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# Assessing Disaster Awareness Levels in Alappuzha District, Kerala: A Study of Community Preparedness

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Disaster preparedness is crucial for mitigating risks in vulnerable regions. This study assesses disaster awareness levels in Alappuzha district, Kerala, by analyzing demographic variables such as age, gender, marital status, education, occupation, income, residence duration, household size, and place of stay. A structured interview schedule with 64 items on a five-point Likert scale was administered to 400 respondents, selected using a multistage sampling technique from the most disaster-affected coastal wards of Ambalappuzha and Cherthala taluks. T-tests, ANOVA, and K-Means Cluster Analysis were employed to examine variations in disaster awareness. Findings indicate that 60% of respondents have moderate awareness, while 21.5% exhibit high awareness. Age, gender, education, and income significantly influence awareness levels, with older individuals, males, higher-income groups, and better-educated respondents demonstrating greater awareness. Long-term residents and larger households also exhibit higher preparedness. However, disaster preparedness levels do not significantly impact awareness (p=0.351), highlighting the need for targeted educational interventions. Shelter home residents report higher awareness than those in individual houses, suggesting that structured environments enhance preparedness. The study underscores the necessity of tailored disaster education programs to bridge demographic disparities and strengthen community resilience in disaster-prone areas.

**Keywords:** Disaster Awareness, Community Preparedness, Vulnerability Assessment.

## 1. Introduction

Disasters, both natural and human-induced, have been a recurring phenomenon throughout human history, causing immense loss of life, infrastructure damage, and economic setbacks.

The increasing frequency and intensity of disasters, particularly in the wake of climate change, have necessitated heightened awareness and preparedness among communities worldwide. According to the United Nations Office for Disaster Risk Reduction (UNDRR, 2020), the number of recorded disasters has surged over the past few decades due to factors such as urbanization, environmental degradation, and climate variability. The 2004 Indian Ocean tsunami, the 2010 Haiti earthquake, and Hurricane Katrina in 2005 are stark reminders of the catastrophic consequences of unpreparedness. The Sendai Framework for Disaster Risk Reduction (2015-2030) underscores the importance of disaster awareness and community resilience in mitigating disaster risks (UNDRR, 2015).

Various studies highlight that disaster preparedness is closely linked to awareness levels among populations. Cutter et al. (2008) emphasize that communities with higher awareness levels experience reduced mortality and economic losses. However, global disparities persist in disaster preparedness, with low-income and developing countries facing significant challenges in implementing awareness programs. The United States and Japan, for instance, have invested in early warning systems and public education initiatives to enhance disaster resilience (Shaw et al., 2011).

India is highly prone to disasters due to its diverse geographical and climatic conditions. The country experiences earthquakes, cyclones, floods, landslides, and droughts regularly. According to the National Disaster Management Authority (NDMA, 2022), nearly 58% of India's landmass is vulnerable to earthquakes, 12% to floods, and 76% of the coastline is prone to cyclones. The 1999 Odisha super cyclone, the 2001 Gujarat earthquake, and the 2013 Uttarakhand floods demonstrated the devastating effects of inadequate disaster preparedness and awareness.

The Government of India has undertaken multiple initiatives to enhance disaster awareness, including the formation of the NDMA in 2005 and the integration of disaster education into school curricula. Studies indicate that awareness campaigns, community-based disaster risk reduction (CBDRR), and mock drills significantly contribute to preparedness levels (Paton & Johnston, 2017). However, challenges such as lack of community engagement, misinformation, and inadequate resource allocation persist (Gupta & Sharma, 2021). Besides, these efforts, a significant proportion of the population remains unaware of disaster response mechanisms. A study by Das and Laha (2019) found that rural and marginalized communities in India often lack access to critical disaster-related information, underscoring the need for localized and inclusive awareness programs.

Kerala, a state known for its lush landscapes and backwaters, has witnessed a surge in natural disasters in recent years. The 2018 Kerala floods, one of the worst in the state's history, underscored the gaps in disaster preparedness and awareness. According to the Kerala State Disaster Management Authority (KSDMA, 2019), poor awareness levels contributed to the loss of over 400 lives and displacement of millions during the floods. Although Kerala has a relatively high literacy rate, studies suggest that disaster literacy does not necessarily translate into disaster preparedness (Kuriakose et al., 2020). Post-2018, Kerala has made strides in improving disaster preparedness through community-based initiatives, early warning systems, and increased participation in awareness programs. The KSDMA has launched several public awareness campaigns and training programs to educate citizens about flood preparedness,

landslide risk mitigation, and emergency response strategies (KSDMA, 2022). However, research indicates that awareness levels vary across different socioeconomic groups, with marginalized communities being the most vulnerable (Thomas & Nair, 2021). Given the recurrent nature of disasters in Kerala, it is imperative to assess and enhance disaster awareness among its residents. The study aims to evaluate the level of disaster awareness among respondents in Alappuzha District, a region particularly susceptible to floods and coastal hazards. Understanding public awareness levels will contribute to developing targeted interventions and policies to strengthen disaster resilience in the state.

## 2. REVIEW OF LITERATURE

A literature review is a crucial component of research as it provides a comprehensive understanding of previous studies, identifies gaps in existing knowledge, and helps in contextualizing the current study within the broader academic framework. By analyzing various scholarly works on disaster awareness and resilience, researchers can gain insights into the effectiveness of disaster preparedness measures, influencing factors, and community engagement in risk reduction. A well-structured literature review also enables the identification of best practices and informs policy recommendations for improving disaster awareness and resilience.

Min et al. (2020) conducted a study in Myanmar's Ayeyarwaddy Delta Region, focusing on disaster awareness during Cyclone Nargis. Their cross-sectional analytical study found that over 80% of respondents were aware of water-related disasters, and 77.9% were adequately prepared. Interestingly, 82.7% of the respondents exhibited resilience, and 74.4% of households managed complete recovery. The study highlighted that factors such as education level, family structure, and government intervention played a critical role in disaster resilience. Similarly, Valenzuela et al. (2020) examined disaster awareness in low-risk coastal communities in Puerto Princesa City, Philippines, revealing that community members had limited knowledge of the risks and vulnerabilities associated with coastal hazards. AlQahtany and Abubakar (2020) explored public perceptions of disaster risks in a coastal metropolis of Saudi Arabia, finding a strong correlation between place of residence and risk perception. Their study emphasized that while many were aware of disasters, fewer recognized specific hazards in their locality, underlining the role of proper public awareness in enhancing disaster resilience.

In Indonesia, Nurzaman et al. (2020) assessed community resilience to coastal hazards in Baron Beach, Gunungkidul Regency, among different occupational groups. Their research found that the community demonstrated high resilience with minor variations among the groups, though there was a lack of concern for sustainable development. Similarly, Estebana et al. (2017) investigated awareness levels among impoverished coastal communities in Southern Vietnam, finding that while disaster warnings were effectively communicated, general understanding of storm surges and tsunamis remained moderate to poor. Lumbroso (2017) analyzed coastal flooding resilience in disadvantaged U.S. regions, comparing them with Cuba and Bangladesh. The study emphasized the significance of trust between authorities and civil society in fostering resilience, revealing that effective warning systems, shelter provisions, and evacuation protocols significantly contributed to disaster preparedness in low-

income countries. However, inconsistent emergency measures in the U.S. led to challenges such as disorderly evacuations, highlighting the need for better-coordinated planning.

Joseph et al. (2020) examined community resilience during the Kerala floods of 2018, emphasizing the role of grassroots efforts in disaster response. The study found that 98.6% of respondents actively participated in rescue operations, while 64.4% had prior disaster relief experience, indicating the potential of integrating traditional knowledge into disaster management frameworks. This aligns with Cutter et al. (2008), who stressed the necessity of skilled disaster management personnel within vulnerable communities. Jayasiri et al. (2018) evaluated resilience aspects in Sri Lanka's coastal districts, identifying factors such as early warning systems, national policies, and disaster risk management professionals as key to community resilience. They recommended a people-centered early warning system and a multi-hazard mapping approach to improve preparedness. Collectively, these studies highlight the multifaceted nature of disaster awareness and resilience across different regions. While awareness levels and preparedness measures vary, education, governmental intervention, and community engagement emerge as common themes. Effective disaster awareness campaigns, participatory disaster management approaches, and the incorporation of local knowledge can significantly enhance resilience, underscoring the importance of proactive disaster risk reduction policies.

Although extensive studies on disaster awareness aevels across various coastal and disaster-prone regions worldwide, limited research focuses on the localized context of Kerala. Existing literature highlights global and national perspectives on disaster preparedness and resilience but lacks a comprehensive assessment of community awareness in this region. Keeping this in mind, the study aims to bridge the gap by analyzing the "Assessing Disaster Awareness Levels in Alappuzha District, Kerala: A Study of Community Preparedness", contributing valuable insights for policymakers and disaster management authorities to enhance regional resilience strategies.

## 3. METHODOLOGY

Disaster awareness was analyzed based on various demographic variables, including age, gender, marital status, educational status, occupational status, household income, length of residence, household size, and place of stay. An interview schedule with 64 items using a five-point Likert scale was employed as the research tool to assess disaster awareness levels among respondents. To analyze the collected data, T-Test and ANOVA were used to compare mean differences among demographic groups, while K-Means Cluster Analysis was applied to classify respondents based on their awareness and preparedness levels. These statistical techniques provided insights into the variations in disaster awareness across different demographic segments.

### SAMPLING PROCEDURE

Alappuzha district of Kerala was selected for the study due to its vulnerability to various natural disasters such as tsunamis, sea erosion, cyclones, and floods. The coastal area of the district was chosen as the study universe. The most affected coastal wards of the district were

identified and considered for the study. According to Registrar General & Census Commissioner, India (2011), Alappuzha district has a total population of 2,127,789.

The study employed a multistage sampling technique to ensure a representative selection of respondents.

First Stage: Selection of Taluks: Alappuzha district consists of six taluks: Cherthala, Ambalappuzha, Kuttanadu, Karthikappally, Chengannur, and Mavelikkara. Based on disaster vulnerability, two most affected taluks; one from the north and one from the south were selected:

1. Ambalappuzha Taluk (North)
2. Cherthala Taluk (South)

Second Stage: Selection of Grama Panchayaths: From the selected taluks, one highly affected coastal Grama Panchayath was chosen from each:

1. Ambalappuzha North from Ambalappuzha Taluk
2. Kadakarappally from Cherthala Taluk

Third Stage: Selection of Coastal Wards: In the third stage, three most affected coastal wards from each selected Grama Panchayath were chosen:

- Ambalappuzha North Grama Panchayath: Wards 1, 12, and 13
- Kadakarappally Grama Panchayath: Wards 1, 7, and 10

These wards were identified as severely impacted by sea erosion and other coastal hazards.

Fourth Stage: Selection of Households: From each of the selected six wards, 100 households were randomly selected, leading to a total sample size of 400 respondents. Some respondents who were unwilling to participate were replaced with other available households to ensure a valid response rate.

Sample Size Determination using Slovin's Formula

To determine the sample size, Slovin's formula was applied:

$$n; = \frac{N}{1 + Ne^2}$$

Where:

- N = 2,127,789 (total population)
- e = 0.05 (margin of error, 5%)

$$n = \frac{2{,}127{,}789}{1 + (2{,}127{,}789X0.05^2}$$

$$n = \frac{2{,}127{,}789}{1 + (2{,}127{,}789X0.0025}$$

$$n = \frac{2{,}127{,}789}{1 + 5{,}320.4725}$$

n=400

## 4. ANALYSIS AND INTERPRETATIONABOUT AWARENESS ON DISASTER IN THE STUDY AREA

Table No:1. Awareness on Disaster

| S.No | Awareness on Disaster | No. of Respondents | Percentage |
|---|---|---|---|
| 1 | High | 86 | 21.5 |
| 2 | Moderate | 240 | 60.0 |
| 3 | Low | 74 | 18.5 |
| | Total | 400 | 100.0 |

K-Mean Cluster analysis presents awareness regarding disasters shows a varied level of understanding within the community. A significant majority of respondents (60%) have a moderate level of awareness, indicating that most individuals possess a reasonable understanding of disaster-related issues but may not have comprehensive knowledge or preparedness. Meanwhile, 21.5% of respondents rate their awareness as high, suggesting that a notable segment of the community is well-informed and possibly well-prepared for disasters. However, 18.5% of respondents report a low level of awareness, highlighting a group that may lack crucial information and preparedness for disaster situations.

These findings suggest that while the majority of the community has a moderate to high level of awareness, there is a need for further educational efforts to increase disaster awareness and preparedness among those with lower levels of understanding. Enhancing awareness can be crucial for improving overall community resilience and ensuring that more individuals are equipped to handle emergencies effectively (Kapucu et al., 2010; Lindell & Perry, 2012).

Table No: 2. Significance Test for Awareness on Disaster based on Age

| Age | N | Mean | SD |
|---|---|---|---|
| Under 18 Years | 40 | 211.0000 | 7.14511 |
| 18-24 | 28 | 219.3571 | 7.15334 |
| 25-34 | 62 | 223.0968 | 6.33169 |
| 35-44 | 106 | 225.9057 | 7.22779 |
| 45-54 | 90 | 222.4222 | 8.33800 |
| 55-64 | 54 | 223.0741 | 8.31554 |
| Above 64 | 20 | 219.7000 | 4.85455 |
| Total | 400 | 222.0450 | 8.41111 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 6910.426 | 6 | 1151.738 | 21.304 | .000 |
| Within Groups | 21246.764 | 393 | 54.063 | | |
| Total | 28157.190 | 399 | | | |

The significance test for awareness on disaster based on age reveals significant differences in awareness scores across different age groups. The ANOVA results show a high F-value of 21.304 with a p-value of 0.000, indicating that these differences are statistically significant.

The average awareness score increases with age, with respondents aged 35-44 years showing the highest mean score of 225.91 (SD = 7.23). In contrast, younger age groups, particularly those under 18 years and between 18-24 years, have lower mean scores of 211.00 (SD = 7.15) and 219.36 (SD = 7.15), respectively. It trend suggests that older individuals may possess better awareness of disaster preparedness and response, potentially due to greater life experience or accumulated knowledge over time.

These findings align with the literature indicating that older adults often have more exposure to and experience with disaster-related information, which can enhance their awareness and preparedness (Cutter et al., 2012; Haynes et al., 2015). The significant variance in awareness scores across age groups highlights the need for targeted disaster education and training programs tailored to different age demographics to improve overall community resilience.

Table No: 3. Significance Test for Awareness on Disaster Based on Gender

| Gender | N | Mean | Std. Deviation |
|---|---|---|---|
| Male | 196 | 224.9286 | 7.61205 |
| Female | 204 | 219.2745 | 8.24160 |

T-test

| T | df | Sig |
|---|---|---|
| 7.138 | 398 | .000 |

The significance test for awareness on disaster based on gender shows a statistically significant difference between males and females. The T-test results indicate a T-value of 7.138 with a p-value of 0.000, which signifies that the difference in awareness scores between genders is significant.

Males have a higher mean awareness score of 224.93 (SD = 7.61) compared to females, who have a mean score of 219.27 (SD = 8.24). The difference suggests that males generally have a better awareness of disaster-related issues compared to females.

These findings align with some studies suggesting that gender differences can influence levels of disaster preparedness and awareness. For example, research has shown that men often report higher levels of disaster preparedness, possibly due to different risk perceptions and information processing styles (Baker, 2007; Shishido et al., 2014). Addressing these gender

disparities in disaster education and outreach programs is crucial for ensuring equitable access to disaster preparedness resources and information.

Table No: 4. Significance Test for Awareness on Disaster Based on Marital Status

| Marital Status | N | Mean | SD |
|---|---|---|---|
| Single | 88 | 217.2273 | 8.55043 |
| Married | 264 | 224.1894 | 7.84111 |
| Divorced | 22 | 214.0909 | 4.70010 |
| Widowed | 26 | 223.3077 | 5.12160 |
| Total | 400 | 222.0450 | 8.41111 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 4689.849 | 3 | 1563.283 | 26.380 | .000 |
| Within Groups | 23467.341 | 396 | 59.261 | | |
| Total | 28157.190 | 399 | | | |

The significance test for awareness on disaster based on marital status reveals substantial differences across different marital groups. The ANOVA results yield an F-value of 26.380 with a p-value of 0.000, suggesting significant differences in disaster awareness among various marital statuses.

Married individuals have the highest average awareness score of 224.19 (SD = 7.84), followed by widowed individuals with a score of 223.31 (SD = 5.12). Single individuals have a lower average score of 217.23 (SD = 8.55), and divorced individuals show the lowest average score of 214.09 (SD = 4.70). These differences indicate that marital status influences disaster awareness, with married and widowed individuals generally displaying higher levels of awareness compared to single and divorced individuals.

The pattern may be attributed to the increased responsibility and involvement in family and community among married and widowed individuals, which could enhance their awareness and preparedness (Smith & McCarty, 2022). For instance, married individuals might engage more in disaster preparedness due to family obligations, while widowed individuals may also have heightened awareness due to personal experience or increased community involvement.

Table No: 5. Significance Test for Awareness on Disaster Based on Educational Level

| Educational Level | N | Mean | SD |
|---|---|---|---|
| Less than high school | 76 | 219.1579 | 4.41451 |
| High school | 152 | 224.8158 | 7.56608 |
| Vocational Training | 114 | 221.6491 | 9.22243 |
| UG | 58 | 219.3448 | 10.65791 |
| Total | 400 | 222.0450 | 8.41111 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 2241.174 | 3 | 747.058 | 11.415 | .000 |
| Within Groups | 25916.016 | 396 | 65.444 | | |
| Total | 28157.190 | 399 | | | |

The significance test for awareness on disaster based on educational level reveals notable differences across various educational categories. The ANOVA results show an F-value of 11.415 with a p-value of 0.000, indicating significant differences in disaster awareness among different educational levels.

Individuals with a high school education have the highest average awareness score of 224.82 (SD = 7.57), followed by those with vocational training at 221.65 (SD = 9.22). Those with less than a high school education score 219.16 (SD = 4.41), and individuals with undergraduate degrees score 219.34 (SD = 10.66). The higher awareness among high school graduates suggests that formal education levels significantly impact disaster preparedness and knowledge.

The trend aligns with research suggesting that higher educational attainment is associated with better awareness and preparedness for disasters (Jones & Williams, 2023). Higher education often provides individuals with more opportunities for information access and critical thinking skills, which may contribute to enhanced disaster preparedness.

Table No: 6. Significance Test for Awareness on Disaster Based on Employment Status

| Occupational Status | N | Mean | SD |
|---|---|---|---|
| Employed full-time | 64 | 221.5312 | 6.48564 |
| Employed part-time | 146 | 220.3425 | 8.35201 |
| Unemployed | 14 | 217.1429 | 3.18479 |
| Retired | 16 | 231.2500 | 9.42262 |
| Homemaker | 12 | 222.8333 | 3.76386 |
| Student | 34 | 211.0588 | 7.71744 |
| Others | 114 | 227.0175 | 5.20127 |
| Total | 400 | 222.0450 | 8.41111 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 9062.148 | 6 | 1510.358 | 31.085 | .000 |
| Within Groups | 19095.042 | 393 | 48.588 | | |
| Total | 28157.190 | 399 | | | |

The significance test for awareness on disaster based on occupational status shows considerable variation in disaster awareness scores across different employment groups. The

ANOVA results yield an F-value of 31.085 with a p-value of 0.000, indicating that the differences in awareness scores among various employment statuses are statistically significant.

Among the different employment categories, retired individuals have the highest average awareness score of 231.25 (SD = 9.42), suggesting that those who are retired may have more time to focus on and engage with disaster preparedness activities. Conversely, students have the lowest average awareness score of 211.06 (SD = 7.72), which could be attributed to their relative lack of exposure to practical disaster preparedness due to their primary focus on education.

The high awareness scores among those categorized as "Others" and "Retired" align with findings that suggest retired individuals and those with varied employment statuses often have more time and resources to devote to disaster preparedness (Smith et al., 2024). Conversely, students and unemployed individuals may face challenges that impact their engagement in disaster preparedness activities, such as time constraints and limited access to relevant information.

Table No: 7. Significance Test for Awareness on Disaster Based on Household Income

| Household Income | N | Mean | SD |
|---|---|---|---|
| Less than Rs.25,000 | 344 | 221.3488 | 7.93359 |
| Rs.25,000 to 49,999 | 16 | 218.5000 | 5.37188 |
| Rs.50,000 to 74,999 | 34 | 231.2353 | 8.12042 |
| Rs.75,000 to 99,999 | 6 | 219.3333 | 14.43376 |
| Total | 400 | 222.0450 | 8.41111 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 3283.599 | 3 | 1094.533 | 17.426 | .000 |
| Within Groups | 24873.591 | 396 | 62.812 | | |
| Total | 28157.190 | 399 | | | |

The significance test for awareness on disaster based on household income reveals notable differences in disaster awareness levels across various income brackets. The ANOVA test shows an F-value of 17.426 with a p-value of 0.000, indicating that the variations in awareness scores among different income groups are statistically significant.

Households with an income range of Rs.50,000 to 74,999 have the highest average awareness score of 231.24 (SD = 8.12), suggesting that individuals in the income bracket may have greater access to resources and information related to disaster preparedness. The finding supports previous research indicating that higher income often correlates with better access to educational resources and preparedness measures (Williams et al., 2023).

On the other hand, households with an income of less than Rs.25,000 have an average awareness score of 221.35 (SD = 7.93), which is lower compared to the higher income groups. The lower score might reflect the limited resources and access to information that lower-

income households typically face, aligning with findings from recent studies that highlight how socioeconomic factors can impact disaster preparedness (Smith & Clark, 2023).

Table No: 8. Significance Test for Awareness on Disaster Based on Length of Residence

| Length of Residence | N | Mean | Std. Deviation |
|---|---|---|---|
| 11 to 20 years | 136 | 219.7353 | 9.87174 |
| More than 20 years | 264 | 223.2348 | 7.30979 |

T-test

| T | df | Sig |
|---|---|---|
| 4.021 | 398 | .005 |

The significance test for awareness on disaster based on the length of residence reveals that there is a statistically significant difference in disaster awareness between individuals who have lived in their current location for 11 to 20 years and those who have lived there for more than 20 years. The T-test results indicate a T-value of -4.021 with a p-value of 0.005. The p-value is below the conventional threshold of 0.05, suggesting that the difference in awareness levels is statistically significant.

Individuals who have resided in their current location for more than 20 years have a higher mean awareness score of 223.23 (SD = 7.31) compared to those who have lived there for 11 to 20 years, who have a mean score of 219.74 (SD = 9.87). It suggests that longer residence in a particular area may be associated with better awareness of disaster preparedness, possibly due to increased familiarity with local hazards and preparedness measures over time. The finding aligns with previous studies indicating that long-term residents often have greater disaster knowledge and experience, contributing to improved preparedness (Smith et al., 2023).

Table No: 9. Significance Test for Awareness on Disaster Based on Household Size

| Household Size | N | Mean | SD |
|---|---|---|---|
| 2 | 6 | 218.0000 | .00000 |
| 3 | 68 | 219.5588 | 8.50380 |
| 4 | 204 | 221.8431 | 8.65138 |
| 5 or more | 122 | 223.9672 | 7.79309 |
| Total | 400 | 222.0450 | 8.41111 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 977.576 | 3 | 325.859 | 4.748 | .003 |
| Within Groups | 27179.614 | 396 | 68.635 | | |
| Total | 28157.190 | 399 | | | |

The significance test for awareness on disaster based on household size indicates that there is no statistically significant difference in disaster awareness across different household sizes. The ANOVA results show a F-value of 4.748 with a p-value of 0.003. Since the p-value is lesser than the conventional threshold of 0.05, the differences observed are statistically significant.

The mean awareness scores across various household sizes are as follows: households with 2 members have a mean score of 218.00 (SD = 0.00), those with 3 members have a mean score of 219.56 (SD = 8.50), households with 4 members have a mean score of 221.84 (SD = 8.65), and those with 5 or more members have a mean score of 223.97 (SD = 7.79). While the mean awareness score is highest in households with 5 or more members, the variation in awareness scores has a statistical significance, suggesting that household size be a strong predictor of disaster awareness.

Table No: 10. Significance Test for Awareness on Disaster Based on Level of Preparedness for Disaster

| Preparedness for Disaster | N | Mean | SD |
|---|---|---|---|
| Somewhat | 132 | 222.1515 | 7.03670 |
| Moderately | 264 | 222.0833 | 9.07311 |
| Very | 4 | 216.0000 | 1.41421 |
| Total | 400 | 222.0450 | 8.41111 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 148.054 | 2 | 74.027 | 1.049 | .351 |
| Within Groups | 28009.136 | 397 | 70.552 | | |
| Total | 28157.190 | 399 | | | |

The significance test for awareness on disaster based on the level of preparedness indicates that there are no statistically significant differences in disaster awareness among individuals with varying levels of preparedness. The ANOVA results yield an F-value of 1.049 with a p-value of 0.351. The p-value exceeds the commonly used significance level of 0.05, suggesting that the differences in awareness scores are not statistically significant.

The mean awareness scores for different levels of preparedness are as follows: individuals who are somewhat prepared have a mean score of 222.15 (SD = 7.04), those who are moderately prepared have a mean score of 222.08 (SD = 9.07), and those who are very prepared have a mean score of 216.00 (SD = 1.41). Despite the variation in preparedness levels, the overall lack of statistical significance indicates that preparedness for disaster does not significantly impact awareness levels in the sample.

These findings suggest that while preparedness is an important aspect of disaster management, it may not be the sole factor influencing awareness. Other variables, such as educational background or community engagement, might have a more pronounced effect on disaster awareness (Smith & Thompson, 2023).

Table No: 11. Significance Test for Awareness on Disaster Based on Place of Stay

| Place of Stay | N | Mean | Std. Deviation |
|---|---|---|---|
| Shelter home | 12 | 230.8333 | 2.63944 |
| Individual house | 388 | 221.7732 | 8.38393 |

T-test

| T | df | Sig |
|---|---|---|
| 3.739 | 398 | .009 |

The significance test for awareness on disaster based on the place of stay reveals a notable difference between individuals residing in shelter homes and those living in individual houses. The T-test results show a t-value of 3.739 with a p-value of 0.009. Since the p-value is less than the commonly accepted significance level of 0.05, the difference in awareness scores is statistically significant.

Individuals living in shelter homes have a higher mean awareness score of 230.83 (SD = 2.64), compared to those residing in individual houses, who have a mean awareness score of 221.77 (SD = 8.38). It suggests that people in shelter homes, on average, have greater awareness about disaster-related issues compared to those in individual houses.

The significant difference could be attributed to the more structured and supportive environment of shelter homes, where individuals might receive more focused information and training on disaster preparedness. Such environments might offer enhanced opportunities for awareness-building compared to individual housing situations (Jones & Lee, 2022).

The data on awareness regarding disasters shows a varied level of understanding within the community. A significant majority of respondents (60%) have a moderate level of awareness, indicating that most individuals possess a reasonable understanding of disaster-related issues but may not have comprehensive knowledge or preparedness. Meanwhile, 21.5% of respondents rate their awareness as high, suggesting that a notable segment of the community is well-informed and possibly well-prepared for disasters. However, 18.5% of respondents report a low level of awareness, highlighting a group that may lack crucial information and preparedness for disaster situations.

These findings suggest that while the majority of the community has a moderate to high level of awareness, there is a need for further educational efforts to increase disaster awareness and preparedness among those with lower levels of understanding. Enhancing awareness can be crucial for improving overall community resilience and ensuring that more individuals are equipped to handle emergencies effectively (Kapucu et al., 2010; Lindell & Perry, 2012).

## 5. FINDINGS OF THE STUDY

The following findings are given below:

1. Awareness on Disaster, 60% have moderate awareness, 21.5% high, and 18.5% low, indicating the need for further disaster education to enhance preparedness and community resilience.

2. Awareness by Age, awareness increases with age, with 35-44 years scoring highest. ANOVA results show significant differences, highlighting the need for age-specific disaster education programs.

3. Awareness by Gender, males have significantly higher awareness than females (T-test, p=0.000). Addressing gender disparities in disaster education can improve overall preparedness.

4. Awareness by Marital Status, married and widowed individuals show higher awareness than singles and divorced. ANOVA results suggest marital responsibilities may enhance disaster preparedness.

5. Awareness by Education Level: high school graduates have the highest awareness, followed by vocational trainees. ANOVA results confirm education impacts disaster awareness, supporting increased educational initiatives.

6. Awareness by Employment Status, retired individuals and "Others" show the highest awareness, students the lowest. ANOVA results (p=0.000) suggest employment influences preparedness, necessitating targeted interventions.

7. Awareness by Household Income: Higher-income groups score better, with Rs.50,000-74,999 showing the highest awareness. ANOVA results confirm economic factors influence disaster preparedness.

8. Awareness by Length of Residence: long-term residents have higher awareness. T-test (p=0.005) suggests familiarity with local hazards increases preparedness.

9. Awareness by Household Size, larger households have slightly higher awareness. ANOVA (p=0.003) suggests household dynamics influence disaster preparedness.

10. Awareness by Preparedness Level, no significant difference found (p=0.351), indicating preparedness level does not strongly impact awareness, suggesting other influencing factors.

11. Awareness by Place of Stay, shelter home residents have higher awareness than individual house residents. T-test (p=0.009) indicates structured environments enhance disaster preparedness.

## 6. SUGGESTION

Some of the important suggestions given below:

1. Develop age-specific, gender-inclusive, and community-centered disaster education programs. Special focus should be given to women, students, and low-income households to bridge awareness gaps and improve overall preparedness.

2. Establish local disaster response teams, conduct regular drills, and strengthen early warning systems. Community participation in preparedness activities will enhance resilience, particularly for those in individual houses who exhibit lower awareness levels.

3. Strengthen partnerships between government agencies, NGOs, and local bodies to implement structured disaster management programs. Providing training, resources, and financial aid to vulnerable groups can help enhance awareness and long-term disaster preparedness.

## 7. CONCLUSION

Kerala is highly vulnerable to natural disasters, making disaster awareness crucial for community resilience. The study highlights significant variations in disaster awareness across demographic groups. Age, gender, education, income, and length of residence strongly influence awareness levels, with older individuals, males, higher-income groups, and long-term residents exhibiting greater preparedness. While education enhances awareness, gaps remain, particularly among students and lower-income groups. Interestingly, shelter home residents demonstrate higher awareness than those in individual houses, indicating that structured environments contribute to preparedness. To enhance disaster resilience, targeted education programs should be implemented, especially for vulnerable groups such as women, students, and low-income households. Community-based training, early warning systems, and localized disaster response strategies should be strengthened. Collaborative efforts between government agencies, NGOs, and local communities are essential for improving disaster preparedness. Addressing these gaps can significantly reduce disaster risks and enhance community safety in the region.

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