

Original Article

Correlates of Self-Reported Disaster Preparedness and the Attitude-Behavior Gap Among Filipino Urban College Students

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Abstract. Using the 23-item Disaster Attitude Scale, this study investigated the cognitive, affective, and behavioral dimensions of self-reported disaster preparedness attitudes among 264 college students in a highly vulnerable urban setting in Manila, Philippines. Descriptive statistics, Pearson correlation, and multiple regression analysis were performed to characterize preparedness levels and identify within-sample correlates. Results indicated that while students demonstrated high affective ($M = 3.93$, $SD = 0.79$) and cognitive ($M = 3.73$, $SD = 0.70$) scores, their behavioral preparedness ($M = 3.39$, $SD = 0.82$) remained moderate. All three dimensions were found to be significantly intercorrelated, with the strongest association between the cognitive and behavioral dimensions ($r = .74$, $p < .001$). Within the sample, cognitive factors predicted behavioral preparedness ($\beta = .74$, $p < .001$), whereas affective factors did not ($\beta = .02$, $p = .651$). These findings suggest that emotional concern alone is inadequate to translate into protective action when technical competence is absent. Additionally, the possibility that academic institutions may benefit from shifting disaster education from awareness-centered campaigns toward competency-based skills training and resource provision is put forth as a key recommendation.

Keywords: Attitude-behavior gap; Disaster preparedness attitudes; Disaster risk reduction; Higher education; Self-report measures

The Philippines occupies a precarious geographical position. Situated on the Pacific Ring of Fire and located in the global typhoon belt, it is exposed to frequent seismic activity, as well as severe hydrometeorological events (Bollettino et al., 2020; Vicario-Merino et al., 2019). This high level of exposure consistently places the country among the world's most vulnerable populations to natural hazards (Cerulli et al., 2020; Cordero, 2024). Thus, the exigent need for disaster mitigation strategies to protect lives, infrastructure, and economic stability cannot be overstated (Andaya et al., 2025; Hoffmann & Muttarak, 2021). Data collected from a national survey conducted in early 2024 suggest that while Filipinos seem to have become somewhat more prepared over the past several years, absolute preparedness scores remain low (Bollettino et al., 2024). Furthermore, even citizens who are aware of local government services often encounter significant gaps in preparedness (Estrada & Francisco, 2022).

For hazard-prone nations, integrating disaster risk reduction and management (DRRM) into higher education is a national imperative rather than a purely academic exercise. Colleges and universities bear a fundamental responsibility for safeguarding student populations, ensuring educational continuity, and cultivating a culture of safety within surrounding communities (Akarsu & Andaç, 2025). Within these environments, understanding the preparedness levels of the youth population is paramount for building national resilience (Biddle et al., 2020; Forsgren et al., 2022). College students, specifically those living independently in high-density, temporary housing arrangements far from familiar family support structures, represent a highly sensitive demographic in disaster scenarios (Patel et al., 2020; Patel et al., 2023).

These vulnerable conditions demand that preparedness measures be localized and tailored. As Alkalash et al. (2023) observe, "the knowledge and attitude of people are the main steps for the success of disaster preparedness and management" (p. 1). Yet prior studies have noted gaps in preparedness among university students, often attributed to reliance on others, low self-responsibility, and insufficient emergency resources, even in environments where disaster awareness is theoretically high (Akarsu & Andaç, 2025; Alshakka et al., 2022; Barik et al., 2025).

While the discrepancy between attitude and behavior has been noted before, the factors associated with this disconnect are still underexplored (Gumasing & Sobrevilla, 2023; Ng, 2022; Torani et al., 2019). In particular, it remains unclear whether the lack of an actionable response in times of disaster is due to deficient technical knowledge or to strong emotional responses, such as paralyzing anxiety or fatalism, that prevent concern from translating into concrete action (Becker et al., 2013; Witte, 1992). These circumstances underscore the need to quantify this gap and identify specific deficiencies among highly vulnerable Filipino college students. The present investigation sought to: (1) evaluate the prevailing levels of cognitive, affective, and behavioral disaster preparedness attitudes among the respondents; (2) identify specific low-scoring indicators to guide evidence-based intervention design; and (3) examine the within-sample predictive relationship between cognitive knowledge and affective concern on behavioral action.

Methodology

Research Design

In this investigation, a quantitative, cross-sectional survey design was employed due to its economy, capacity to describe attitudinal profiles, and test associative relationships among variables at one point in time (Creswell & Creswell, 2018). Specifically, it can capture a snapshot of disaster attitudes among college students and identify associations, not causal relationships, within a sample. The study was conducted at a private higher education institution (HEI) in Manila, an area in the National Capital Region highly vulnerable to seismic and hydrometeorological hazards.

Participants and Sampling Technique

The study utilized convenience sampling, recruiting respondents from students enrolled in a general science education course during the data collection period. A total of 264 students participated voluntarily. This sample size is above the minimum threshold recommended by Tabachnick and Fidell (2013) for multiple regression with two predictors (i.e., $N \geq 50 + 8k$, where k denotes the number of independent variables, yielding a minimum of 66). A review of the demographic profile revealed that a substantial proportion of respondents were enrolled in architecture and design programs (68.9%). The remaining respondents pursued degrees in the arts and creative industries (14.4%), cybersecurity and information systems (11.4%), and business, hospitality, and diplomacy (5.3%). This composition should be noted as a constraint on external validity, limiting generalizability to the broader population of Filipino students or to students from other disciplinary backgrounds. Accordingly, the study findings are best interpreted as applying to this sample and setting rather than to urban Filipino college students in general.

Research Instrument

The Disaster Attitude Scale (DAS), developed by Türkan et al. (2019), was used as the primary instrument for data collection. This 23-item survey employs a Likert scale ranging from 1 (totally disagree) to 5 (totally agree) and assesses three dimensions. The cognitive component (items 1–7) concerns knowledge, understanding, and beliefs about disasters. The affective component (items 8–16) pertains to emotional responses, including worry, anxiety,

and risk perception. The behavioral component (items 17–23) measures self-reported protective actions, such as formulating plans and assembling resources. Item-to-dimension assignment follows the structure reported by the scale’s developers. The instrument demonstrated strong internal consistency for the study sample. The Cronbach’s alpha coefficient for the total scale was .94. Subscale reliability coefficients were also strong: cognitive (.89), affective (.92), and behavioral (.87). It should be emphasized that the DAS, as an attitude measure, captures perceived knowledge, emotional responses, and reported behaviors. It does not directly verify preparedness capacity, such as the actual presence of an emergency kit or a completed family plan.

Data Gathering Procedure

An online questionnaire was disseminated at the beginning of a hybrid seminar on school-based disasters and emergencies in July 2025. The survey link was shared before any welcome remarks, framing statements, or seminar content, so that responses would reflect baseline attitudes rather than the session’s content. It should be acknowledged that the disaster-themed setting of administration may have primed respondents’ awareness of the topic, and this possibility is regarded as another limitation.

Data Analysis

All data were processed using IBM SPSS Statistics (Version 29.0.1.0). Means and standard deviations for the total scale and each subscale were computed as part of the descriptive statistical analysis. Interpretation of mean scores was based on the following continuum: 1.00–2.33 (Low), 2.34–3.66 (Moderate/Neutral), and 3.67–5.00 (High/Very High). To assess bivariate relationships among the cognitive, affective, and behavioral dimensions, Pearson product-moment correlation analysis was used. A standard multiple linear regression analysis was then performed with the cognitive and affective dimensions as predictors and the behavioral dimension as the criterion variable. Key assumptions were evaluated before interpreting the regression model. Multicollinearity was assessed using the following parameters: Variance Inflation Factor (VIF), tolerance statistics, and condition indices. The independence, normality, and homoscedasticity of residuals, along with linearity, were also examined, and no violations were detected.

Ethical Considerations

The purpose of the study was explained to the respondents before data collection. Voluntary participation and confidentiality of respondents’ information were maintained throughout data gathering, processing, and analysis.

Results and Discussion

Overall Profile of Disaster Attitudes

The first aim of this research was to characterize the cognitive, affective, and behavioral dimensions of disaster preparedness. As shown in Table 1, a hierarchical pattern emerged. The affective dimension obtained the highest rating ($M = 3.93$, $SD = 0.79$), indicating a high level of emotional concern. In general, students recognized the severity of disaster risks and reported considerable unease regarding potential outcomes. The cognitive dimension followed closely ($M = 3.73$, $SD = 0.70$), reflecting a strong perceived understanding of disaster mechanisms and mitigation strategies. In contrast, the behavioral dimension yielded the lowest score ($M = 3.39$, $SD = 0.82$), falling within the moderate range. This dimension, which captures tangible protective actions such as assembling emergency resources and formulating response plans, lagged behind both concern and knowledge.

These data reveal a persistent discrepancy between attitude and behavior. Students report high levels of concern and theoretical awareness, yet their scores do not fully translate into proactive physical preparation. This pattern aligns with the well-documented observation that risk perception and theoretical knowledge often exist independently of concrete survival behaviors, suggesting a significant gap in functional resilience.

Table 1. Descriptive Statistics of the Disaster Attitude Scale Dimensions ($n = 264$)

Dimension	M	SD	Interpretation
Cognitive (Knowledge)	3.73	0.70	High
Affective (Concern)	3.93	0.79	High
Behavioral (Action)	3.39	0.82	Moderate
Total Disaster Attitude Scale	3.70	0.62	High

Note. Interpretation based on a 5-point Likert scale: 1.00–2.33 (Low), 2.34–3.66 (Moderate/Neutral), 3.67–5.00 (High/Very High).

Detailed Analysis of Attitude Indicators

The second objective was to identify specific deficiencies within the attitudinal dimensions to guide targeted interventions. As detailed in Table 2, an item-level analysis reveals marked contrasts between theoretical knowledge and practical application.

In the cognitive dimension, students reported high confidence in general disaster concepts (Q1, $M = 4.19$) and public behavior during emergencies (Q7, $M = 4.07$). Specific technical knowledge regarding household safety, however, scored notably lower. Item 5 ("I know what the non-structural risk factors are at the home or dorm I live in," $M = 3.48$) and Item 6 ("I know what I need to do to reduce non-structural risk factors," $M = 3.47$) both fell into the moderate range. While general awareness exists, it appears that deeper, technical knowledge required to secure immediate living environments does not.

Table 2. Detailed Item Analysis of Disaster Attitude Indicators

Dimension / Indicator	M	SD	Interpretation
Cognitive Dimension			
Q1. I have a basic knowledge about disasters.	4.19	0.80	Very High
Q7. I know how to behave during a disaster in crowded places.	4.07	0.89	High
Q6. I know what I need to do to reduce non-structural risk factors.	3.47	1.02	Moderate
Q3. I have enough information about the family disaster plan.	3.45	0.95	Moderate
Affective Dimension			
Q13. The possibility of not being accessed by search and rescue teams worries me.	4.07	0.94	High
Q15. I am afraid of experiencing communication problems with relatives.	3.97	1.05	High
Q10. It makes me uneasy that necessary measures are not taken.	3.95	0.94	High
Q8. The risk of experiencing a disaster in the city I live in scares me.	3.78	1.12	High
Behavioral Dimension			
Q23. I can communicate correctly and accurately in case of an emergency.	3.70	0.92	High
Q17. I think I am prepared for a potential disaster.	3.46	0.88	Moderate
Q19. We prepared a family disaster plan against a possible disaster.	3.14	1.18	Moderate
Q20. I have a disaster and emergency bag.	2.92	1.26	Moderate

Note. The table presents the highest- and lowest-scoring items per dimension. Interpretation is based on a 5-point Likert scale.

Within the affective dimension, the strongest concerns clustered around access to help rather than around the hazard itself. High scores were recorded for Q13 ("Worried about not being accessed by search and rescue," $M = 4.07$) and Q10 ("Uneasy that necessary measures are not taken," $M = 3.95$), while the lowest affective item concerned the risk of experiencing disaster in one's city (Q8, $M = 3.78$). This clustering may reflect students' concern about the adequacy of external response systems. The current study, however, cannot confirm this, and it is addressed with caution in the discussion.

The behavioral dimension provided the strongest contrast. While students reported relatively high confidence in their ability to communicate during emergencies (Q23, $M = 3.70$), they reported far less resource-based preparation. Item 20 ("I have a disaster and emergency bag") received the lowest score across the entire survey ($M = 2.92$), followed by Item 19 ("Prepared a family disaster plan," $M = 3.14$). This divergence between perceived communicative capability and reported logistical preparation captures the core of the attitude-behavior gap: students believe they can manage an emergency yet lack the basic physical resources to see one through.

Intercorrelations Among Disaster Attitude Dimensions

Table 3. Pearson Correlations Among Disaster Attitude Scale Dimensions ($n = 264$)

Dimension	Cognitive	Affective	Behavioral
Cognitive	—		
Affective	.39**	—	
Behavioral	.74**	.30**	—

Note. ** $p < .001$ (two-tailed).

Before examining the predictive relationships, Pearson product-moment correlations were computed among all three dimensions (Table 3). All bivariate correlations were positive and statistically significant at the $p < .001$ level. The strongest association was found between the cognitive and behavioral dimensions ($r = .74$), followed by the cognitive-affective relationship ($r = .39$), and the affective-behavioral association ($r = .30$). The moderate correlation

between the affective and behavioral dimensions indicates that emotional concern is associated with preparedness behavior at the bivariate level. However, the regression below shows that this association no longer holds once cognitive factors are accounted for, suggesting that much of the shared variance between the affective dimension and behavior stems from its overlap with the cognitive dimension.

Predictors of Behavioral Preparedness

To determine the independent predictive contributions of the cognitive and affective dimensions, a standard multiple linear regression was conducted with behavioral preparedness as the dependent variable (Table 4). Before interpretation, key assumptions were evaluated. Multicollinearity diagnostics indicated acceptable levels, with both predictors yielding a *VIF* of 1.17 and a tolerance of 0.85, well within conventional thresholds (*VIF* < 10; tolerance > .10). Condition indices (11.38 and 13.31) were below the critical value of 30, confirming the absence of severe multicollinearity.

The overall regression model was statistically significant, $F(2, 261) = 160.70, p < .001$, with the model explaining approximately 55% of the variance in behavioral preparedness ($R^2 = .55$, Adjusted $R^2 = .55$). This indicates that the combination of knowledge and concern accounts for more than half of the variability in protective actions. It is worth noting that the model draws on only two dimensions of a single attitude instrument; factors such as prior disaster experience, household resources, and drill participation were not measured and would likely account for variance that the present model cannot capture.

Table 4. Summary of Multiple Linear Regression Analysis for Variables Predicting Behavioral Preparedness

Variable	B	SE B	β	t	p	VIF
(Constant)	0.11	0.21		0.50	.621	
Cognitive Dimension	0.86	0.05	.74	16.36	< .001	1.17
Affective Dimension	0.02	0.05	.02	0.45	.651	1.17

Note. $n = 264$. Dependent variable: Behavioral dimension. $R^2 = .55$. Model $F(2, 261) = 160.70, p < .001$.

The examination of individual predictors also revealed a distinct disparity. While the cognitive dimension emerged as a strong positive predictor ($\beta = .74, t = 16.36, p < .001$), the affective dimension did not ($\beta = .02, t = 0.45, p = .651$). This contrast does not mean that emotional concern has no relationship with behavioral preparedness. Rather, once cognitive knowledge is taken into account, affective concern adds no significant unique variance to the prediction of behavior. Whatever predictive power affect possesses appears to be shared with and absorbed by the cognitive dimension.

Synthesizing Discussion

The evidence from this study identifies a persistent pattern among respondents: students in this high-risk urban setting report intense emotional concern about potential hazards, yet this heightened state of alert does not translate into preparedness behaviors. The moderate behavioral scores ($M = 3.39$), combined with the critically low possession of emergency kits ($M = 2.92$), clearly illustrate this pattern. These findings are consistent with the works of Almazan et al. (2019) and Dariagan et al. (2021), which noted limited actual training, low self-efficacy, and perceived response costs as primary barriers to action.

Furthermore, this observed inconsistency is supported by the broader disaster literature that describes an attitude-behavior gap where individuals acknowledge the risks but fail to take protective measures (Al Khalaileh et al., 2012; Labrague et al., 2018; Xu et al., 2018). In the context of this investigation, the reported lack of tangible preparation may be attributed to cognitive barriers, such as optimism or normalcy bias (Ng, 2022; Ozaki et al., 2021) that lead individuals to minimize their perception of personal risk (Becker et al., 2013; Lechowska, 2018). This may mean prioritizing immediate academic and social demands over hypothetical survival scenarios, while underestimating the resources needed for actual emergencies.

The regression analysis offers the most substantial explanation. Understanding the facts and risks (cognitive factors) strongly predicts whether someone will prepare for a disaster ($\beta = .74$). Meanwhile, emotional concern (affective factors) has very little impact ($\beta = .02$) once what a person actually knows is controlled for. It is this disparity that changes how disaster education is approached. It is not sufficient to make people feel anxious or aware of a threat. Seemingly, the most effective way to foster disaster preparedness is to build confidence and

competence through training, drills, and clear communication strategies (Cuadra & Cotoron, 2025; Wang et al., 2023).

According to Bandura's (1986) Social Cognitive Theory, self-efficacy, the belief in one's capability to carry out the actions a situation requires, is a powerful determinant of behavioral change. This study did not directly measure self-efficacy. While it is linked to the cognitive dimension of the DAS, it does not replace a validated efficacy scale. As such, the proposed alignment is interpretive rather than confirmatory: the cognitive dimension's predictive ability is consistent with the idea that students rely on perceived competence to initiate action. The significant predictive power of the cognitive dimension suggests that students rely on perceived competence to initiate action. The affective dimension, given its modest bivariate correlation with behavior ($r = .30$), suggests the cognitive domain may already capture the variance that affect shares with behavior. The struggle of college students to demonstrate behavioral preparedness is not due to a lack of caring, as they report high anxiety. Instead, they are more likely to perceive their technical knowledge and logistical resources as inadequate for effectively responding to disasters. As with the households described by Augustine et al. (2019), students may lack the mastery or agency to acquire the necessary resources.

There is also a communication element to consider. Traditionally, disaster education operates on the assumption that heightened emotional concern naturally leads to protective behavior. The reported data, however, suggests a more complex relationship. Witte's (1992) Extended Parallel Process Model provides a useful framework for these findings. When individuals view a threat as high but feel incapable of responding effectively (low self-efficacy), the typical response is to control fear through denial or avoidance rather than to control danger through proactive preparation. Therefore, to elicit the desired behavior, awareness campaigns should integrate direct skill-building and clear, actionable steps that enhance self-efficacy. Importantly, because this study is a cross-sectional correlational design, these interpretations do not constitute causal evidence against fear-based messaging. Experimental work is needed to test these relationships directly.

The affective items recorded the highest scores for access to external help, particularly worry about search-and-rescue reach (Q13, $M = 4.07$). This finding may be regarded as evidence that personal preparedness is tied to trust in institutional response systems, and that where students perceive their university or local government is unprepared, they may feel it is pointless to prepare themselves and lose their motivation (Kang et al., 2023). However, such an interpretation remains a possibility, as the study did not include any direct measures of institutional trust. If it holds, it will support Andaya et al.'s (2025) argument that disaster plans must address both local capacity and governance accountability, marking a worthwhile direction for future work.

Conclusion

This study detected a gap between the attitudinal awareness and behavioral preparedness reported by college students at a private HEI in Manila. Despite high levels of affective concern and cognitive awareness, their behavioral preparedness, particularly in resource-dependent aspects such as emergency kit preparation and non-structural hazard mitigation, remained lacking. Because the sample was drawn from a single institution and leaned heavily toward architecture and design programs, the pattern is best understood as characterizing this group rather than urban Filipino college students at large.

Within this sample, behavioral preparedness appears to function more as a matter of cognitive competence than of emotional arousal, suggesting that whether students actually prepare depends on what they know, not what they feel. The data also showed that cognitive factors strongly predicted behavior, whereas emotional worry had almost no impact. This means that students' inability to act is not attributed to a lack of concern but rather to low self-efficacy beliefs—meaning they feel anxious but do not know how to prepare, so they avoid the problem entirely. While the findings align with these psychological theories, this work did not test them directly.

This study offers practical ideas for consideration by HEIs in high-risk areas. Instead of passive awareness seminars, colleges and universities should switch to hands-on workshops that require students to demonstrate survival skills, like first aid, thereby building real confidence and mastery. Because emergency kit possession scored lowest across the entire instrument, HEIs should view readiness as a student welfare issue and provide

basic kits, if necessary. There is also room to pair student competence-building with institutional trust through service-learning partnerships with local government units. Architecture and design students, who made up most of this sample, could help map community structural hazards, while information systems students could develop localized early warning tools. Whether such measures actually change behavior is a question for future studies to explore.

The limitations of this study should be noted when interpreting the findings. First, the use of convenience sampling from a single private institution, which is predominantly comprised of students from the architecture and design programs, constrains generalizability. Second, the data were obtained from self-reports, which capture perceived knowledge and reported behaviors rather than their objective survival skills. Furthermore, because all three dimensions were measured simultaneously using a single instrument, common method variance cannot be ruled out (Podsakoff et al., 2003). While participation was confidential and data were collected before any input from the seminar content, these procedural safeguards only partially address the issue. Future research would benefit from expanding the institutional and geographical scope to public and provincial universities and applying longitudinal designs to monitor the effectiveness of competency-based training over time. Additionally, controlling for external variables such as socioeconomic status and prior disaster experience could offer substantial explanations for the attitude-behavior gap. Lastly, future studies could investigate how social media and digital misinformation influence fear-control responses within this demographic – another important area of inquiry that the current data can only suggest.

Contributions of Authors

Author 1: conceptualization, data gathering, data analysis, and manuscript writing, revision and review

Author 2: data gathering, data analysis, and manuscript revision and review

Author 3: conceptualization, data gathering, and manuscript writing

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Conflict of Interests

The authors declare no conflict of interest.

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