

# Perceived Level of Awareness on Disaster Risk Reduction Among Healthcare Professionals of Doña Remedios Trinidad Romualdez Educational Foundation Inc.

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## Abstract

The Philippines is highly vulnerable to natural disasters, making disaster preparedness a critical component of healthcare delivery. Healthcare professionals play a vital role in disaster response however, variations in Disaster Risk Reduction (DRR) awareness across institutions highlight the need for localized assessment. This study addresses the research gap concerning the specific level of DRR awareness among healthcare professionals at Doña Remedios Trinidad Romualdez Educational Foundation Inc. (DRTREFI). The primary purpose of the study was to determine the level of awareness, perceived importance, and influencing factors of DRR, as well as to examine the relationship between awareness and selected demographic variables.

A descriptive-correlational research design was employed, involving 30 full-time healthcare professionals selected through convenience sampling. Data were collected using a validated structured questionnaire and analyzed using descriptive and inferential statistics, including mean scores and correlation tests. Findings revealed that respondents were generally “knowledgeable” about DRR and perceived it as “very important” in their professional roles. Key influencing factors included institutional policies, access to training, prior disaster experience, and inter-agency collaboration. Despite these findings, no statistically significant relationship was observed between DRR awareness and demographic variables such as age, gender, professional role, or years of experience.

In conclusion, while healthcare professionals at DRTREFI demonstrate a relatively high level of DRR awareness and positive perception of its importance, preparedness is largely influenced by organizational and experiential factors rather than individual characteristics. The study underscores the need for structured, inclusive, and continuous DRR training programs to strengthen institutional readiness and enhance professional competency in disaster management

**Keywords:** Awareness, Disaster Risk Reduction, Healthcare Professionals

## 1. Introduction

The Philippines is referred to as one of the most disaster-prone countries in the world. Its geographic and physical features are contributing factors for its vulnerability to calamities. The nation is located in the Pacific Ring of Fire, earthquakes and volcanoes are frequent occurrences. The World Health Organization defines a disaster as an abrupt ecological phenomenon that is significant enough to require outside assistance. By offering vital medical care to their communities, health institutions and healthcare professionals play a significant role in the healthcare system during disasters.

Healthcare providers are frequently counted on to respond to emergencies and provide comprehensive care to communities. They ought to be aware of the important measures for individual protection, disaster awareness, and relocations, as well as how to lessen the impact of risks in society through improved health and nutrition, immunisation, and health education (Bonito, 2017). A descriptive study intended to examine awareness and practices in disaster management of the Healthcare professionals at Sorsogon Provincial Hospital found that the Healthcare staff are aware and frequently conduct disaster management. Challenges encountered in disaster management include insufficient equipment and facilities for successful disaster preparedness, response, and a lack of necessary manpower resources during a crisis. (Rojas & Castro, 2023).

The level of Disaster Risk Reduction (DRR) awareness among healthcare professionals varies by location and institution. There is still a gap in identifying the specific awareness levels of healthcare providers at Doña Remedios Trinidad Romualdez Educational Foundation Inc. (DRTREFI). To enhance health professionals' competencies and improve knowledge related to disaster risk preparations and readiness, it is imperative that health professionals' knowledge levels be assessed (Jairoun et al., 2022, Gillani et al., 2022).

Since healthcare providers are important human resources to cope up with calamities, it is necessary to determine the gaps whether they are prepared for future disasters. Disaster preparedness requires technical competencies such as basic scientific knowledge, disaster experience, and disaster practice. Therefore, they must be sufficient and prepared for disasters in order to effectively manage and foresee events. For the purpose of providing effective management, it must meet their own needs and evaluate their preparedness in DRR.

## Statement of the Problem

The study generally aimed to determine the level of DRR awareness among DRTREFI's healthcare professionals. Specifically, it seeks to answer the following questions:

1. What is the profile of the respondents in terms of the following:
  - 1.1. Age
  - 1.2. Gender
  - 1.3. Professional role
  - 1.4. Years of experience<sup>3</sup>
  - 1.5. Previous DRR training
2. What is the level of awareness of DRR among the healthcare professionals in DRTREFI?
3. What is the perceived level of importance of DRR in the work of healthcare professionals?
4. What are the factors that could influence the awareness of DRR among healthcare professionals in DRTREFI?
5. Is there a significant relationship between the profile and the level of awareness among the respondents?

## Research Hypothesis

H0: There is no significant relationship between the profile and the level of awareness among the respondents

## Theoretical Framework

The study used the Knowledge-Attitudes-Practice (KAP) Theory by Fatoni et al. (2022) to assess disaster awareness among healthcare workers in school settings. This theory examines the interconnected relationship between what healthcare professionals know, how they perceive, and what they do regarding DRR. This theoretical framework emphasizes that awareness does not exist on its own but is influenced by the interplay between the 3 components of the theory which are Knowledge-Attitudes-Practice.

The first component, which is knowledge, refers to healthcare professionals' understanding about DRR. Knowledge is the foundation of awareness as it provides healthcare professionals the necessary information that they need to be able to recognize issues and risk brought by a disaster. According to a recent study, such as analyzing Health Emergency and Disaster Risk Management by the World Health Organization, they have shown that inadequate disaster knowledge among healthcare professionals reduces the effectiveness of response during or after a disaster, that is why continuous education about DRR is important. In addition, The Sendai Framework for DRR (2020) highlights the importance of strengthening healthcare workers skills and knowledge with the use of continuous education such as proper training to improve their disaster preparedness and to be a more resilient healthcare responder during emergencies (Maslang et al., 2023).

The second component, attitudes, focuses on healthcare professionals' beliefs, perception, and values which directly influence their commitment to disaster preparedness. A study by International Journal of DRR (2021) found that healthcare workers with a positive perception of disaster training were more likely to prioritize emergency preparedness. According to O' Sullivan et al.(2019) training programs enhance

disaster literacy as well as awareness, enabling healthcare workers to identify issues and risks and implement effective measures to mitigate the result of disaster.

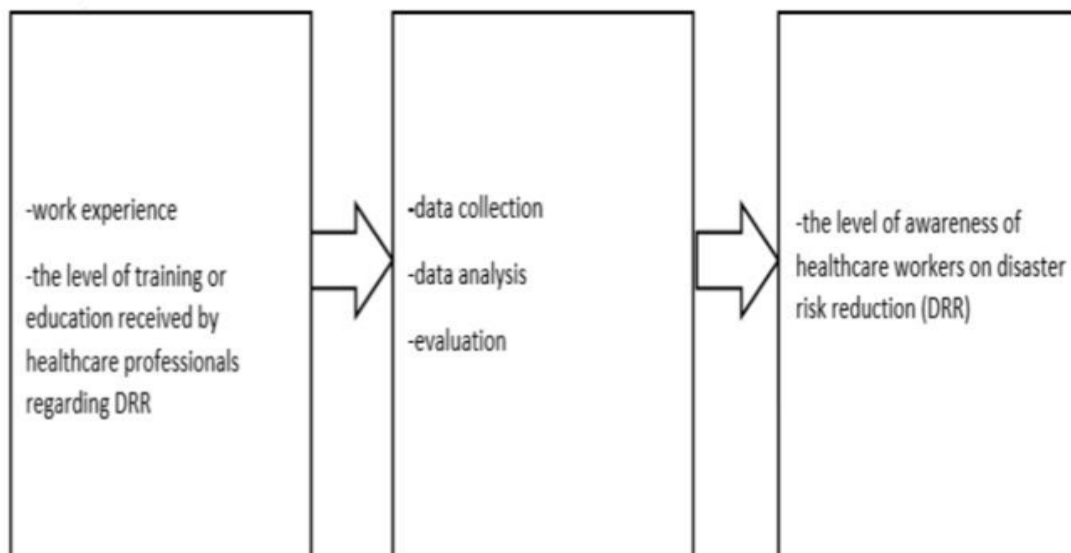
Finally, practices represent the actual application of knowledge and attitudes in real- world scenarios. This includes healthcare professionals' participation in drills, adherence to safety protocols, and implementation of disaster response plans which are commonly being practiced in DRTREFI. O’ Sullivan et al. (2019) highlighted the importance of practice-based activities such as simulations and mock drills, in order to strengthen healthcare professionals' awareness and preparedness for the disasters. Practice serves as a visible measure of healthcare professionals’ awareness and commitment to DRR. Hence, the KAP theory emphasises that improving DRR awareness requires not only delivering knowledge but also fostering positive attitudes and implementing practical actions.

In this study, we adopt the Input–Process–Output (IPO) model as our primary conceptual framework. The IPO model offers a structured, visual methodology for documenting the transformation of key variables: inputs(the resources or materials entering a process), process (the series of actions or transformations these inputs undergo), and outputs (the resulting products, information, or outcomes) , drawing upon the Comprehensive Guide by Ken Feldman (2025).

### Conceptual Framework

The figure below demonstrates the study’s conceptual framework, which outlines the relationship between the variables to determine the level of awareness on DRR among health care professionals working in DRTREFI. The dependent variable is the level of awareness on DRR since this is what the study is measuring, indicating how informed or aware healthcare workers are of DRR procedures, protocols, and preparation. The independent variables are work experience, since professionals with more work experience may have a higher level of DRR awareness due to previous exposure to emergency and the level of training or education received by healthcare professionals regarding DRR, this allows you to explore how different training programs or levels of education influence awareness.

Figure 1: Schematic Diagram of the Conceptual Flow of the Study



The conceptual framework of this study is guided by the Input–Process–Output (IPO) model, which systematically illustrates the relationship between key variables influencing the level of awareness of healthcare workers regarding Disaster Risk Reduction (DRR). The input components consist of healthcare professionals' work experience and their level of training or education related to DRR, which are considered foundational factors that may impact awareness. The process includes the study's methodological steps—data collection, data analysis, and evaluation. Finally, the output reflects the level of awareness of healthcare workers on DRR, serving as the primary outcome of interest.

## Significance of the Study

This study aims to acquire and analyse data from respondents about their level of awareness on DRR in order to determine gaps in knowledge, skills, and preparedness. Identifying and understanding these gaps can lead to focus on training programs that will increase healthcare facility readiness and response, potentially saving lives during an emergency. Thus, the study will benefit the following:

**Healthcare Institutions** - This research aims to assess staff DRR awareness in healthcare institutions like DRTREFI, enabling the development of policies and training programs to improve disaster preparedness, ensuring effective healthcare delivery during crises.

**Healthcare Professionals** - Attending healthcare professionals can enhance their understanding of DRR awareness, guiding them towards areas requiring further training and education. This knowledge enhances their professionalism and preparedness, leading to more efficient disaster response and patient protection.

**Policy Makers** - This study identifies gaps in healthcare provider awareness and training, which policy makers should address to develop appropriate DRR policies, enabling more effective resource application for initiatives.

**Communities** - An effective disaster preparedness healthcare system benefits communities by enabling health professionals to manage emergencies effectively, protect public health, and enhance community resilience, thereby minimizing health risks.

**Future Researchers** - This study outlines potential future research in DRR practices in healthcare, promoting academic efforts and innovative approaches to disaster management, and guiding educational institutions in incorporating lessons from previous studies.

## Scope and Delimitations

This study evaluates DRR awareness among healthcare professionals employed in DRTREFI, focusing on identifying the key factors that affect their awareness, preparedness, and responsiveness to natural and human-induced disasters such as typhoons, earthquake, and health-related emergencies.

The research study targets the full-time teaching and non-teaching healthcare professionals, as well as school nurses, currently employed in DRTREFI. Part-time practitioners, temporary staff, and healthcare workers from outside the institution are explicitly excluded from this study. These individuals were chosen as participants due to their critical role in emergency preparedness and response within the institution, and

their expertise and responsibilities in managing health-related emergencies, which made them well-suited to provide valuable insights into disaster risk knowledge.

## Research Methods

The study employed a descriptive-correlational design to examine relationships between variables and identify factors influencing the awareness of Disaster Risk Reduction (DRR) among healthcare professionals at DRTREFI. This design allowed investigation of associations without manipulating variables. The respondents were full-time teaching and non-teaching healthcare professionals at DRTREFI. Using Cochran's formula, a sample size of 47 was calculated based on a population of 69, 5% margin of error, 95% confidence level, and 10% anticipated non-response rate; however, only 30 participants were included due to unavailability in some departments. Convenience sampling was used to efficiently access participants given their demanding schedules, enabling timely data collection in the context of the institution.

The research was conducted at DRTREFI in Calanipawan, Tacloban City, Leyte, a private medical institution situated in a region prone to natural disasters, including earthquakes and typhoons such as Super Typhoon Yolanda. Data were collected using a survey questionnaire adapted from Maslang (2023), divided into sections covering demographic and professional data, DRR knowledge, perceptions of DRR importance, and factors influencing awareness. Respondents' awareness was measured using a 5-point Likert scale ranging from 1 (Fully Not Aware) to 5 (Fully Aware). A pretest with 10 participants and Cronbach's alpha of 0.9205 confirmed excellent reliability and internal consistency.

For data collection, the researchers obtained approval from department heads and Deans, then approached available healthcare professionals. Each participant provided informed consent before receiving the questionnaire, and the researchers remained available to clarify any questions. Follow-ups were conducted to ensure complete response collection, maintaining accuracy and reliability of the data.

## Ethical Consideration

The researchers followed the ethical guidelines and principles established by the World Health Organization (WHO) to ensure the highest standards of integrity and protection in conducting research involving participants. In accordance with these standards, the study prioritizes the prevention of harm, the preservation of human dignity, and the respect for individual autonomy through the implementation of comprehensive informed consent procedures. Participant privacy is rigorously protected, with strict measures in place to maintain confidentiality and ensure anonymity. The research process is conducted without deception or misrepresentation of its objectives, and full disclosure is provided regarding institutional affiliations, sources of funding, and any potential conflicts of interest.

Moreover, the dissemination of findings adheres to principles of honesty, transparency, and accuracy, with a commitment to avoiding any form of misleading information or biased interpretation of data.

### Statistical Tool

Frequency counts and percentages were utilized for categorical variables such as age categories, gender distribution, professional functions, years of experience categories, and the prevalence of previous DRR training, providing a foundational overview of the sample's characteristics. The mean was calculated to describe the central tendency of respondents' perceptions regarding DRR issues, and standard deviations (SD) were reported to indicate the variability or spread of these perception scores around the mean. The sum of responses for certain variables, such as the total number of participants (N), was also reported to provide a complete overview of the dataset.

The selection of inferential statistical tests was meticulously based on the level of measurement of the variables involved and the specific nature of the relationships being investigated, adhering to standard statistical guidelines. Spearman's Rho ( $\rho$ ) was employed to assess the strength and direction of monotonic relationships between continuous demographic variables and the DRR awareness level. Point-Biserial correlation ( $r_{pb}$ ) was utilized to measure the strength and direction of the association between a dichotomous demographic variable and a continuous or interval-level measure of DRR awareness or perceptions.

### Results & Discussions

Table 1. Profile of the Respondents in terms of Age, Gender, Professional role, Years of experience and Previous DRR training.

<b>PROFILE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
<b>Age Group</b>		
<b>24-31</b>	15	50.0 %
<b>32-39</b>	5	16.7 %
<b>40-47</b>	4	13.3 %
<b>48-55</b>	3	10.0 %
<b>56-63</b>	1	3.3 %
<b>64-71</b>	2	6.7 %
<b>Sex</b>		
<b>Female</b>	12	40.0 %
<b>Male</b>	18	60.0 %
<b>Professional Role</b>		
<b>Nurse</b>	4	13.3 %
<b>Physical Therapist</b>	11	36.7 %
<b>Medical Technologist</b>	9	30.0 %
<b>Medical Biologist</b>	3	10.0 %
<b>Doctor</b>	3	10.0 %
<b>Work Assignment</b>		
<b>Non-Teaching</b>	1	3.3 %
<b>Teaching</b>	28	93.3 %
<b>Both Teaching and Non-Teaching</b>	1	3.3 %

Table 1 shows the profile of the Health Care Professionals of Doña Remedios Trinidad Romualdez Educational Foundation, Inc. in terms of age, gender, professional role inside the institution, and work assignment.

The highest proportion of respondents fell within the 24–31 age group, highlighting that most healthcare professionals at DRTREFI are relatively young. In contrast, the lowest representation by age was from the 56–63 age group, suggesting minimal participation from older, possibly more experienced professionals. Regarding gender, males comprised the majority. This suggests a male-dominated healthcare staff composition at DRTREFI. In terms of professional role, physical therapists represented the largest group, whereas nurses had the lowest representation among the identified roles. Lastly, the majority of respondents were engaged in teaching roles, with both non-teaching and dual-role (teaching and non-teaching) assignments tied for the lowest frequency.

These highlights suggest that disaster preparedness initiatives at DRTREFI may need to be tailored to a young, predominantly teaching-oriented workforce dominated by allied health professionals.

Table 2. Level of Knowledge on DRR Among healthcare professionals in DRTREFI

STATEMENT	TOTAL (N)	MEAN	INTERPRETATION
<b>1. I understand the basic principles of DRR.</b>	30	4.03	Knowledgeable
<b>2. I am familiar with the key components of DRR strategies (e.g., preparedness, mitigation, response, recovery).</b>	30	3.83	Knowledgeable
<b>3. I am aware of the importance of DRR in school healthcare settings.</b>	30	4.47	Very Knowledgeable
<b>4. I can identify potential disaster risks in the school healthcare environment.</b>	30	3.97	Knowledgeable
<b>5. I understand the roles and responsibilities of school healthcare professionals during disasters.</b>	30	4.40	Very Knowledgeable
<b>Average</b>	–	4.14	Knowledgeable

Legend: 4.21 – 5.00 Very Knowledgeable  
 3.41 – 4.20 Knowledgeable  
 2.61 – 3.40 Moderately Knowledgeable  
 1.81 – 2.60 Less Knowledgeable  
 1.00 – 1.80 Not Knowledgeable

Table 2 presents the respondents’ self-assessed level of knowledge on various aspects of DRR. The overall mean score indicates that healthcare professionals at DRTREFI are generally "Knowledgeable" about DRR principles and practices. Among the individual items, the highest-rated statement was “I am aware of the importance of DRR in school healthcare settings”. This finding highlights a strong recognition among healthcare professionals of the relevance of DRR in their institutional roles—an encouraging sign

of conceptual awareness that supports the promotion of school-based disaster preparedness. This aligns with the perspective of O'Sullivan et al. (2019), who asserted that awareness of DRR's significance is foundational to initiating proactive preparedness measures within healthcare systems.

Furthermore, respondents also rated themselves "Very Knowledgeable" in understanding their roles and responsibilities during disasters, indicating clarity on expectations during emergencies. This is consistent with Shanableh's (2023) findings, which suggest that clearly defined professional responsibilities during disasters increase the likelihood of effective response and role execution during crisis events.

However, slightly lower mean scores were recorded in the areas of understanding DRR components and identifying potential risks in the healthcare environment which is both still within the "Knowledgeable" range but signaling potential knowledge gaps in applied or technical DRR elements. These results echo the observations of Gillani et al. (2022), who emphasized that while healthcare professionals may be aware of DRR in general, they often lack sufficient practical training or situational analysis skills required for thorough risk identification and mitigation planning.

Additionally, the lowest score, though still positive, was observed in basic DRR principles, suggesting the need to reinforce foundational knowledge in this domain. As emphasized by the Sendai Framework of the United Nations Office for DRR (2020), consistent education and capacity-building are essential to ensure that all healthcare workers are well-equipped to prevent, mitigate, and respond to disasters. This supports the view that institutional DRR efforts should include periodic training and evaluation to sustain high levels of disaster literacy among healthcare personnel.

In summary, while healthcare professionals at DRTREFI demonstrate commendable awareness of DRR, there remains room for improvement in technical and contextual aspects of disaster knowledge, warranting further educational interventions and simulation-based practices.

Table 3. Perception on the Importance of DRR in the Professional Roles of Healthcare Workers in DRTREFI

STATEMENT	TOTAL (N)	MEAN	INTERPRETATION
<b>1. DRR training is essential for all healthcare professionals.</b>	30	4.90	Very Important
<b>2. School healthcare facilities should have DRR policies and procedures in place.</b>	30	4.87	Very Important
<b>3. Awareness of DRR can improve student and staff safety during emergencies.</b>	30	4.93	Very Important
<b>4. My professional role plays a significant part in disaster response and preparedness.</b>	30	4.40	Very Important
<b>Average</b>	–	4.78	Very Important

Legend: 4.21 – 5.00 Very Important  
3.41 – 4.20 Important

2.61 – 3.40 Moderately Important  
 1.81 – 2.60 Less Important  
 1.00 – 1.80 Not Important

Table 3 illustrates the perception of healthcare professionals regarding the importance of DRR in their professional roles. The responses indicate a highly positive perception among respondents, reflecting a shared understanding that disaster preparedness is integral to their function within school-based healthcare. The statement “Awareness of DRR can improve student and staff safety during emergencies” was the most affirmed, underscoring a nearly unanimous recognition of DRR as a vital component in protecting lives within the school healthcare environment. This confirms the claim of Ali (2022) that enhancing DRR awareness is crucial for both public health safety and institutional resilience, particularly in high-risk communities. This indicates that healthcare professionals view awareness not as a passive concept, but as an active driver of safety outcomes.

Additionally, the item “DRR training is essential for all healthcare professionals” was also perceived as highly important, suggesting a strong demand for systematic and structured training among respondents. This supports the findings of Amaratunga et al. (2018), who noted that a well-trained healthcare workforce significantly improves the effectiveness of disaster response and mitigates organizational vulnerability. The indication here is that institutions must respond to this perceived necessity by institutionalizing regular DRR drills, workshops, and continuing education programs.

In conclusion, the data reveal a clear and consistent belief among healthcare professionals at DRTREFI in the critical importance of DRR in their professional duties. This positive perception sets a strong foundation for future program development, policy support, and capacity-building initiatives aimed at enhancing disaster readiness within the institution. The indications are clear awareness, structured training, institutional policy, and individual role recognition are all regarded as central to achieving a resilient and responsive healthcare environment in the face of disasters.

Table 4. Factors Influencing Awareness of DRR Among Healthcare Professionals in DRTREFI

STATEMENT	TOTAL (N)	MEAN	INTERPRETATION
<b>1. Lack of access to DRR training affects awareness.</b>	30	4.47	Strongly Agree
<b>2. School healthcare facilities should have DRR policies and procedures in place.</b>	30	4.67	Strongly Agree
<b>3. Prior experience in disaster situations increases awareness of DRR.</b>	30	4.43	Strongly Agree
<b>4. Collaboration with local authorities enhances DRR awareness.</b>	30	4.67	Strongly Agree
<b>Average</b>	–	4.56	Strongly Agree

Legend: 4.21 – 5.00 Strongly Agree  
 3.41 – 4.20 Agree

2.61 – 3.40 Neutral  
 1.81 – 2.60 Disagree  
 1.00 – 1.80 Strongly Disagree

Table 4 details the various elements influencing healthcare professionals' awareness of Disaster Risk Reduction (DRR) at DRTREFI. Respondents generally "Strongly Agree" that several critical factors impact their DRR awareness, based on the overall mean score.

A key finding was the strong agreement on "School healthcare facilities should have DRR policies and procedures in place," which aligns with Amaratunga et al.(2018), who stressed the need for clearly defined DRR mandates and institutional frameworks to build awareness and ensure consistent implementation. Additionally, respondents strongly agreed on "Collaboration with local authorities enhances DRR awareness," indicating that healthcare professionals see DRR as a shared responsibility involving partnerships with external disaster response and local government agencies. This perspective is consistent with Shanableh (2023), who highlighted the importance of inter-agency coordination in building comprehensive disaster preparedness within the healthcare sector.

Furthermore, a high mean score for "Lack of access to DRR training affects awareness" pointed to a perceived need for more training availability. Respondents' recognition of this issue suggests a pressing need for regular and equitable DRR training across all professional roles, as the absence of such structured training can lead to knowledge gaps and compromise preparedness. Moreover, strong agreement was observed for "Prior experience in disaster situations increases awareness," indicating the significant role of firsthand exposure in developing knowledge and practical readiness. This supports the experiential learning principle emphasized in the KAP framework, particularly the link between past practice and increased understanding (O’Sullivan et al., 2019). Professionals with lived experience during disasters are more likely to understand DRR intricacies and engage in proactive measures.

In summary, the data clearly demonstrate that both institutional and experiential factors significantly influence the DRR awareness of healthcare professionals at DRTREFI. The findings support the need for stronger collaboration, consistent training opportunities, and integrated policy implementation to enhance the disaster readiness of the institution.

Table 5. Correlation between DRR Level of Awareness and Profile Variables

PROFILE VARIATES	CORRELATION	DF	P-VALUE	INTERPRETATION
Age	0.205*	28	0.277	Weak, Not Significant
Gender	-0.068**	–	0.721	Weak, Not Significant
Professional Role	0.536	–	–	Moderate Association
Work Assignment	0.107	–	–	Very Weak Relationship
Had Prior Training	0.017**	–	0.931	Weak, Not Significant
Years of Experience in Healthcare	0.140*	28	0.462	Moderate, Not Significant

Legend: No asterisk = Eta Correlation, \* Spearman’s Rho , \*\* Point-Biserial (r)

## **Conclusion**

The study determined that the majority of healthcare professionals at DRTREFI are young to mid-career, predominantly male, and mostly serving in teaching roles, particularly in physical therapy and medical technology. Many reported having prior DRR training and several years of healthcare experience, though noticeable gaps remain—especially among female nurses and doctors—indicating uneven access to training. In terms of specific disaster risk reduction strategies, respondents showed clear knowledge of core DRR components such as preparedness, mitigation, response, and recovery. They were especially aware of DRR’s relevance in school healthcare settings and understood their responsibilities during disaster events.

The perceived importance of DRR in their professional roles was very high, with strong advocacy for mandatory training, institutional policies, and its role in ensuring safety of students and staff. Respondents demonstrated an overall knowledgeable level of awareness of DRR, though slightly less confident in identifying environmental risks and technical components. Furthermore, while they strongly agreed on several influencing factors—including institutional support, past disaster experience, and inter-agency collaboration—statistical analysis revealed no significant relationship between their profile characteristics and their level of DRR awareness. This suggests that awareness is shaped more by organizational and experiential elements, emphasizing the need for continuous, inclusive training and strong institutional frameworks to enhance disaster preparedness for all healthcare professionals at DRTREFI.

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