased when there was high confidence in the government, but this effect was more pronounced when social capital was high. In addition, there was also a significant difference in participation intentions between groups with high- and low-quality living environments. The fourth similar prior study was conducted by [28] in Taiwan, China. The objective of the research was to understand the effect of personal backgrounds and experience on teachers' intentions and behaviours in school disaster preparedness. 737, including the principals, directors, teachers, and administrative personnel in elementary school and junior high school, participated in the survey questionnaire. Based on the analysed result, teachers are more likely to participate in school disaster risk reduction activities if they have a favourable attitude toward the activity. Besides, the results also showed that, compared with elementary school, junior high school teachers were less likely to get involved in school disaster risk reduction initiatives.

In conclusion, most of the prior studies were focused more on flood disaster preparedness and risk reduction rather than influential factors towards the behavioural intention in flood prevention activities. Based on the above table, only two researchers who conducted research in Malaysia were studied about the risk perception towards the intention to participate in flood prevention activities by the community. Therefore, this present study was purposed to explain and determine the communities' risk perception towards the intention to participate in flood prevention activities in Parit Raja, Batu Pahat, that were based on Health Belief Model (HBM) and Theory of Planned Behavior (TPB). Due to the diverse sampling group of respondents, the measurements and results of this study differed from those of other studies. Additionally, the variations in results gave decision-makers precious insight to lessen the environmental disaster that may occur in each region of Malaysia in the future.

1.4 Health Belief Model (HBM) and Theory of Planned Behaviour (TPB)

The HBM was created with the aim of understanding and predicting preventative behaviours by integrating perceptions and beliefs about factors that may have an impact on health behaviours

in connection to infectious illnesses in the United States [29]. The model was created in the early 1950s in the United States by a group of social psychologists who wanted to comprehend the factors that discourage individuals from taking preventative health measures [30]. According to [31], the HBM encompasses a number of fundamental ideas, such as susceptibility, severity, benefits and barriers to behaviour, cues to action, and, most recently, self-efficacy, that predict why people would act to avoid, screen for, or control medical conditions. The HBM was chosen for this study because risk perceptions, which are the cardinal constituent components of HBM [31], are suited for evaluating people's perceptions and level of readiness in a hazard-prone location. For instance, the HBM was created to aid in the process of behavioural change, and it is now being used in studies of disaster preparedness for a variety of hazards in Western nations [32]. The prior studies showed the clear power of HBM as a fundamental idea, through integrating perceptions and beliefs about components that can have an impact on health behaviours, which produced strong predictability in looking at preventative actions. Therefore, the HBM model was used in the current study to explore the community risk perception of a climate disaster in relation to their intention to engage in flood prevention activities.

Theory Planned Behavior (TPB) has been frequently employed by researchers to examine the psychological aspects of human behavior. It had been designed by social psychologist Icek Ajzen and is a development of his prior theory which is the Theory of Reasoned Action [33] where it consists the elements of behavioral, normative, and control that influence human intention behavior where the person's intention to carry out a specific behavior is a key element in the idea of planned behavior, just like it was in the original idea of Theory of Reasoned Action (TRA). Moreover, according to [34], the motivational variables influencing behavior were believed to manifest in intentions, serving as indicators of the extent to which an individual is willing to exert effort in executing the behavior. The purpose of Theory Planned Behaviour (TPB) is also to serve as a theoretical framework for methodically examining the influencing factors of human social behavior [35]. For example, it had been used to predict the behavioral intention towards the community risk perception of climatic disaster through the component of TPB [11], [27]. The aforementioned earlier studies demonstrated the clear power of TPB as a framework, which achieved good predictability in examining the factor that affects human social behavior. Therefore, the TPB model was used in the current study to explore the community risk perception of a climate disaster in relation to their intention to engage in flood prevention activities.

1.5 Hypothesis

It was concluded that the higher perceived susceptibility of flood led to a stronger intention to participate in flood prevention activities by the communities. For example, [11] study claimed that there was a great strength of significance relationship between the perceived susceptibility of flood and their intention to participate in flood prevention activities by the community of Marine Protected Areas (MPAs). Additionally, [32] found that residents' perceived susceptibility also had a significant impact on their level of intention in neighborhood-focused initiatives to prevent and lessen the effects of flood threats. Thus, after reviewing a few previous studies, the hypothesis was presented as follows.

H1: Perceived susceptibility of flood had a positive relationship with the intention to participate in flood prevention activities.

Some of the prior researchers showed a positive relationship between the perceived severity and the intention to participate in flood prevention activities. For instance, it was discovered that perceived severity had a substantial impact on attitudes toward the behavior in the past research of [36]. According to his findings, people's behavior is influenced by flood catastrophes if they threaten residents' livelihoods, cost a lot of money to reconstruct their property, or, in the worst cases, result in fatalities. Furthermore, in the research study of [11], the results showed that communities' intentions to participate in flood risk management were significantly influenced by

perceptions of flood severity. This suggests that greater attitudinal change may result from an individual's ability to understand the likelihood of flood disasters and the seriousness of the issues that can be encountered. As a result, the following hypotheses were developed for the current study.

H2: Perceived severity of flood had a positive relationship with the intention to participate in flood prevention activities.

A principal benefit of the model was known as a foundation for furthering behavioural interventions, as well as for its relevance and adaptability in understanding the cognitive components of social interaction [37] [38]. According to [29], perceived benefits were predominantly positive and effective towards the health behaviour following floods. In addition, based on the research study's findings [11] demonstrated that perceived benefits of flood management had a positive and significant influence on the intention to participate in prevention activities. Consequently, the following hypothesis was constructed to assume that the perceived benefits of flood management could affect the community's intention to participate in flood prevention activities.

H3: Perceived benefits of flood management had a positive relationship with the intention to participate in flood prevention activities.

Most of the components in the Health Belief Model (HBM) showed a significant influence on the components of the Theory of Planned Behavior (TPB). However, the higher components of perceived barrier led to a weaker intention to participate in prevention activities. For example, [11] in his study claimed that the community's intention of participating in flood control activities is not significantly influenced by perceived barriers. Moreover, the only assessed impression that fails to indicate a significant direct interaction between the intervention group and the 6-month timepoint follow-up is the perceived barrier score. [39],[40] in their study, they also revealed that participants with high perceived barriers were less likely to use effective adaptation measures when a heat wave hit. In turn, the fourth hypothesis was developed as follows, based on the concept.

H4: Perceived barriers to flood management had a negative relationship with the intention to participate in flood prevention activities.

Several prior studies had acknowledged that the previous experience of flood risk would influence the community's intention to participate in flood prevention activities [27][11]. For instance, [27]indicated that previous flood risk experience had a positive and significant influence on the intention to participate in flood prevention activities. As a result, the following hypothesis was created with the assumption that previous experience of flood risk could affect the intention to participate in flood prevention activities.

H5: Previous experience of flood risk had a positive relationship with the intention to participate in flood prevention activities.

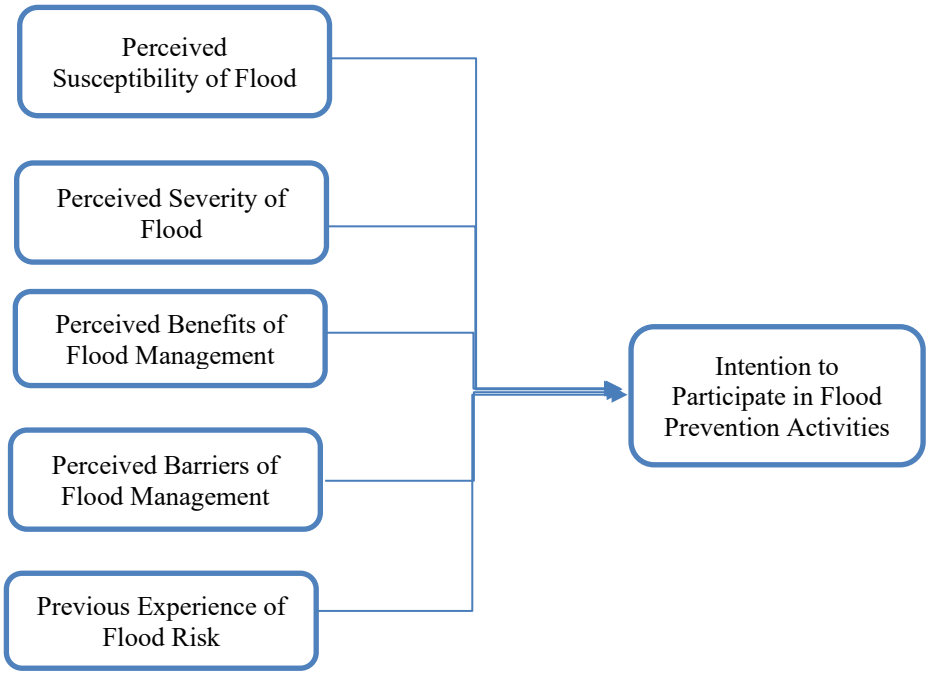

Figure 1: Research Framework.

2. MATERIAL AND METHODS

The researcher employed a survey questionnaire in addition to the primary data gathering approach used in the current study. The residents of Parit Raja, Johor, who just experienced severe flooding, were the responders' target group. They varied in terms of gender, age, race, level of education, and residential area. The research population for this study was the residents of Parit Raja who were affected by the recent severe flooding in Johor. The official website of Majlis Perbandaran Batu Pahat (MPBP) displays statistics that indicate that there were around 3046 people living in Parit Raja overall. Due to the challenges of studying a large population in terms of time and resources, the researcher determined a sample size using [41]. The chosen sample size for this study was 341 people, considered representative of the overall population.

In this study, the questionnaire had three sections: (1) demographic information of respondents, (2) intention to participate in flood prevention 6 activities based on TPB (dependent variable), and (3) the community's risk perception of climatic disasters based on HBM (independent variable). The research employed Spearman's rho correlation coefficient due to the non-normal distribution of the data to describe the relationship of communities' risk perception towards the intention to participate in flood prevention activities, and found the most influential factors that affect the variables.

Table 1: Measurement Item.

Variable	Author	Measurement Item
Intention to participate in flood prevention activities	[11], [27]	*I have the intention to participate in flood management.*
	[11], [27]	*I want to join a voluntary disaster prevention organization.*
	[11], [27]	*I am interested to involve for flood damage mitigation measures and flood control works.*
	[27]	*I think that flood damage can be minimized if everyone takes disaster prevention measures.*
	[27]	*I want to participate in disaster preparedness classes or drills.*
	[27]	*If administrative organizations hold disaster prevention drills, I want to participate.*
Perceived susceptibility of floods (PERSUS)	[42]	*I am very likely to experience a disaster in the next few years.*
	[32]	*I think the place where I am living is prone to flood disaster.*
	[32]	*I think my family members and I are prone to flood disaster.*
	[11]	*I notice flood might increase food insecurity.*
	[11]	*I realize flood destroys infrastructure and property.*
Perceived severity of floods (PERSEV)	[32]	*I think if a major flood event occurs, the place where I am living could be affected severely.*
	[32]	*I think if a major flood event occurs, my family members and I could be affected severely (injured or killed).*
	[11]	*I notice flood pose a greater threat to health.*
	[11]	*I know flood pose greater threat to human life.*
	[11]	*I realize flood pose greater threat to well-being*
Perceived benefited of flood risk management (PERBNF)	[42]	*I feel safe if I get prepared for disasters.*
	[32]	*I think preparedness for flood at household level could protect the place where I am living from flood disaster*
	[32]	*I think preparedness for flood at household level could protect my family members and I from injury or death due to flood disaster.*
	[11]	*I know Flood Risk Management will able to make stable of essential goods.*
	[11]	*I realize Flood Risk Management will make sure secure well-being.*
Perceived barriers of flood management (PERBER)	[42]	*Getting prepared for disasters does not make me feel good*
	[11]	*Lack of information*
	[11]	*Lack of financial budget*
	[11]	*Lack of Advance Technologies*
	[11]	*Lack of enough skills and knowledge to manage flood risk*

3. RESULTS AND DISCUSSION

Table 2 showed that the intention to participate in flood prevention activities (IPFPA) showed a significant relationship with moderate and positive correlation with the perceived benefits of flood management (PERBNF). On the other hand, the perceived susceptibility of flood (PERSUS), perceived severity of flood (PERSEV), and previous experience of flood risk (PFRE) showed a significant relationship with low and positive correlation with the intention to participate in flood prevention activities (IPFPA). Lastly, perceived barriers of flood management (PERBER) indicated a significant relationship with a negligible and positive correlation with the intention to participate in flood prevention activities (IPFPA).

Table 2: Formatting sections, subsections and subsubsections.

Hypotheses	Relationship	Sig. (2-tailed)	r_s
H1	PERSUS - IPFPA	<0.001	0.356
H2	PERSEV - IPFPA	<0.001	0.394
H3	**PERBNF - IPFPA**	**<0.001**	**0.423 (Highest)**
H4	PERBER - IPFPA	0.017	0.129
H5	PFRE - IPFPA	<0.001	0.255

The findings indicated that the factors influencing the community's perception of risk (perceived susceptibility of flood, perceived severity of flood, perceived benefits of flood management, perceived barriers of flood management, previous experience of flood risk) produce a significant positive relationship towards the intention to participate in flood prevention activities in Parit Raja, Johor. Consequently, only one null hypothesis was rejected while four were accepted.

The perceived susceptibility to floods (independent variable) demonstrated a positive correlation (correlation coefficient = 0.356, $p < 0.05$) with the intention to participate in flood prevention activities (dependent variable). However, upon closer examination, the researcher identified that the weak correlation coefficient arose from a significant number of respondents who disagreed with the belief in the severity of the problem, accepted its reality, and did not perceive their health to be in jeopardy (Huang et al., 2020). This divergence in perception can be attributed to the study's higher representation of young adults (28.6%) and adults (25.4%) compared to middle-aged adults (12.5%) and senior adults (5.2%). As highlighted by [32], there is an indication that as age decreases, the likelihood of perceiving susceptibility to flood hazards diminishes. Moreover, the perception of susceptibility was also observed not to exert a significant influence on community participation [32] and willingness. Consequently, it can be concluded that the perceived susceptibility of floods alone lacked the strength to influence community intentions to participate in flood prevention activities.

The positive correlation between the perceived severity of community risk perception of climatic disasters and the intention to participate in flood prevention activities was identified with a correlation coefficient = 0.394 and a p-value (Sig.) below 0.05. However, the emphasis on residents' perception of the magnitude of the threat posed by climatic disasters yielded a weak correlation, resulting in a less robust positive relationship between the variables. This weakened association can be attributed to the fact that almost half of the community in Parit Raja, Johor, had a low educational level, where 43.4% of respondents had obtained only a secondary school education, leading to a lower awareness of climate change knowledge. Numerous research studies have highlighted the influence of education and access to knowledge on risk perception [23], emphasizing that communities or individuals with limited formal education face challenges in accessing information for informed decision-making [43]. According to [44], respondents with lower educational levels exhibited less concern about the severity of climate change and were

less inclined to adopt adaptive measures. Hence, the factor of perceived severity of flood was not strong enough to predict the community's intention to participate in flood prevention activities.

The researcher validated and embraced the aforementioned hypothesis as a result of establishing a moderately correlated relationship between the perceived benefits of flood management and the intention to participate in flood prevention activities. The outcomes of the correlation test underscored the attainment of the highest coefficient value in this study compared to other variables, with a correlation coefficient of 0.432 ($p < 0.05$). The residents who actively participated in this research predominantly demonstrated a commitment grounded in their faith and evaluation of the efficacy of the proposed measures to mitigate the adverse effects and yield favourable outcomes when implementing flood management strategies, thereby enhancing [11] their inclination to actively participate in flood prevention activities. To be specific, prior studies [29] stated that the perceived benefits linked to a specific preventive action are intricately intertwined with one's confidence in the ability to successfully execute that particular course of action. Hence, it implies that communities will willingly contribute and engage if they perceive the benefits and outcomes of the interventions at an early stage [45]. As a result, the perceived benefits of flood management became the most influential factor affecting the intention of the community in Parit Raja, Johor, to participate in flood prevention activities.

The researcher had verified and rejected the above hypothesis because a positive correlation was being produced between residents' perceived barriers of flood management and their behavioural intention to participate in flood prevention activities (correlation coefficient: 0.129, $p < 0.05$). However, the Spearman's rho correlation in this study portrays negligible correlation, hence a clinically unimportant relationship between the variables. The majority of residents who participated in the research study expressed disagreement with the notion that beliefs in the actual difficulties and constraints hindered the effective implementation of flood management methods and techniques [32]. Furthermore, previous studies by [11], [46] also indicated that perceived barriers do not significantly influence the intention to participate in flood prevention activities. Consequently, the perceived barriers to flood management may be considered a negligible factor in influencing the community's intention to engage in flood prevention activities in Parit Raja, Johor.

Previous experience of flood risk was positive and significantly correlated with the intention to participate in flood prevention activities, as the statistics (correlation coefficient = 0.255, $p < 0.05$), but its Spearman's rho correlation coefficient was lowest when compared to other independent variables. According to responses gathered from the questionnaire, a significant majority of participants express disagreement with the idea that prior experience in flood risk management is crucial for informing risk communication and preparedness planning. Furthermore, the experience of flood victims can just be considered one aspect of proactive action in flood risk management, as highlighted by [47], however, [48], argues that experiences must also be aligned with individual values and beliefs. Therefore, individual actions may also be influenced by additional factors, such as the socio-economic status of individuals [49]. Given that the study was conducted in the rural area of Parit Raja, Johor, known for its modest lifestyle, it signifies a potential limitation in the financial capacity of residents to participate in awareness campaigns. Addressing this limitation, an awareness campaign targeting residents, local authorities, and insurers could underscore the substantial costs associated with disruptions, repairs, and replacements [49] that may lead to a drop off in participation in flood prevention activities.

4. CONTRIBUTION AND RECOMMENDATION

This study delved into the community's perception of climatic disasters in Parit Raja, Johor, specifically exploring its importance on their inclination to participate in flood prevention

activities. The research made significant strides in the field of social sciences, shedding light on adaptive behaviours concerning risk perception. In essence, the study aimed to offer a nuanced understanding of residents' perspectives, beliefs, and behaviours regarding flood risk perception in Malaysia, with the ultimate goal of influencing and enriching their engagement in flood prevention activities. The findings contribute valuable insights that can inform government actions, shape community beliefs, and build upon existing research, facilitating the development of effective campaigns and programs. Notably, the research underscored that the perceived benefits of flood management emerged as the most influential determinant of community risk perception in motivating participation in flood prevention activities when compared to other factors. Consequently, there is an opportunity for the government to instigate positive changes in the community's perception of flood risks. For instance, collaborative efforts between the government and community members to disseminate accurate and current information about flood risks, as well as the importance of flood preparedness through channels like social media and community meetings, could be instrumental. Such initiatives can foster a heightened understanding among people, prompting them to proactively take precautions against flooding when they recognize the positive consequences such actions can have for themselves and their community [50].

The future research could delve more deeply into the study of community risk perception of climatic disasters concerning the inclination to participate in flood prevention activities in urban areas such as Kuala Lumpur, Johor Bahru, and Kuantan. The differences in risk perceptions of climatic disasters and the behaviours of residents between rural and urban areas may be substantial, given various factors including socio-economic and demographic considerations, weather patterns, urban planning, and flood management measures. On the other hand, future studies may compute mixed methods of data collection, enhancing the richness of information gathered in research endeavours. As asserted by [51], the utilization of mixed methods allows researchers to address research questions with comprehensive depth and breadth, facilitating the generalization of findings and implications of the researched issues to the broader population. Moreover, the popularity of the mixed-method approach has grown in contemporary studies, particularly in the field of social sciences, owing to the complexities in elucidating human behaviour. Lastly, governmental entities involved in flood management, such as the National Disaster Management Agency (NADMA), which is responsible for coordinating and executing disaster management initiatives, may collaborate synergistically with the Department of Irrigation and Drainage (JPS) and other pertinent organizations to proficiently oversee water resources.

5. CONCLUSION

The correlation test conducted illuminated that the community's risk perception, most significantly influencing the intention to participate in flood prevention activities, lies in the perceived benefits of flood management. This influence was underscored by its significance level falling below 0.05, and the highest Spearman's rho correlation coefficient value of 0.423 surpassed that of other independent variables. Consequently, it was apparent that the perceived benefits of flood management wield a substantial impact on the behavioural intention to participate in flood prevention activities. Individual assessments of the positive effects and outcomes resulting from the implementation of flood management methods play a pivotal role in shaping risk perception. Notably, a prior study had suggested that the perceived benefits of flood management act as a crucial antecedent on disaster preparedness beliefs [42] towards attitudes towards preventative behaviours [52], signifying that belief in the efficacy and benefits of preventative actions fosters a greater inclination to undertake them. To sum it up, the perceived benefits of flood management emerge as a key factor in mobilizing participation in flood prevention activities, particularly during climatic disaster seasons. Consequently, governmental policymakers should strategically plan initiatives to augment residents' perceived benefits of

flood management, thereby bolstering their inclination to actively participate in flood risk management.

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