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Disaster Awareness, Attitudes, and Emergency Response Practices among Senior High School Students in a Disaster Hazard-Prone Philippine District

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Abstract

Frequent typhoons, flooding, and other hydro-meteorological hazards continually expose school communities in Catanduanes, Philippines, to substantial disaster risks, necessitating strengthened school-based disaster risk reduction (DRR) education and enhanced student preparedness. Although DRR policies are institutionalized within the basic education system, empirical evidence remains limited on how disaster-related knowledge translates into attitudinal dispositions and observable emergency response behaviors among adolescents in geographically vulnerable districts. Grounded in the Knowledge–Attitude–Practice (KAP) framework, this study examined the levels of disaster-related knowledge, attitudes toward preparedness, and emergency response practices among Grade 11 and 12 students in two public senior high schools in Viga East District during the 2025–2026 academic year. Employing a descriptive–correlational design, data were collected from 147 students selected through proportionate stratified random sampling and analyzed using descriptive statistics (means and standard deviations) and Pearson's r at the 0.05 significance level via SPSS version 28. Findings revealed very high disaster-related knowledge (M = 3.43, SD = 0.029), highly positive preparedness attitudes (M = 3.44, SD = 0.048), and high levels of emergency response practices (M = 3.41, SD = 0.041). Statistically significant positive correlations were identified between knowledge and attitudes (r = 0.661), knowledge and practices (r = 0.592), and attitudes and practices (r = 0.639), leading to the rejection of all null hypotheses ($p < .05$). These results confirm the interdependence of cognitive, affective, and behavioral dimensions of disaster preparedness among senior high school students. Practically, the findings underscore the need for sustained, skills-oriented DRR instruction, regular simulation drills, and curriculum-integrated disaster education programs that reinforce not only awareness but also actionable competencies. Strengthening experiential learning approaches and school–community partnerships is recommended to further translate high levels of knowledge and positive attitudes into consistent and adaptive emergency response behaviors in hazard-prone educational settings.

Keywords: disaster awareness, disaster preparedness, emergency response practices, Knowledge–Attitude–Practice (KAP) model, senior high school students, disaster risk reduction, Philippines

INTRODUCTION

Disaster risk reduction and preparedness remain critical global priorities, particularly within educational settings located in hazard-prone regions. Adolescents constitute a pivotal demographic in DRR initiatives, as schools function as primary sites for cultivating the cognitive, affective, and behavioral capacities necessary for effective emergency preparedness and response (Zhong et al., 2020; Babaran et al., 2025). The Philippines, situated along the Pacific Ring of Fire and frequently traversed by tropical cyclones, experiences recurrent natural hazards that disproportionately affect school communities and disrupt learning processes. Despite national mandates advocating school-based

disaster risk reduction and management (DRRM) education, empirical evidence remains scarce regarding how senior high school students internalize disaster knowledge, develop preparedness-oriented attitudes, and translate these into practical emergency response actions. This study focuses on Grades 11 and 12 students, who exhibit higher cognitive maturity and decision-making capacities, positioning them as a critical cohort for assessing the translation of their knowledge and attitudes into effective preparedness behaviors.

The Knowledge–Attitude–Practice (KAP) model provides a robust conceptual framework for understanding disaster preparedness as a sequential process, moving from cognitive acquisition of knowledge to attitudinal orientation and, ultimately, behavioral implementation (Shaw, Sakurai, & Oikawa, 2019; Zhong et al., 2020). Within this model, hazard-related knowledge informs preparedness attitudes, which subsequently influence engagement in protective practices. Empirical investigations employing the KAP framework have consistently demonstrated that increased disaster-related knowledge strengthens risk perception and enhances preparedness intentions among student populations (Arcegono et al., 2024; Babaran et al., 2025). Furthermore, positive attitudes toward disaster preparedness are associated with higher participation in drills and adherence to safety protocols (Seddighi et al., 2022). These findings underscore the theoretical and practical relevance of the KAP model for framing adolescent preparedness competencies in school-based disaster education contexts.

Nevertheless, several gaps remain in the existing literature. First, many studies examine knowledge, attitudes, or practices independently rather than exploring their interrelationships within a correlational framework as prescribed by the KAP model (Arcegono et al., 2024; Babaran et al., 2025). This fragmented approach limits insight into how cognitive and affective domains jointly influence behavioral outcomes in disaster preparedness. Second, empirical research focusing specifically on senior high school students in geographically vulnerable island contexts, such as the Eastern Visayas and Bicol regions, is limited. Most prior studies concentrate on elementary pupils, undergraduates, or school personnel (Zhong et al., 2020; Arcegono et al., 2024), leaving a knowledge gap regarding older adolescents' preparedness behaviors. Third, although descriptive studies have assessed general awareness and preparedness levels, few have employed validated correlational designs to statistically examine the associations among knowledge, attitudes, and practices, which is essential for theoretically validating the KAP framework in school-based settings. These gaps highlight the necessity of an integrated, evidence-based examination of cognitive, affective, and behavioral dimensions among adolescents in high-risk educational contexts.

To address these gaps, the present study systematically examines disaster-related knowledge, preparedness attitudes, and actual emergency response practices among Senior High School students in a disaster-prone district of Catanduanes, Philippines. Specifically, it investigates both the individual levels of each KAP domain and the statistical relationships among them to elucidate how knowledge and attitudes are operationalized into practical preparedness behaviors. By employing a descriptive-correlational design grounded in the KAP model, this study provides novel empirical evidence on the interconnected cognitive, affective, and behavioral dynamics of disaster preparedness among adolescents, contributing both theoretically and practically to school-based DRRM scholarship in geographically vulnerable contexts.

Statement of the Problem. This study aimed to examine the knowledge (awareness), attitudes, and emergency response practices of Senior High School students in a disaster-prone district of Catanduanes, Philippines, using the Knowledge–Attitude–Practice (KAP) framework. Specifically, it sought to answer the following questions:

1. What is the level of disaster-related knowledge of Senior High School students in terms of:
   1.1 Types of natural and human-induced disasters;
   1.2 Disaster preparedness measures;
   1.3 Emergency response procedures; and,
   1.4 Safety and risk-reduction protocols?

2. What is the level of attitudes of Senior High School students toward disaster preparedness and emergency response in terms of:
   2.1 Perceived importance of disaster preparedness;
   2.2 Willingness to participate in disaster drills;
   2.3 Sense of personal responsibility in disaster response; and,
   2.4 Confidence in school disaster readiness?

3. What is the level of emergency response practices of Senior High School students in terms of:
   3.1 First-aid application skills;
   3.2 Compliance with evacuation procedures;
   3.3 Emergency communication behaviors; and,
   3.4 Adherence to safety protocols during disaster events?

4. Is there a significant relationship between disaster-related knowledge and students' attitudes toward emergency response?

5. Is there a significant relationship between disaster-related knowledge and emergency response practices?

6. Is there a significant relationship between students' attitudes and their emergency response practices?

Null Hypotheses. The following null hypotheses were tested at a 0.05 significance level:

H_{01}: There is no statistically significant relationship between disaster-related knowledge and students' attitudes toward emergency response.

H_{02}: There is no statistically significant relationship between disaster-related knowledge and students' emergency response practices.

H_{03}: There is no statistically significant relationship between students' attitudes and their emergency response practices.

Scope of the Study. This study was conducted among Grade 11 and 12 students of Tinago Senior High School and Tambogñon Senior High School during the 2025–2026 academic year under the Schools Division of Catanduanes. Guided by the Knowledge–Attitude–Practice framework, it examined students' disaster-related knowledge, attitudes toward emergency preparedness, and self-reported emergency response practices within the school context. The investigation was limited to preparedness protocols, risk-reduction awareness, and participation in school-based drills and safety measures. It excluded teachers, administrators, parents, and community stakeholders, as well as household- or community-level disaster behaviors. Data were cross-sectional and confined to the specified academic year, thereby limiting causal inference and generalizability beyond the participating schools and district context.

Theoretical and Conceptual Framework. The Knowledge–Attitude–Practice (KAP) Model provides a comprehensive theoretical lens for examining disaster preparedness behaviors among students by proposing that knowledge acquisition shapes attitudes, which subsequently influence observable practices in a sequential progression from awareness to action. Within disaster education research, the KAP framework has been widely utilized to explain how hazard-related knowledge strengthens preparedness attitudes and promotes compliance with safety protocols in school settings (Zhong, L., et al., 2020). Empirical evidence further indicates that students possessing higher levels of disaster-

related knowledge demonstrate stronger risk perception, increased engagement in drills, and more proactive participation in emergency measures (Ronan et al., 2016). Complementing this perspective, contemporary disaster resilience and preparedness frameworks underscore the critical role of school-based readiness in fostering adaptive capacities and sustained risk-reduction behaviors among adolescents (UNDRR, 2017; Shaw et al., 2019). Anchored in these theoretical foundations, Figure 1 presents a conceptual framework illustrating the correlational relationships among disaster-related knowledge (cognitive domain), attitudes toward preparedness (affective domain), and emergency response practices (behavioral domain) among Senior High School students in a disaster-prone district. Consistent with a descriptive-correlational design, the framework does not assume causal pathways but instead examines the statistical associations among these interrelated constructs, including the direct linkage between knowledge and practices, to generate empirical insights into disaster preparedness dynamics within geographically vulnerable school contexts.

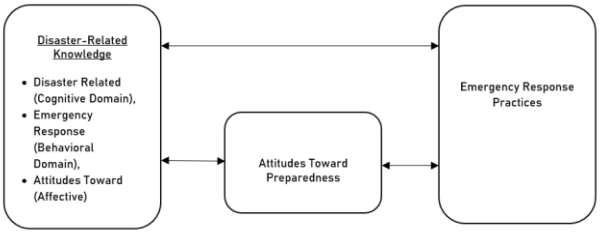

Figure 1
Conceptual Framework of the Study

LITERATURE REVIEW

Disaster preparedness among adolescents has increasingly become a central concern in disaster risk reduction research, particularly within school-based contexts situated in hazard-prone regions; thus, this review synthesizes theoretical foundations of the Knowledge–Attitude–Practice (KAP) Model, examines existing evidence on disaster-related knowledge and attitudes of students, explores documented emergency response practices and behavioral compliance in secondary schools, and identifies critical gaps in the empirical literature regarding the interrelationships among knowledge, attitudes, and practices that warrant further investigation in geographically vulnerable contexts (Cordial, 2025a, 2025b) and across comparable island and coastal contexts globally to strengthen cross-regional applicability.

Theoretical Foundations of the Knowledge–Attitude–Practice (KAP) Model in Disaster Education. Understanding disaster preparedness behaviors among adolescents requires a strong theoretical grounding, and the KAP Model provides a foundational framework explaining how knowledge acquisition shapes attitudes and subsequently influences emergency response practices within school-based contexts (Ronan et al., 2016). The model has been widely utilized in disaster education to clarify how cognitive awareness of hazards informs affective orientations and ultimately shapes preparedness behaviors among adolescents (Ronan et al., 2016; Cordial, 2025a). Grounded in behavioral change theory, the KAP framework assumes a sequential pathway in which accurate disaster knowledge cultivates favorable attitudes that increase the likelihood of protective and compliant practices (Shaw et al., 2019). Empirical evidence from school-based disaster risk reduction initiatives indicates that students with higher hazard awareness demonstrate stronger preparedness intentions and greater adherence to safety protocols (Zhong et al., 2020; Cordial, 2025b). Contemporary disaster resilience scholarship further affirms that knowledge-driven interventions strengthen risk perception and adaptive capacities within institutional environments (UNDRR, 2017; Cordial, 2025a). Moreover, structured disaster education embedded in school curricula significantly enhances attitudinal commitment and behavioral readiness among adolescents in hazard-prone areas (Mamman et al., 2021; Cordial et al., 2025c). Collectively, these findings reinforce the theoretical robustness and empirical applicability of the KAP model in examining disaster preparedness within

secondary education settings and underscore the need to test the framework in diverse geographic contexts for external validity.

Disaster-Related Knowledge and Attitudes of Adolescents in Hazard-Prone School Contexts. Understanding disaster preparedness behaviors among adolescents necessitates a solid theoretical grounding, and the KAP framework provides a comprehensive lens for explaining how knowledge acquisition shapes attitudes, which in turn guide emergency response practices within school-based contexts (Ronan et al., 2016; Cordial, 2025a). The model has been extensively applied in disaster education to demonstrate how adolescents' cognitive awareness of hazards informs affective orientations and motivates protective behaviors (Ronan et al., 2016; Cordial, 2025b).

Grounded in behavioral change theory, the KAP framework posits a sequential pathway in which accurate disaster knowledge fosters positive attitudes, thereby increasing the likelihood of compliant and proactive preparedness behaviors (Shaw et al., 2019; Cordial et al., 2025c). Empirical studies within school-based disaster risk reduction programs show that students with higher hazard awareness exhibit stronger preparedness intentions and more consistent adherence to safety protocols (Zhong et al., 2020; Cordial et al., 2025d). Contemporary disaster resilience research further emphasizes that knowledge-focused interventions enhance students' risk perception and adaptive capacities within institutional environments (UNDRR, 2017; Cordial et al., 2025e). Additionally, embedding structured disaster education into school curricula has been shown to improve both attitudinal commitment and practical readiness among adolescents in hazard-prone areas (Mamman et al., 2021; Cordial et al., 2025f). Collectively, these findings substantiate the theoretical and practical relevance of the KAP model for investigating disaster preparedness in secondary education settings and highlight the importance of including comparative evidence from other high-risk geographic regions to broaden the literature base.

Emergency Response Practices and Behavioral Compliance in Secondary Schools. Beyond awareness and perceptions, actual emergency response practices such as first aid application, evacuation compliance, and adherence to safety protocols serve as measurable indicators of students' preparedness and institutional readiness in school settings (Bahmani et al., 2023; Zhong et al., 2020; Cordial et al., 2025g). Research on school disaster response highlights that participation in structured first aid and emergency care training significantly improves students' competence, confidence, and willingness to intervene during real incidents (Bahmani et al., 2023; Kim & Choi, 2022; Cordial et al., 2025h). Studies analyzing evacuation behavior demonstrate that regular fire, earthquake, and lockdown drills enhance procedural compliance, reduce evacuation times, and increase situational awareness among secondary school students (Gu et al., 2016; Zhong et al., 2020; Cordial et al., 2025d). Furthermore, students' adherence to safety protocols during drills and actual events is influenced by the clarity of instructions, institutional support, and reinforcement of risk-reduction behavior by school authorities (Bahmani et al., 2023; Wang et al., 2023; Cordial et al., 2025f). Integrating disaster education into curricula also strengthens cognitive understanding, psychomotor skills, and attitudinal commitment, ensuring that adolescents can respond effectively under high-stress conditions (UNDRR, 2017; Shaw et al., 2019; Cordial et al., 2025c). Collectively, these studies underscore that practical training, consistent drills, and institutional reinforcement are essential for fostering behavioral compliance and emergency response readiness among secondary school students and indicate the need for replication in comparable disaster-prone school environments to validate observed outcomes.

Gaps in the Literature: Empirical Relationships Among KAP Variables. While the preceding literature highlights the separate roles of disaster-related knowledge, attitudes, and emergency response practices among adolescents, there remains a notable scarcity of

empirical research that systematically investigates the interrelationships among these KAP constructs within secondary school populations, particularly in geographically vulnerable island contexts such as Catanduanes (Cordial, 2025a, 2025b). Most studies continue to examine knowledge, attitudes, or practices independently, limiting understanding of how these components collectively influence disaster preparedness behaviors (Ronan et al., 2016; Zhong et al., 2020). Furthermore, few studies employ correlational or structural modeling approaches to validate the sequential pathways proposed by the KAP framework, which assumes that knowledge informs attitudes and subsequently shapes behavioral compliance (Shaw et al., 2019; Mamman et al., 2021; Cordial et al., 2025c). The underrepresentation of senior high school students in hazard-prone schools and the limited focus on island-specific vulnerabilities highlight a critical need for research that integrates cognitive, affective, and behavioral dimensions of preparedness and for inclusion of comparative studies from other geographically analogous contexts to strengthen the generalizability of findings. Addressing these gaps can provide actionable insights for school-based disaster education programs and institutional policy development.

METHODS

Research Design. This study adopts a descriptive-correlational research design, which is appropriate for examining the level of disaster-related knowledge, attitudes, and emergency response practices among Senior High School students, as well as the interrelationships among these variables. Descriptive research allows the systematic collection and presentation of data regarding students' awareness of natural and human-induced hazards, preparedness measures, emergency procedures, and adherence to safety protocols, providing a comprehensive profile of disaster preparedness in a school-based context (Creswell & Creswell, 2018). The correlational component enables the investigation of potential relationships between students' knowledge, attitudes, and emergency response practices, thereby testing the hypothesized sequential pathways suggested by the Knowledge–Attitude–Practice (KAP) framework (Ronan et al., 2016; Shaw et al., 2019). By combining descriptive and correlational approaches, the study not only documents observable behaviors and perceptions but also identifies significant associations, which can inform targeted interventions, policy formulation, and curriculum design for disaster risk reduction programs in hazard-prone regions such as Catanduanes.

Population, Samples and Sampling Technique. The study targeted a total population of 185 junior high school students from the Viga East District, consisting of 126 students from Tambongon National High School and 59 students from Tinago National High School. Based on Slovin's formula with a 5% margin of error, the computed sample size was 127 students; however, to enhance precision and representativeness, a total of 147 students were actually sampled, proportionally allocated with 96 students from Tambongon National High School and 51 students from Tinago National High School. A proportionate stratified random sampling technique was employed, with respondents randomly selected within each school stratum to minimize sampling bias and ensure representativeness. This approach strengthens the external validity of the study, allowing the findings to accurately reflect the target population and conform to recognized methodological standards in educational research (Etikan & Bala, 2017; Taherdoost, 2016).

Instrumentation. In this study, data were collected using a researcher-designed questionnaire divided into three thematic sections awareness, attitudes, and practices regarding emergency response each measured on a 4-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (4). Likert-type scales are widely used in educational and social science research for quantifying subjective constructs by converting perceptions into numerical data suitable for statistical analysis (Allen & Seaman, 2017). To ensure instrument

validity, the draft questionnaire was evaluated by subject matter experts in disaster risk reduction education, who assessed item clarity, relevance, and alignment with the study objectives; their feedback guided necessary revisions to ensure each item accurately reflected the intended constructs (Marôco et al., 2016). A pilot test involving 30 respondents outside the main sample was then conducted, and internal consistency reliability was assessed using Cronbach's alpha, a standard metric for evaluating the degree to which scale items measure a common construct and ensuring dependable measurement prior to full-scale administration (Tavakol & Dennick, 2011; Koo & Li, 2016).

Data Analysis. Data collected from the researcher-designed questionnaire were systematically coded, tabulated, and analyzed using IBM SPSS Statistics version 28. Descriptive statistics, including frequency counts, percentages, means, and standard deviations, were computed separately for each of the three instrument sections awareness, attitudes, and practices to provide a detailed profile of students' disaster-related knowledge, perceptions, and behaviors. The awareness section analysis captured students' understanding of natural and human-induced hazards, preparedness measures, and emergency procedures, while the attitudes section highlighted their beliefs, perceptions, and willingness to engage in disaster preparedness activities. The practices section quantified the actual behaviors and adherence to safety protocols during emergencies. To examine interrelationships among these dimensions, Pearson's correlation coefficient was used to determine the strength and direction of associations, in line with the Knowledge–Attitude–Practice (KAP) framework (Ronan et al., 2016; Shaw et al., 2019). Prior to testing, assumptions of normality and linearity were verified, and instrument reliability was confirmed using Cronbach's alpha, ensuring that each section provided consistent and dependable measurement. This approach provided both a comprehensive descriptive overview and evidence of significant correlations to inform disaster preparedness interventions and policy development.

Ethical Considerations. This study involved human participants; however, formal ethical approval was not obtained from the authors' institution because the research was classified as minimal-risk educational research. The study involved voluntary participation, non-invasive procedures, and anonymous self-report data collection, with no experimental interventions that could cause physical, psychological, or social harm. Despite the lack of formal institutional clearance, the research fully adhered to recognized ethical standards in educational research, including informed consent, voluntary participation, confidentiality, and respect for participants' rights (American Psychological Association [APA], 2017; Creswell & Creswell, 2018). No personally identifying information was collected, and all responses were anonymized and stored in password-protected files accessible only to the research team. Data will be securely maintained and permanently deleted five years following publication, in line with best practices for responsible data management, ensuring the protection of participant information throughout the research process.

RESULTS

The following section presents the findings of the study on Senior High School students' disaster-related knowledge, attitudes, and emergency response practices, as well as the relationships among these variables, based on the Knowledge–Attitude–Practice (KAP) framework.

Disaster-Related Knowledge of Senior High School Students. The results presented in Table 1 indicate that Senior High School students in Viga East District exhibit a very high level of disaster-related knowledge, with an overall weighted mean of 3.43, interpreted as "Strongly Agree/Very High." Among the knowledge domains, students scored highest in disaster preparedness measures and emergency response procedures (both with a weighted

mean of 3.45), suggesting strong awareness of the steps necessary to prepare for and respond effectively to disaster situations. Safety and risk-reduction protocols followed closely (3.44), reflecting students' understanding of precautionary measures to minimize harm during emergencies. The domain of types of natural and human-induced disasters received a slightly lower score (3.38), indicating that while students are knowledgeable, there may be room to further deepen their understanding of specific disaster categories. Collectively, these findings demonstrate that students possess the cognitive foundation needed to engage in informed disaster preparedness and response activities, and the minimal standard deviation (0.029) indicates consistency across the sample.

Table 1

Composite Level of Disaster-Related Knowledge of Senior High School Students in Viga East District

Knowledge Domain	Weighted Mean	Standard Deviation	Verbal Interpretation	Rank
1.1 Types of Natural and Human-Induced Disasters	3.38	0.029	Strongly Agree/ Very High	4
1.2 Disaster Preparedness Measures	3.45	0.029	Strongly Agree/ Very High	1.5
1.3 Emergency Response Procedures	3.45	0.029	Strongly Agree/ Very High	1.5
1.4 Safety and Risk-Reduction Protocols	3.44	0.029	Strongly Agree/ Very High	3
Overall Weighted Mean	3.43	0.029	Strongly Agree/ Very High	—

Level of Attitudes of Senior High School Students. The results presented in Table 2 show that Senior High School students in Viga East District demonstrate highly positive attitudes toward disaster preparedness and emergency response, with an overall weighted mean of 3.44, interpreted as "Strongly Agree/Highly Positive." Among the attitude domains, students rated perceived importance of disaster preparedness the highest (3.49), indicating a strong recognition of the value of being prepared for disaster events. This is closely followed by confidence in school disaster readiness (3.48), suggesting that students generally trust their school's capacity to manage emergencies. Willingness to participate in disaster drills (3.43) and sense of personal responsibility in disaster response (3.37) also received highly positive ratings, although slightly lower, highlighting areas where engagement and proactive involvement can still be further encouraged. The standard deviation of 0.048 across all domains reflects consistent attitudes among students. Overall, these findings suggest that students not only understand the importance of disaster preparedness cognitively but also hold constructive and proactive dispositions toward participating in disaster response initiatives.

Table 2

Composite Level of Attitudes of Senior High School Students in Viga East District toward Disaster Preparedness and Emergency Response

Attitude Domain	Weighted Mean	Standard Deviation	Verbal Interpretation	Rank
2.1 Perceived Importance of Disaster Preparedness	3.49	0.048	Strongly Agree/ Highly Positive	1
2.2 Willingness to Participate in Disaster Drills	3.43	0.048	Strongly Agree/ Highly Positive	3
2.3 Sense of Personal Responsibility in Disaster Response	3.37	0.048	Strongly Agree/ Highly Positive	4
2.4 Confidence in School Disaster Readiness	3.48	0.048	Strongly Agree/ Highly Positive	2
Overall Weighted Mean	3.44	0.048	Strongly Agree/ Highly Positive	

Level of Emergency Response Practices of Senior High School Students. The findings presented in Table 3 indicate that Senior High School students in Viga East District demonstrate a high level of emergency response practices, with an overall weighted mean of 3.41, interpreted as "Strongly Agree/Always Practiced." Among the practice domains, compliance with evacuation procedures obtained the highest mean score (3.48), suggesting that students consistently follow established protocols during emergency situations. This is followed by adherence to safety protocols during disasters (3.41), reflecting students' commitment to observing precautionary measures to minimize risk and injury. Emergency communication behaviors (3.39) also received a strong rating, indicating that students generally engage in appropriate information-sharing and reporting during crises. Meanwhile, first-aid application skills (3.37), although still rated highly, ranked lowest among the domains, implying a potential area for further skills enhancement and hands-on training. The low standard deviation (0.041) signifies consistency in responses across participants. Overall, these results suggest that

students translate their knowledge and positive attitudes into practical and observable disaster response behaviors.

Table 3

Composite Level of Emergency Response Practices of Senior High School Students in Viga East District

Practice Domain	Weighted Mean	Standard Deviation	Verbal Interpretation	Rank
3.1 First-Aid Application Skills	3.37	0.041	Strongly Agree/ Always Practiced	4
3.2 Compliance with Evacuation Procedures	3.48	0.041	Strongly Agree/ Always Practiced	1
3.3 Emergency Communication Behaviors	3.39	0.041	Strongly Agree/ Always Practiced	3
3.4 Adherence to Safety Protocols During Disasters	3.41	0.041	Strongly Agree/ Always Practiced	2
Overall Weighted Mean	3.41	0.041	Strongly Agree/ Always Practiced	—

Correlation between Disaster-Related Knowledge and Attitudes of Senior High School Students Toward Emergency Response. The correlation results presented in Table 4 reveal a statistically significant relationship between disaster-related knowledge and students' attitudes toward emergency response ($r = 0.661$, critical value = 0.162, $p < .05$), leading to the rejection of the null hypothesis. The obtained Pearson correlation coefficient indicates a moderate-to-strong positive relationship, suggesting that higher levels of disaster-related knowledge are associated with more positive attitudes toward preparedness and emergency response.

Table 4

Correlation between Disaster-Related Knowledge and Attitudes of Senior High School Students Toward Emergency Response in Viga East District

Variables	Statistical Test	Computed Value	Critical Value @ .05	Decision	Interpretation
Level of Disaster-Related Knowledge and Attitudes Toward Emergency Response	Pearson r	0.661	0.162	Reject Ho	Moderate-to-strong positive relationship; higher awareness is associated with more positive attitudes

In practical terms, students who demonstrate greater awareness of disaster types, preparedness measures, and safety protocols are more likely to value disaster preparedness, express willingness to participate in drills, and exhibit confidence in school readiness. The magnitude of the correlation underscores the interconnected nature of cognitive and affective components within the Knowledge–Attitude–Practice (KAP) framework. These findings imply that strengthening students' knowledge base may contribute not only to improved understanding but also to the development of constructive and proactive attitudes essential for effective disaster risk reduction in school.

Correlation between Disaster-Related Knowledge and Emergency Response Practices of Senior High School Students. The results shown in Table 5 indicate a statistically significant relationship between disaster-related knowledge and emergency response practices among Senior High School students in Viga East District ($r = 0.592$, critical value = 0.162, $p < .05$), leading to the rejection of the null hypothesis. The Pearson correlation coefficient reflects a moderate positive association, suggesting that students with higher levels of knowledge about disaster types, preparedness measures, and safety protocols are more likely to demonstrate appropriate and consistent emergency response behaviors.

Table 5

Correlation between Disaster-Related Knowledge and Emergency Response Practices of Senior High School Students in Viga East District

Variables	Statistical Test	Computed Value	Critical Value @ .05	Decision	Interpretation
Level of Disaster-Related Knowledge and Emergency Response Practices	Pearson r	0.592	0.162	Reject Ho	Moderate positive correlation; students with greater disaster-related knowledge are more likely to demonstrate effective emergency response practices.

This means that cognitive understanding is meaningfully linked to the practical application of skills such as evacuation compliance, communication during emergencies, and adherence to safety procedures. Although the relationship is not exceedingly strong, the magnitude of the coefficient indicates that knowledge plays a substantial role in shaping actual preparedness behaviors. These findings support the Knowledge–Attitude–Practice (KAP) framework, emphasizing that strengthening disaster education initiatives may enhance not only awareness but also the effective implementation of emergency response practices in school settings.

Correlation between Attitudes and Emergency Response Practices of Senior High School Students. The findings presented in Table 6

demonstrate a statistically significant relationship between students' attitudes toward emergency response and their actual emergency response practices ($r = 0.639$, critical value = 0.162, $p < .05$), resulting in the rejection of the null hypothesis. The Pearson correlation coefficient indicates a moderate-to-strong positive association, suggesting that students who hold more positive attitudes toward disaster preparedness are more likely to consistently practice appropriate emergency response behaviors.

Table 6

Correlation between Attitudes and Emergency Response Practices of Senior High School Students in Viga East District

Variables	Statistical Test	Computed Value	Critical Value @ .05	Decision	Interpretation
Attitudes Toward Emergency Response and Emergency Response Practices	Pearson r	0.639	0.162	Reject Ho	Moderate-to-strong positive relationship; students with more positive attitudes toward disaster preparedness demonstrate better emergency response practices.

In practical terms, students who perceive disaster preparedness as important, express willingness to participate in drills, feel personally responsible, and exhibit confidence in school readiness tend to comply with evacuation procedures, follow safety protocols, and engage in effective communication during emergencies. The strength of this relationship highlights the influential role of affective factors in translating awareness into action. These findings reinforce the Knowledge–Attitude–Practice (KAP) framework, emphasizing that fostering positive attitudes is crucial for strengthening students' practical disaster response capabilities in school-based disaster risk reduction initiatives.

DISCUSSION

The present findings substantively affirm the theoretical propositions of the Knowledge–Attitude–Practice (KAP) framework within a hazard-prone secondary school context. The very high level of disaster-related knowledge observed among students (M = 3.43) indicates that learners possess a strong cognitive foundation regarding disaster preparedness measures, emergency response procedures, and safety protocols. This aligns with the KAP model's assumption that knowledge acquisition serves as the precursor to attitudinal formation and behavioral readiness (Ronan et al., 2016; Shaw et al., 2019). Consistent with prior studies, students demonstrated particularly strong awareness of preparedness measures and response procedures, suggesting that structured school-based disaster education initiatives contribute meaningfully to hazard literacy (Zhong et al., 2020; Mamman et al., 2021). The minimal variation in responses further indicates homogeneity in knowledge levels, reflecting consistent exposure to disaster risk reduction (DRR) information across the district.

Similarly, students exhibited highly positive attitudes toward disaster preparedness (M = 3.44), particularly regarding the perceived importance of preparedness and confidence in school readiness. These findings corroborate evidence that enhanced hazard awareness strengthens attitudinal commitment and risk perception (UNDRR, 2017; Cordial, 2025a). The slightly lower mean for personal responsibility suggests that while institutional trust is strong, continued efforts are needed to cultivate deeper individual accountability. Behavioral change theory posits that affective dispositions mediate the transition from knowledge to action (Shaw et al., 2019), and the present results support this sequential dynamic.

In terms of emergency response practices (M = 3.41), students reported consistently compliant behaviors, particularly in evacuation procedures and adherence to safety protocols. These findings are congruent with research demonstrating that regular drills and structured emergency training enhance procedural compliance and situational awareness (Gu et al., 2016; Bahmani et al., 2023). Although first-aid application skills ranked lowest, they remained highly practiced, indicating foundational competence while highlighting an opportunity for more intensive psychomotor training (Kim & Choi, 2022). The consistency in responses suggests institutional

reinforcement of safety culture within the school environment (Wang et al., 2023).

Importantly, the statistically significant correlations among knowledge, attitudes, and practices provide empirical validation of the KAP model's sequential assumptions. The moderate-to-strong association between knowledge and attitudes (r = 0.661) confirms that increased cognitive awareness is linked to more positive preparedness orientations, consistent with findings by Ronan et al. (2016) and Cordial (2025b). Likewise, the positive correlation between knowledge and practices (r = 0.592) indicates that awareness meaningfully influences behavioral compliance, echoing prior school-based DRR research (Zhong et al., 2020). The relationship between attitudes and practices (r = 0.639) further underscores the mediating role of affective commitment in translating awareness into action (Shaw et al., 2019; Mamman et al., 2021).

Collectively, these findings address documented gaps in the literature concerning the integrated examination of KAP constructs in geographically vulnerable contexts (Cordial, 2025a, 2025b). By empirically demonstrating the interconnectedness of cognitive, affective, and behavioral dimensions among Senior High School students in an island district, this study strengthens theoretical validation of the KAP framework and offers actionable insights for enhancing school-based disaster risk reduction programs in hazard-prone regions.

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Data availability statement. All data supporting the findings of this study are included within the manuscript and its supplementary materials.

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