

KNOWLEDGE, ATTITUDE, AND PRACTICES OF PUBLIC HEALTH WORKERS ON
DISASTER PREPAREDNESS IN GEOGRAPHICALLY ISOLATED AND
DISADVANTAGED AREA OF DAVAO DEL NORTE

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Abstract

This study aimed to assess the knowledge, attitude, and practices of public health workers on disaster preparedness in Geographically Isolated and Disadvantaged Areas (GIDAs) of Davao de Norte. The study addressed the problem of limited and inconsistent application of disaster preparedness in resource-constraints GIDAs. A predictive-correlational design was used, with data collected from 131 public health workers, including doctors, nurses, and midwives. The researcher-adapted questionnaire underwent reliability testing for the Knowledge, Attitude, and Practices domains, yielding Cronbach's alpha values of 0.739, 0.810, and 0.936, respectively. Results revealed that respondents demonstrated a high level of knowledge, with a mean score of 3.00, indicating a strong understanding of disaster preparedness concepts and protocols. The overall attitude ($\bar{X} = 4.49$, $SD = 0.39$) and practices ($\bar{X} = 4.32$, $SD = 0.53$) levels were very high, indicating strong commitment, confidence, and active engagement in disaster preparedness activities. Correlation analysis showed a significant positive relationship between attitude and practices ($r = 0.669$, $p < 0.001$), while knowledge had no significant relationship with practices. Regression analysis confirmed that attitude was the only significant predictor of practices ($\beta = 0.659$, $p < 0.001$), highlighting the importance of motivation, responsibility, and positive perception in translating knowledge into action. It is recommended to reinforce positive attitudes, provide continuous capacity-building programs, conduct regular drills and simulations, and ensure institutional support to maintain and improve disaster preparedness among public health workers in GIDAs. Future studies are encouraged to explore other factors influencing disaster preparedness across different settings.

Keywords: *Disaster preparedness, Public Health Workers, Knowledge-Attitude-Practices, Geographically Isolated and Disadvantaged Areas, Davao del Norte, Philippines*

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Introduction

As frontline providers, public health nurses play a vital role in safeguarding community health, particularly in disaster-prone settings where timely response and preparedness are critical (Wong et al., 2023). Their level of preparedness directly influences the effectiveness of community-based

disaster response, especially in vulnerable areas with limited access to healthcare services. Given their close interaction with communities and their central role in implementing disaster risk reduction strategies, Sofyana et al. (2024) demonstrated that targeted nursing interventions significantly improve community disaster preparedness in four

key areas: knowledge, planning, warning systems, and resource mobilization. However, persistent gaps remain. Labrague et al. (2023) reported that nurses in high-risk countries often have inadequate disaster knowledge and skills, highlighting the need for strengthened capacity-building initiatives.

In the healthcare sector, disaster preparedness is essential for mitigating the impact of natural and human-induced disasters on public health (Khirekar et al., 2023). Health systems must be organized to address not only physical injuries and disease outbreaks but also psychological consequences such as anxiety, depression, and acute stress symptoms (Powell et al., 2020). Therefore, countries have a responsibility to adequately equip healthcare workers to respond effectively to disasters. Higher levels of preparedness are associated with more efficient and coordinated emergency responses. The World Health Organization emphasizes the importance of establishing comprehensive disaster response plans to ensure that emergency health workers are properly trained, equipped, and ready for deployment (Almukhlifi et al., 2023).

The Philippines is among the most disaster-prone countries in the world, facing frequent typhoons, floods, earthquakes, and other hazards. Studies indicate that Filipinos generally have low levels of climate change knowledge and disaster preparedness, with only about one-third adopting preventive measures (Bollettino et al., 2020). Dariagan et al. (2020) found that local governments in Panay Island were only partially prepared for disasters, although coastal and middle-income municipalities demonstrated relatively higher readiness levels. Similarly, Pelone and Fermil (2022) reported that while indigenous communities in Panabo City rely on traditional knowledge for disaster preparedness, their understanding of formal disaster risk management concepts remains limited.

Despite the critical role of public health workers in disaster preparedness and response, empirical evidence examining their knowledge, attitudes, and practices (KAP) in disaster-prone areas of the Philippines remains scarce. Specifically, there is limited data on (1) the current levels of disaster-related knowledge, attitudes, and

practices among public health workers; (2) the relationships among these KAP domains; and (3) the factors that predict disaster preparedness practices, particularly in geographically isolated and disadvantaged areas (GIDA).

To address these gaps, this study aims to assess the knowledge, attitudes, and practices of public health workers in selected GIDA communities in Davao del Norte, a disaster-prone province in the Philippines. By identifying existing strengths, weaknesses, and determinants of preparedness practices, the study seeks to provide evidence-based recommendations to strengthen disaster resilience within the public healthcare sector.

Methods

Design. This study employed a predictive-correlational research design to examine the relationships among knowledge, attitudes, and disaster preparedness practices of public health workers. The design was appropriate because it allowed the identification of significant associations and the determination of whether knowledge and attitudes predict preparedness practices. Through this approach, the study generated a model explaining how selected variables influence disaster preparedness behaviors.

Setting. The study was conducted from August to October 2025 in selected Geographically Isolated and Disadvantaged Areas (GIDA) in Davao del Norte, a disaster-prone province in the Davao Region, Philippines. The research focused on nine (9) GIDA-designated local health offices, including three City Health Offices (Tagum City, Panabo City, and Island Garden City of Samal) and six Municipal Health Offices (Carmen, Kapalong, New Corella, San Isidro, Santo Tomas, and Talaingod). Based on 2023 data from the Department of Health–Center for Health Development XI, Asuncion and Braulio E. Dujali were not classified as GIDA and were therefore excluded.

These GIDA areas were selected due to their limited accessibility, infrastructure

constraints, and resource challenges, which may influence disaster preparedness capacities. Although the researcher has prior professional exposure to the province, methodological rigor was maintained through standardized data collection procedures, validated instruments, and adherence to ethical and objective research protocols to minimize potential bias.

Participants. A total of 131 public health workers participated in the study, representing the entire eligible population from the three City Health Offices and six Municipal Health Offices in the Geographically Isolated and Disadvantaged Areas (GIDA) of Davao del Norte. The respondents included nurses, physicians, and midwives assigned to Barangay Health Stations and were either LGU-hired or DOH-deployed personnel.

The study utilized total population sampling, wherein all individuals who met the inclusion criteria were invited to participate. Inclusion criteria were: (1) actively employed during the study period (August–October 2025), (2) officially assigned to a GIDA-designated health office, and (3) directly involved in the delivery of public health services. This approach was appropriate given the manageable population size and ensured comprehensive representation of eligible public health workers (Fetzer, 2020). The list of qualified respondents was obtained from the official human resource records of the respective health offices.

Instrument. The study utilized an adapted survey questionnaire aligned with the study objectives. Minor modifications were made to improve clarity and contextual relevance. Permission to use and adapt the original instruments was obtained from the respective authors where required. The adapted questionnaire underwent content validation by local experts in public health and disaster management to ensure clarity, relevance, and appropriateness of the items.

The instrument consisted of three components measuring knowledge, attitude, and practices related to disaster preparedness. Knowledge was assessed using nine (9) true-or-false items, with each correct response scored as one (1) point and incorrect responses scored as zero

(0), yielding a total possible score ranging from 0 to 9. Scores were categorized as 0–3 (Low Knowledge), 4–6 (Moderate Knowledge), and 7–9 (High Knowledge). The knowledge scale demonstrated acceptable internal consistency, with a Cronbach's alpha of 0.739. Knowledge results were analyzed using total scores to ensure consistency with the dichotomous scoring format.

Attitude (8 items; Younis et al., 2020) and practice (8 items; Abdelghany Ibrahim, 2014) were measured using a 5-point Likert scale ranging from 5 (Strongly Agree) to 1 (Strongly Disagree). The reliability coefficients were 0.810 for the attitude scale and 0.936 for the practice scale, indicating good and excellent internal consistency, respectively. Mean scores for attitude and practice were interpreted using the following ranges: 4.21–5.00 (Very High), 3.41–4.20 (High), 2.61–3.40 (Moderate), 1.81–2.60 (Low), and 1.00–1.80 (Very Low).

Ethics. This study was conducted in accordance with established ethical standards for research involving human participants. Ethical approval was obtained from the Davao Doctors College Research Ethics Committee (REC) under Reference No. DDC REC MAN 08-25 004, which reviewed and approved the study protocol prior to data collection.

Participation in the study was entirely voluntary. Eligible participants were provided with detailed information regarding the study's purpose, procedures, potential risks, and benefits before signing the informed consent form. Participants had the right to decline participation or withdraw from the study at any time without penalty. Any data provided by participants who chose to withdraw were excluded from the analysis.

The study posed minimal risk to participants, primarily limited to the time required to complete the questionnaire. No physical, psychological, or financial risks were anticipated. Potential benefits included contributing to evidence-based improvements in disaster preparedness programs and strengthening the capacity of public health offices to respond effectively to emergencies.

Privacy and confidentiality were strictly maintained throughout the study. The collection,

processing, and storage of data adhered to the principles of transparency, legitimate purpose, and proportionality under the Data Privacy Act of 2012. Participants were not required to disclose identifying information, and any voluntarily provided details were not linked to the reported findings. All data were securely stored and accessible only to the researcher. In any publication or dissemination of results, no information that could identify individual participants will be disclosed. Participants were also given the option to request a summary of the study findings upon completion.

Procedure. The data collection process followed four key steps. First, necessary permissions were obtained from the program chairperson and from the City and Municipal Health Offices in the selected GIDA areas of Davao del Norte. Prior to data gathering, the instrument underwent content validation and pilot testing to ensure reliability and clarity. Second, eligible participants were identified, and informed consent was secured after explaining the study's purpose, procedures, and ethical considerations. Third, the questionnaires were administered to consenting respondents during the approved data collection period. Finally, completed questionnaires were collected, checked for completeness, and systematically encoded, tallied, and prepared for statistical analysis to ensure accuracy and confidentiality of the data.

Data Analysis. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics, including mean and standard deviation, were computed to determine the levels of knowledge, attitudes, and practices on disaster preparedness among public health workers. Knowledge scores were analyzed using total scores, while attitude and practice were treated as composite scale scores derived from multiple Likert items.

Pearson product-moment correlation (Pearson r) was used to examine the relationships among knowledge, attitude, and practice variables. Although attitude and practice were measured using Likert-scale items, composite scores from

multiple items were treated as continuous variables, a common and widely accepted approach in behavioral research. Assumptions of normality were assessed prior to analysis. Multiple linear regression analysis was performed to determine whether knowledge and attitude significantly predicted disaster preparedness practices. Multicollinearity diagnostics were examined to ensure that predictor variables were not highly correlated. All statistical tests were conducted using a significance level of $\alpha = 0.05$.

Scope and Limitation. The study aimed to assess the knowledge, attitude, and practices of public health workers on disaster preparedness in Geographically Isolated and Disadvantaged Area (GIDA) of Davao del Norte. The study was limited only to GIDA locations within the province, which may not fully represent the public health workers in non-GIDA areas of Davao del Norte. The study focused solely on public health workers, specifically nurses, doctors, and midwives hired by LGU and deployed by DOH, who were assigned to different Barangay Health Stations (BHS). Furthermore, the descriptive-predictive research design provided a comprehensive assessment of the knowledge, attitude, and practices of public health workers regarding disaster preparedness.

Thus, to achieve this goal, the researchers developed an adapted questionnaire comprising three parts, incorporating true-or-false items and a five-point Likert scale. A total of 131 public health workers in the GIDA areas of Davao del Norte participated in the study while maintaining full confidentiality of their identities. The study spanned four months, covering the proposal presentation, instrument validation, survey administration, data consolidation, and results presentation.

Nevertheless, the study aimed to provide valuable insights into the knowledge, attitude, and practices of public health workers on disaster preparedness, which could inform future interventions and capacity-building programs to enhance disaster preparedness within the public health sector.

Results and Discussion

1. What is the level of knowledge of public health workers regarding disaster preparedness?

Table 1. Level of knowledge among respondents

Indicators	Percentage	Interpretation
1. Disaster planning is important to determine what actions need to be taken and how they should be carried out before and after a disaster.	100%	High
2. Having a trained emergency response teams in a health facility is a vital component of disaster preparedness.	100%	High
3. Risk assessments is essential even in geographically isolated and disadvantage area (GIDA).	100%	High
4. Disaster can result from either natural event or human -made causes.	99.20%	High
5. Storing essential medicines and medical supplies is a key part of health facility preparedness.	100%	High
6. Knowledge of evacuation routes is essential in health facility settings.	99.20%	High
7. Conducting simulation exercises is considered a disaster preparedness activity.	100%	High
8. A disaster management involves both health and non-health professionals working in the facility.	99.20%	High
9. A disaster management requires collaborative actions among various agencies, such as health authorities, hospitals, and civil defense.	99.20%	High
Overall	Mean 3.00	SD 0.00
		High

Legend: 2.33 – 3.00- High; 1.67 – 2.32- Moderate; and 1.00 – 1.66- Low.

The table 1 presents the level of knowledge of public health workers in Geographically Isolated and Disadvantaged Areas (GIDA) of Davao del Norte regarding disaster preparedness. The overall mean score was 3.00 (SD = 0.00), which falls within the “High” interpretation range (2.33–3.00). All respondents were classified under the high knowledge category.

At the item level, responses demonstrate consistently strong knowledge across all indicators. Specifically, 100% of respondents correctly acknowledged that disaster planning is essential before and after disasters, that trained

emergency response teams are vital components of preparedness, that risk assessment is necessary even in geographically isolated areas, that proper storage of medicines and supplies is crucial, and that conducting simulation exercises is part of disaster preparedness.

Meanwhile, slightly lower but still very high percentages (99.20%) were recorded for knowledge that disasters may result from both natural and human-made causes, awareness of evacuation routes in health facilities, recognition that disaster management involves both health and non-health professionals, and understanding that inter-agency collaboration (e.g., health

authorities, hospitals, and civil defense) is required during disasters. These item-level results demonstrate minimal variability, with responses clustering at the highest scale point.

The absence of variation in the composite mean ($SD = 0.00$) suggests a ceiling effect, wherein respondents consistently selected the highest response category. However, the item-level percentages (99.20%–100%) confirm that minor variability exists across specific knowledge indicators. This pattern may reflect strong institutional exposure to disaster preparedness protocols, routine emergency drills, and continuous training initiatives conducted by local government units and the Department of Health in GIDA communities.

The consistently high knowledge scores indicate that public health workers possess a solid conceptual understanding of disaster planning, risk assessment, emergency coordination, and health facility preparedness. This is particularly relevant in GIDA settings, where logistical challenges such as limited transportation, poor communication infrastructure, and delayed resource mobilization heighten the need for strong foundational knowledge among frontline personnel.

This result aligns with the findings of Naser and Saleem, who reported that health professionals generally demonstrate strong disaster preparedness, particularly when institutional training and orientation programs are

in place. Similarly, Younis et al. (2020) emphasized that a high level of knowledge among health workers is crucial for effective preparedness, as it serves as the foundation for positive attitudes and appropriate Practices during emergencies.

The findings of the present study also validate the theoretical assumption of the Knowledge-Attitude-Practices (KAP) model, which posits that adequate knowledge is a prerequisite to developing the right attitudes and behaviors in crisis situations. Li et al. (2022) found significant correlations between knowledge, attitude, and readiness to practice, with direct low-to-moderate effects on disaster preparedness. The consistent high knowledge level of public health workers in GIDA supports this theory by showing that increased knowledge indeed corresponds to readiness and appropriate disaster response.

The findings are particularly significant given the challenges typical of GIDA areas—limited transportation, poor connectivity, delayed resource mobilization, and often understaffed health facilities. Despite these constraints, the ability of public health workers to demonstrate high disaster preparedness knowledge indicates a well-informed and capable of responding to disaster-related challenges, reflecting the success of local disaster risk reduction initiatives and continuous professional development programs.

2. What is the level of attitude of public health workers toward disaster preparedness?

Table 2. Level of attitude among respondents

Indicators	Mean	SD	Interpretation
1. I believe disaster preparedness is an essential part of my responsibilities as a public health worker.	4.82	0.40	Very High
2. I feel confident in my ability to respond effectively during a disaster.	4.26	0.64	Very High
3. I am willing to participate in disaster preparedness training and drills.	4.70	0.49	Very High

4. I believe disaster preparedness plans should be prioritized in GIDAs.	4.45	0.77	Very High
5. I feel it is important to review and update disaster preparedness plans regularly.	4.40	0.69	Very High
6. I believe my health facility is adequately prepared for disasters.	3.99	0.87	High
7. I am motivated to educate the community about disaster preparedness.	4.50	0.56	Very High
8. I believe inter-agency collaboration is necessary for effective disaster preparedness.	4.76	0.43	Very High
Overall	4.49	0.39	Very High

Legend: 4.21 – 5.00-Very High; 3.41 – 4.20-High; 2.61 – 3.40-Moderate; 1.81 – 2.60-Low; 1.00 – 1.80-Very Low.

Table 2 shows the level of attitude of public health workers in GIDA of Davao del Norte toward disaster preparedness. As shown, the mean scores for all attitude indicators range from 3.99 to 4.82, which are all interpreted as 'Very High', with an overall mean of 4.49 (SD = 0.39). This indicates that public health workers possess a very positive attitude toward disaster preparedness. Respondents strongly recognize that disaster preparedness is an essential part of their responsibilities as health workers ($\bar{X} = 4.82$), which is the highest rated item. They also express a very strong belief in the importance of inter-agency collaboration for effective disaster management ($\bar{X} = 4.76$), along with a strong willingness to participate in disaster preparedness training and drills ($\bar{X} = 4.70$). Although slightly lower than the rest, respondents still show a high belief that their health facility is adequately prepared for disasters ($\bar{X} = 3.99$), suggesting some perceived areas for improvement.

The findings imply that public health workers in GIDA demonstrate strong commitment, enthusiasm, and readiness to engage in disaster preparedness efforts. Their very high attitude reflects a sense of professional responsibility and moral obligation to ensure community safety during emergencies. This

finding is consistent with the results of Goniewicz et al. (2021), who found that training and experience are a critical predictor of disaster preparedness with greater exposure exhibit stronger positive attitude toward preparedness. This aligns with the findings of the present study that public health workers maintain very high confidence, motivation, and willingness to participate in preparedness activities.

Similarly, Gillani et al. (2021) further confirmed that attitude is a significant predictor of readiness to practices, supporting notion that the strong attitudes observed among respondents likely enhance their disaster response capabilities. Additionally, Kimin et al. (2021) emphasized that clinical experience and training enhance nurses' adaptability in disaster situations, which validates the present study that ongoing training and professional development contribute to the respondents' high level of preparedness.

Thus, the very high level of positive attitude among public health workers suggest that they are not only knowledgeable but also highly motivated to participate in disaster preparedness initiatives, thereby strengthening the community's resilience against potential disasters.

3. What is the level of practices of public health workers regarding disaster preparedness?

Table 3. Level of practices among respondents

Indicators	Mean	SD	Interpretation
1. I help with preparing or updating the disaster risk reduction and management plan in my facility.	4.31	0.67	Very High
2. I coordinate with local government units or other agencies during disaster preparedness planning.	4.24	0.73	Very High
3. I review and update disaster-related protocols regularly.	4.14	0.74	High
4. I participate in disaster preparedness training and seminars.	4.34	0.68	Very High
5. I ensure that emergency kits and medical supplies are available and ready in my health facility.	4.44	0.61	Very High
6. I educate community members about disaster preparedness.	4.40	0.59	Very High
7. I conduct or participate in simulation drills or emergency exercises.	4.35	0.66	Very High
8. I assess risks and identify vulnerable groups in the community as part of preparedness.	4.32	0.60	Very High
Overall	4.32	0.53	Very High

Legend: 4.21 – 5.00-Very High; 3.41 – 4.20-High; 2.61 – 3.40-Moderate; 1.81 – 2.60-Low; 1.00 – 1.80-Very Low.

Table 3 presents the level of practices of public health workers in GIDA of Davao del Norte regarding disaster preparedness. The mean scores for the eight statements range from 4.14 to 4.44, all interpreted as “High” to ‘Very High’, with an overall mean of 4.32 (SD = 0.53), which falls within the ‘Very High’ interpretation. This result suggests that public health workers demonstrate a strong and consistent engagement in disaster preparedness Practices.

Among the indicators, the highest practice level was recorded for ensuring that emergency kits and medical supplies are readily available ($\bar{X} = 4.44$), suggesting strong readiness and proactive resource management in health facilities. Public health workers also showed very high engagement in community education ($\bar{X} = 4.40$), emphasizing their active role in promoting disaster awareness among residents. This is followed closely by participation in simulation drills or emergency exercises ($\bar{X} = 4.35$), highlighting the workers’ commitment to

continuous learning and skill enhancement. Meanwhile, reviewing and updating disaster-related protocols registered the lowest mean ($\bar{X} = 4.14$), although still interpreted as high. This suggests that while protocol review is practiced, it may occur less frequently compared to other activities that are more operational or community-facing.

The findings suggest that public health workers in GIDA maintain very high levels of disaster preparedness practices, reinforcing their commitment to ensuring health system readiness during emergencies. Their high commitment may stem from both institutional support and a strong sense of duty to safeguard community welfare.

This result corroborates with the findings of Labrague et al. (2023), which found that continuous training, clear protocols, and community collaboration are critical for enhancing health professionals’ disaster preparedness practices. Fetene Tassew et al. (2024) specifically identified that positive predictors of good disaster preparedness

knowledge include disaster training, experience, and simulation practices. Hugelius and Harada (2025) further emphasize that disaster readiness extends beyond technical skills, encompassing personal mental preparedness and willingness to serve. The very high level of practices among public health workers indicates that they are not only aware and positive toward disaster preparedness but also consistently apply their knowledge and attitudes in real-world situations, demonstrating readiness to respond effectively when disaster occurs.

However, these findings should be interpreted with caution. As the data were collected through self-report measures, responses may be influenced by social desirability bias, wherein participants provide answers consistent with professional expectations or institutional norms. The consistently high mean scores may therefore reflect perceived role obligations and organizational culture in addition to genuine personal attitudes. Future studies may incorporate qualitative interviews or objective behavioral assessments to further validate these findings.

4. Is there a significant relationship between the knowledge, attitude, and practices of public health workers on disaster preparedness?

Table 4. Relationship of knowledge, attitude, and practices of public health workers on disaster preparedness

Variables	Practices			
	r	p-value	Decision	Remarks
Knowledge	0.157	0.073	Accept H_{01}	Not Significant
Attitude	0.669	<0.001	Reject H_{02}	Significant

*Legend: **Correlation is significant at the 0.01 level (2-tailed); r – Pearson correlation.*

In the present study the relationship among the knowledge, attitude, and practices of public health workers toward disaster preparedness using pearson correlation are shown in table 4. The results revealed that the relationship between knowledge and practices ($r = 0.1157$, $p = 0.073$) was not significant at the 0.05 level, indicating that higher knowledge scores do not necessarily translate into more positive practices or better disaster preparedness. This suggests that simply having factual information about disasters may not be enough to influence how health workers feel about preparedness or how they perform prepared-related tasks.

In contrast, attitude demonstrated a strong and statistically significant positive relationship with practices ($r = 0.669$, $p < 0.001$). This implies that as their level of attitude increases, their level of practices in disaster preparedness also increases. The public health workers who hold

more positive attitudes toward disaster preparedness are much more likely to engage in appropriate and effective preparedness practices. Among the three variables, attitude emerged as the only significant predictor of practice, which implies that attitude plays a crucial role in translating awareness into action, emphasizing the importance of motivation, commitment, and confidence in implementing preparedness measures effectively.

The results of the study are consistent with the Knowledge-Attitude-Practices (KAP) framework, which reveals that attitude is a critical mediator in translating healthcare workers' knowledge into effective disaster preparedness practices. The findings of Alshakka et al. (2022) support this principle, showing that both knowledge and attitude significantly correlate with readiness to practice. Similarly, Gillani et al. (2020) emphasized that while knowledge contributes preparedness, it is the attitude

component that enhances the likelihood of translating knowledge into actual practice. Mohamed et al. (2023) further reinforced this theoretical model by revealing that although 69% of respondents demonstrated adequate knowledge, only 16% displayed adequate practices—indicating that knowledge alone does not guarantee effective disaster-related actions. Taken together, these studies affirm the KAP framework and align with the present study's findings, where attitude, rather than knowledge, emerged as the significant predictors of preparedness practices among public health workers.

This suggests that while healthcare workers possess knowledge, their attitudinal approach determines whether this knowledge is effectively applied in disaster management scenarios. The framework highlights that mere information is insufficient; the psychological and motivational components play a crucial role in transforming theoretical understanding into practical action. In this study, although public health workers generally possess high knowledge levels, it is their attitude that strongly determines whether such knowledge is consistently applied in their disaster preparedness activities.

5. Do knowledge and attitude significantly influence the practices of public health workers on disaster preparedness?

Table 5. Test of the influence of knowledge and attitude of public health workers on their disaster preparedness practices

Independent Variables	Unstandardized Coefficients B	SE	Standardized Coefficients β	t	p-value
Constant	-2.069	1.811	-	-1.142	0.255
Knowledge	2.402	1.803	0.087	1.332	0.185
Attitude	0.886	0.088	0.659	10.044	<0.001

Legend: Significant if $p < 0.05$; DV=Practices; SE – Standard Error

Multiple linear regression analysis was conducted to determine whether knowledge and attitude significantly predict disaster preparedness practices among public health workers in GIDA of Davao del Norte. The regression results show that attitude is the only significant predictor of disaster preparedness practices among public health workers in GIDA of Davao del Norte. The standardized coefficient for attitude ($\beta = 0.659$) indicates a strong positive influence on practices, and its p-value (<.001) confirms that this effect is statistically significant. This means that public health workers with more positive attitudes toward disaster preparedness are substantially more likely to engage in appropriate preparedness practices. Moreover, for every unit increase in the

level of attitude, their level of practice also increases by 0.659.

However, knowledge has no significant influence on practices, as shown by their low standardized coefficient ($\beta = 0.087$) and non-significant p-value (0.185). Although knowledge contributes slightly to the model, it does not meaningfully predict actual disaster preparedness behaviors.

The non-significant role of knowledge in the present study may reflect contextual factors specific to GIDA, where healthcare workers may possess basic disaster knowledge from formal training or institutional guidelines, yet translating this knowledge into practice could be limited by resource constraints, lack of practical experience,

or organizational barriers. In contrast, a positive attitude—characterized by motivation, commitment, and perceived personal responsibility—appears to empower workers to engage proactively in preparedness activities despite these challenges. The findings emphasize that while knowledge is important, it is the attitude of public health workers that plays the decisive role of attitude in the KAP framework.

Theoretical and empirical literature consistently highlights the role of knowledge and attitude in shaping disaster preparedness practices among healthcare professionals. Studies by Harefa et al. (2021) established that both knowledge and attitude are significant predictors of preparedness, while Janizadeh et al. (2023) identified a persistent gap between positive attitudes and actual preparedness practices, emphasizing that knowledge and attitude alone may not fully translate into effective actions without practical training and experience.

The findings of the present study in GIDA of Davao del Norte align partially with this body of literature but provide a more nuanced understanding. The result corroborates the theoretical premise that attitudes play a crucial role in Knowledge-Attitude-Practice (KAP) framework but contrasts with some prior studies where knowledge was also a significant predictor. The present study's findings suggest that in context of public health workers in GIDA, enhancing attitudes through motivation, perception shaping, and behavioral reinforcement may be more critical than solely focusing on knowledge acquisition. The observed gap between knowledge and practice reported in previous studies is therefore reflected here, emphasizing the need for interventions that not only provide information but also foster positive attitudes that translate into actionable preparedness behaviors.

Conclusion and Recommendation

This study found that public health workers in GIDAs of Davao del Norte

demonstrate high levels of knowledge, very positive attitudes, and strong disaster preparedness practices. While knowledge levels were consistently high, regression analysis revealed that knowledge alone did not significantly predict preparedness practices. Instead, attitude emerged as the primary and statistically significant driver of disaster preparedness behaviors. These findings highlight that motivation, professional commitment, and positive perceptions toward preparedness play a more decisive role than information alone in shaping actual practice. Strengthening attitude-related factors is therefore critical in enhancing disaster readiness among public health workers in geographically isolated and disadvantaged areas.

Based on the key findings, particularly the significant role of attitude in influencing practices, the following prioritized recommendations are proposed: Implement attitude-focused interventions. Develop structured programs that reinforce professional commitment and motivation, such as values-based workshops, recognition systems, mentorship programs, and leadership-driven engagement initiatives. Training modules should incorporate behavioral components (e.g., confidence-building, scenario-based simulations, and problem-solving exercises) to strengthen the translation of positive attitudes into consistent preparedness practices.

Institutionalize regular simulation drills and experiential learning activities. Conduct periodic disaster simulations, inter-agency coordination exercises, and hands-on response training to reinforce practical skills and sustain proactive attitudes toward preparedness.

Strengthen institutional support and organizational culture. Ensure continuous administrative backing, adequate resource allocation, and regular review of disaster preparedness protocols. A supportive organizational environment can reinforce positive attitudes and sustain high levels of practice.

Sustain knowledge through continuous professional development. Although knowledge was not a significant predictor of practice, maintaining high knowledge levels remains

essential. Refresher courses, updated reference materials, and continuing education programs should be institutionalized to support long-term preparedness.

Limitations and Future Research

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits the ability to establish causal relationships among knowledge, attitude, and disaster preparedness practices. While regression analysis identified attitude as a significant predictor of practices, causal inferences cannot be made due to the single time-point data collection.

Second, the study relied on self-report measures, which may be subject to social desirability bias and response bias. Given the professional roles of public health workers, respondents may have provided answers aligned with institutional expectations rather than their actual behaviors or perceptions.

Third, the knowledge instrument may have been limited in its ability to capture variability in respondents' understanding. The consistently high scores suggest a possible ceiling effect, which may reflect either genuinely high knowledge levels or constraints in item difficulty and scale sensitivity.

Future researchers are encouraged to conduct similar studies across broader geographic areas and different sectors of the healthcare system to enhance generalizability. Longitudinal or mixed-methods designs may provide deeper insights into causal relationships and contextual factors influencing preparedness practices. Additionally, future investigations may explore other potential predictors of disaster preparedness—such as organizational climate, leadership support, risk perception, resource availability, and prior disaster experience—to develop more comprehensive and evidence-based strategies for strengthening public health emergency response in geographically isolated and disadvantaged areas.

References:

- Almukhlifi, Y., Crowfoot, G., and Hutton, A. (2023). Emergency health care workers' preparedness for disaster management: An integrative review. *Prehospital and Disaster Medicine*, 38(S1), s149-s149. <https://doi.org/10.1017/s1049023x23003904>
- Alshakka, M., Badulla, W. F., Al-Abd, N., Alawi, S., and Ibrahim, M. I. (2022). Knowledge, attitude, and readiness to practices disaster preparedness among University health students: Insights from resource-poor setting. *Journal of Hunan University Natural Sciences*, 49(1), 170-178. <https://doi.org/10.55463/issn.1674-2974.49.1.22>
- Bollettino, V., Alcayna-Stevens, T., Sharma, M., Dy, P., Pham, P., and Vinck, P. (2020). Public perception of climate change and disaster preparedness: Evidence from the Philippines. *Climate Risk Management*, 30, 100250. <https://doi.org/10.1016/j.crm.2020.100250>
- Tassew, S., Ayenew, T., Dires Nega, T., Bantie, B., and Getaneh Feleke, D. (2024). Knowledge levels of health professional working in Ethiopia toward disaster preparedness, systematic review and meta-analysis. *International Journal of Africa Nursing Sciences*, 20, 100649. <https://doi.org/10.1016/j.ijans.2023.100649>
- Gillani, A. H., Li, S., Akbar, J., Omer, S., Fatima, B., Ibrahim, M. I., and Fang, Y. (2021). How prepared are the health care professionals for disaster medicine management? An insight from Pakistan. *International Journal of Environmental Research and Public Health*, 19(1), 200. <https://doi.org/10.3390/ijerph19010200>

- Goniewicz, K., Goniewicz, M., Burkle, F. M., and Khorram-Manesh, A. (2021). Cohort research analysis of disaster experience, preparedness, and competency-based training among nurses. *PLOS ONE*, 16(1), e0244488. <https://doi.org/10.1371/journal.pone.0244488>
- Harefa, E. K., Ginting, D., Sitorus, M. E., and Nababan, D. (2021). Pengaruh perilaku tenaga kesehatan terhadap kesiapsiagaan bencana Di kabupaten Nias utara tahun. *Jurnal Kesehatan Masyarakat*, 5(2), 1152-1158. <https://doi.org/10.31004/prepotif.v5i2.2462>
- Hugelius, K., and Harada, N. (2025). What is disaster readiness among health care professionals? A systematic integrative review study. *Disaster Medicine and Public Health Preparedness*, 19. <https://doi.org/10.1017/dmp.2025.58>
- Janizadeh R, Omidvari F, Motlagh Z, Jahangiri M. Disaster Preparedness: Knowledge, Attitude, and Practice of Hospital Staff. *Health in Emergencies and Disasters Quarterly*. 2023; 8(3):193-200. <http://dx.doi.org/10.32598/hdq.8.3.482.1>
- Kimin, A., Nurachmah, E., Lestari, F., and Gayatri, D. (2022). Factors affecting nurses' ability to provide effective care in a disaster response: A review. *Journal of Public Health Research*, 11(2). <https://doi.org/10.4081/jphr.2021.2732>
- Labrague, Leodoro and Hammad, Karen. (2023). Disaster preparedness among nurses in disaster-prone countries: A systematic review. *Australasian Emergency Care*. 10.1016/j.auec.2023.09.002.
- Laily, N., Wulandari, A., Rahman, F., Silapurna, E. L., and Ulhaq, D. D. (2024). Analysis of health workers' preparedness factors in disaster management at disaster prone area community health centers. *Jurnal Berkala Kesehatan*, 10(1), 10. <https://doi.org/10.20527/jbk.v10i1.17767>
- Lamberti-Castronuovo, A., Valente, M., Barone-Adesi, F., Hubloue, I., and Ragazzoni, L. (2022). Primary health care disaster preparedness: A review of the literature and the proposal of a new framework. *International Journal of Disaster Risk Reduction*, 81, 103278. <https://doi.org/10.1016/j.ijdrr.2022.103278>
- Li, S., Gillani, A. H., Ibrahim, M. M., Omer, S., and Fang, Y. (2022). Should we focus more on teaching and training disaster management in health-care colleges? An insight into the students' knowledge, attitude, and readiness to practices. *Journal of Pharmacy and Bioallied Sciences*, 14(3), 147-156. https://doi.org/10.4103/jpbs.jpbs_420_21
- Pelone, B., and Fermil, F. A. (2022). Unveiling the disaster risk management Practices and challenges of ATA Mandaya Tribe in the hinterland of Panabo city. *Asian Journal of Education and Social Studies*, 38-46. <https://doi.org/10.9734/ajess/2022/v29i430708>
- Sofyana, Haris and Ibrahim, Kusman and Afriandi, Irvan and Herawati, Erna. (2024). The implementation of disaster preparedness training integration model based on Public Health Nursing (ILATGANA-PHN) to increase community capacity in natural disaster-prone areas. *BMC Nursing*. 23. 10.1186/s12912-024-01755-w.
- Wong, Diana and Hutton, Alison and Ledger, Kate and Lommerse, Louise and Ruler, Amanda. (2023). The Critical Role of Nurses and Midwives in Disasters. *Prehospital and Disaster Medicine*. 38. s91-s91. 10.1017/S1049023X2300256X