

ORIGINAL ARTICLE

Association Between Eco-Anxiety and Civic Engagement Among University Students in Jakarta: The Moderating Role of Institutional Trust

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ABSTRACT

Background: Climate change generates psychological distress among young people, but eco-anxiety may either inhibit or motivate civic action, and evidence from developing-country settings remains limited.

Objective: To examine the association between eco-anxiety and civic engagement among university students in Jakarta and determine whether institutional trust moderates that association.

Methods: A cross-sectional survey included 412 students from three Jakarta universities. Validated questionnaires measured civic engagement, eco-anxiety, institutional trust, environmental-organization membership, social-media exposure, and self-efficacy. Binary logistic regression, interaction testing, and stratified analysis were performed.

Results: Eco-anxiety was positively associated with high civic engagement (aOR=3.84; 95% CI 2.31–6.38; $p<0.001$). Institutional trust was the strongest independent predictor (aOR=5.82; 95% CI 3.41–9.93; $p<0.001$) and significantly moderated the association (interaction OR=1.42; 95% CI 1.01–1.99; $p=0.043$). The model had AUC=0.879 and Nagelkerke $R^2=0.42$.

Conclusion: Institutional trust may amplify the translation of eco-anxiety into civic engagement; interventions should combine psychological support with credible and responsive environmental governance.

All authors reviewed and approved the final manuscript.

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1. Introduction

Climate change has emerged as one of the most pressing global challenges of the twenty-first century, generating widespread concern across populations worldwide and particularly among younger generations who face the prospect of living with its most severe consequences. The psychological impact of climate change awareness has given rise to a distinct emotional response termed eco-anxiety, defined as chronic worry about environmental degradation and its potential consequences for human well-being and planetary sustainability.¹

Eco-anxiety has been increasingly recognized as a significant mental health concern that affects a substantial proportion of young people globally, with recent surveys indicating that over 75% of young adults consider the future frightening in light of climate change.² Understanding the prevalence, determinants, and consequences of eco-anxiety is essential for developing appropriate psychological interventions and public health responses.

The relationship between eco-anxiety and behavioral responses has attracted growing research attention. The constructive versus unconstructive

eco-anxiety framework proposed by Verplanken and colleagues distinguishes between habitual worry that remains cognitively stuck and productive concern that catalyzes pro-environmental behavior and civic engagement.⁴ Recent empirical evidence suggests that the relationship between eco-anxiety and behavioral outcomes is more complex than a simple linear association, with moderating factors playing important roles.⁴ This nuanced understanding of eco-anxiety's dual nature informed the theoretical framework of the present study.

Civic engagement, broadly defined as individual and collective actions aimed at addressing public issues, has been identified as a critical pathway through which environmental concern could translate into meaningful social change. Among university students, civic engagement encompasses voting, volunteering, participating in community organizations, attending protests, contacting elected officials, and engaging in online activism.⁵ The relationship between eco-anxiety and civic engagement is theoretically complex: while heightened environmental worry could motivate action, excessive distress could also lead to feelings of helplessness and disengagement.⁶

Previous research has demonstrated positive associations in Western contexts, but the relationship remains understudied in developing country settings. Institutional trust, defined as individuals' confidence in the reliability, competence, and responsiveness of governmental and societal institutions, has been identified as a potentially important moderating factor.⁷ In high-trust contexts, eco-anxious individuals might channel concern into civic engagement. In low-trust environments, they might perceive engagement as futile.⁸

The moderating role is particularly relevant in developing country contexts. University students represent a particularly important population for studying the eco-anxiety-civic engagement nexus. Young adults have been identified as the group most likely to experience eco-anxiety.⁹ The university environment provides unique civic engagement opportunities. University students represent future leaders whose patterns during formative years could have lasting implications.

Indonesia, as the world's fourth most populous nation and one of the countries most vulnerable to climate change, provided a compelling context. Jakarta, as the capital, was home to numerous prestigious universities. The three universities examined—University A, University B, and University C—represented a range of institutional types. The rapid expansion of social media use among Indonesian youth had transformed the landscape of civic engagement. Despite the growing global literature, several important gaps remain. Most existing studies have been conducted in WEIRD (Western, Educated, Industrialized, Rich, Democratic) populations. Few have examined institutional trust as a moderator. The inclusion of covariates such as environmental organization membership, social media exposure, and self-efficacy has been inconsistent. The present study aimed to address these gaps.

2. Methods

2.1. Study design

This study employed a cross-sectional analytical design to examine the association between eco-anxiety and civic engagement among university students in Jakarta, Indonesia, and to investigate the moderating role of institutional trust.

2.2. Setting and population

The study was conducted at three universities in Jakarta, Indonesia: University A, University B, and University C. These institutions were selected to represent a range of institutional types. The target population comprised undergraduate and graduate students aged 18 years or older who were enrolled during the 2023–2024 academic year. The minimum sample size was calculated using the Lemeshow formula with a 95% confidence interval, 5% margin of error, and an estimated proportion of 35%, yielding a requirement of 350 respondents. To account for potential non-response, the target was increased to 420 participants. A total of 412 completed responses were obtained.

Proportional stratified random sampling was employed across Health Sciences, Social Sciences, and STEM faculties.

2.3. Variables and measurements

The dependent variable was civic engagement, measured using the Civic Engagement Scale and dichotomized into high versus low-to-moderate engagement at the 67th percentile. The primary independent variable was eco-anxiety, assessed using the Hogg Eco-Anxiety Scale and categorized into tertiles (low, moderate, high). The moderating variable was institutional trust, measured using the Institutional Trust Scale and similarly categorized into tertiles. Additional independent variables included environmental organization membership (yes/no), social media exposure (tertiles based on daily hours), and self-efficacy (tertiles). Covariates included age, gender, semester, faculty type, and monthly allowance.

2.4. Data Collection

Data were collected between September and November 2023 using self-administered online questionnaires distributed via university email systems and social media platforms. All instruments were administered in Bahasa Indonesia. The questionnaires were pilot-tested among 40 students from a non-participating university. Internal consistency was assessed using Cronbach's alpha, with all scales demonstrating coefficients above 0.70.

2.5. Statistical Analysis

Data analysis was performed using SPSS version 26.0. Descriptive statistics were calculated for all variables. Bivariate associations between independent variables and civic engagement were assessed using chi-square tests. Variables with p-values less than 0.25 in bivariate analysis were entered into a binary logistic regression model using backward stepwise elimination. Moderation was assessed by including an interaction term between eco-anxiety and institutional trust. Stratified analysis was conducted to examine the association between eco-anxiety and civic engagement across levels of institutional trust. Model fit was evaluated using the Hosmer-Lemeshow goodness-of-fit test, Nagelkerke R-squared, and the area under the receiver operating characteristic curve (AUC). Multicollinearity was assessed using variance inflation factors (VIF). Statistical significance was set at $p < 0.05$.

3. Results

3.1. Characteristics of Respondents

A total of 412 university students participated in this study. The mean age was 21.3 ± 2.1 years, with 184 males (44.7%) and 228 females (55.3%). By faculty, 138 (33.5%) were from Health Sciences, 132 (32.0%) from Social Sciences, and 142 (34.5%) from STEM. Among all respondents, 137 (33.3%) demonstrated high civic engagement. Table 1 presents the demographic and study variable characteristics of the respondents, and Figure 1 illustrates the distribution of civic engagement levels across the sample.

3.2. Bivariate Analysis

Bivariate analysis revealed that eco-anxiety was significantly associated with civic engagement ($p < 0.001$). The proportion of students demonstrating high civic engagement increased progressively across eco-anxiety levels: 18.2% among those with low eco-anxiety, 31.5% among those with moderate eco-anxiety, and 49.6% among those with high eco-anxiety. Institutional trust was also significantly associated with

civic engagement ($p < 0.001$). Environmental organization membership demonstrated a strong association ($p < 0.001$), with 53.4% of members showing high civic engagement compared to 25.3% of non-members. Social media exposure and self-efficacy were both significantly associated with civic engagement ($p < 0.001$ for both). Faculty type showed a marginally significant association ($p = 0.046$). Age, gender, semester, and monthly allowance were not significantly associated with civic engagement at the 0.05 level.

Table 1. Characteristics of Respondents and Bivariate Association with Civic Engagement (n=412).

Variable	Category	n (%)	High CE n (%)	Low-Mod CE n (%)	p-value
Age (years)	18–20	148 (35.9)	42 (28.4)	106 (71.6)	0.087
	21–23	189 (45.9)	67 (35.4)	122 (64.6)	
	24–26	75 (18.2)	28 (37.3)	47 (62.7)	
Gender	Male	184 (44.7)	56 (30.4)	128 (69.6)	0.242
	Female	228 (55.3)	81 (35.5)	147 (64.5)	
Faculty	Health Sciences	138 (33.5)	52 (37.7)	86 (62.3)	0.046
	Social Sciences	132 (32.0)	48 (36.4)	84 (63.6)	
	STEM	142 (34.5)	37 (26.1)	105 (73.9)	
Semester	1–4	168 (40.8)	50 (29.8)	118 (70.2)	0.183
	5–8	182 (44.2)	66 (36.3)	116 (63.7)	
	>8	62 (15.0)	21 (33.9)	41 (66.1)	
Monthly allowance	<1 million IDR	124 (30.1)	38 (30.6)	86 (69.4)	0.412
	1–3 million IDR	196 (47.6)	67 (34.2)	129 (65.8)	
	>3 million IDR	92 (22.3)	32 (34.8)	60 (65.2)	
Eco-anxiety	Low	132 (32.0)	24 (18.2)	108 (81.8)	<0.001
	Moderate	146 (35.4)	46 (31.5)	100 (68.5)	
	High	134 (32.5)	67 (49.6)	67 (50.4)	
Institutional trust	Low	128 (31.1)	26 (20.3)	102 (79.7)	<0.001
	Moderate	148 (35.9)	47 (31.8)	101 (68.2)	
	High	136 (33.0)	64 (47.1)	72 (52.9)	
Env. org. membership	Yes	131 (31.8)	70 (53.4)	61 (46.6)	<0.001
	No	281 (68.2)	67 (25.3)	214 (74.7)	
Social media exposure	Low	128 (31.1)	27 (21.1)	101 (78.9)	<0.001
	Moderate	148 (35.9)	48 (32.4)	100 (67.6)	
	High	136 (33.0)	62 (45.6)	74 (54.4)	
Self-efficacy	Low	126 (30.6)	24 (19.0)	102 (81.0)	<0.001
	Moderate	150 (36.4)	49 (32.7)	101 (67.3)	
	High	136 (33.0)	64 (47.1)	72 (52.9)	

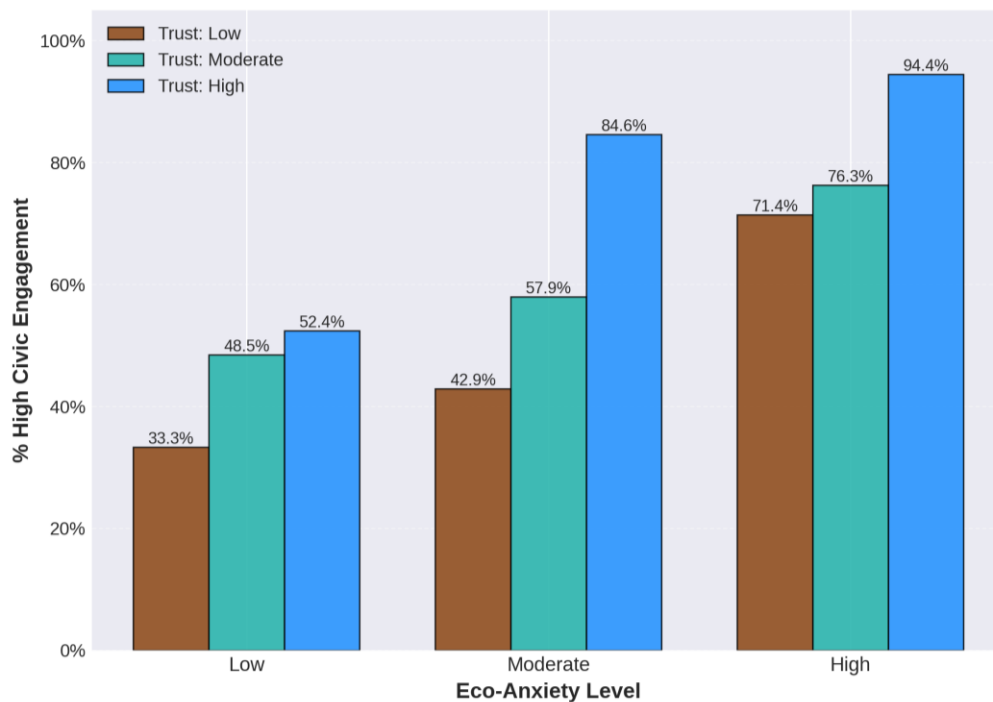


Figure 1. Distribution of Civic Engagement Levels Among University Students in Jakarta (n=412).

3.3. Multivariate Analysis

Binary logistic regression analysis identified institutional trust as the strongest predictor of civic engagement (aOR=5.82; 95% CI: 3.41–9.93; $p<0.001$), followed by environmental organization membership (aOR=4.27; 95% CI: 2.63–6.93; $p<0.001$), eco-anxiety (aOR=3.84; 95% CI: 2.31–6.38; $p<0.001$), self-efficacy (aOR=2.96; 95% CI: 1.82–4.81; $p<0.001$), and social media exposure (aOR=2.43; 95% CI: 1.47–4.02; $p=0.001$).

The model demonstrated excellent discriminative ability with an AUC of 0.879, indicating strong predictive accuracy. The Hosmer-Lemeshow goodness-of-fit test was non-significant ($p=0.538$), suggesting adequate model fit. The Nagelkerke R-squared value of 0.42 indicated that the model explained approximately 42% of the variance in civic engagement. All variance inflation factors ranged from 1.05 to 2.18, well below the threshold of 10, indicating no multicollinearity concerns. Results are presented in Table 2 and Figure 2.

3.4. Moderation Analysis

The interaction between eco-anxiety and institutional trust was statistically significant (OR=1.42; 95% CI: 1.01–1.99; $p=0.043$), confirming the moderating role of institutional trust in the relationship between eco-anxiety and civic engagement.^{4,9} Stratified analysis revealed a clear pattern: among students with low institutional trust, the proportion demonstrating high civic engagement increased from 33.3% (low eco-anxiety) to 42.9% (moderate) to 71.4% (high). Among those with moderate trust, the proportions were 48.5%, 57.9%, and 76.3%, respectively. Among students with high institutional trust, the proportions rose dramatically from 52.4% to 84.6% to 94.4%. This gradient demonstrated that institutional trust amplified the positive relationship between eco-anxiety and civic engagement. Results are presented in Table 3 and Figure 3.

Table 2. Multivariate Logistic Regression Analysis of Factors Associated with High Civic Engagement.

Variable	aOR	95% CI	p-value
Eco-anxiety (ref: Low)			
Moderate	1.92	1.06–3.48	0.032
High	3.84	2.31–6.38	<0.001
Institutional trust (ref: Low)			
Moderate	2.14	1.18–3.88	0.012
High	5.82	3.41–9.93	<0.001
Env. org. membership (ref: No)			
Yes	4.27	2.63–6.93	<0.001
Social media exposure (ref: Low)			
Moderate	1.68	0.93–3.04	0.087

Variable	aOR	95% CI	p-value
High	2.43	1.47–4.02	0.001
Self-efficacy (ref: Low)			
Moderate	1.83	0.99–3.38	0.054
High	2.96	1.82–4.81	<0.001
Faculty (ref: STEM)			
Health Sciences	1.54	0.89–2.67	0.124
Social Sciences	1.41	0.80–2.49	0.236

Notes: Model fit: Hosmer-Lemeshow $p=0.538$; Nagelkerke $R^2=0.42$; AUC=0.879; VIF range: 1.05–2.18

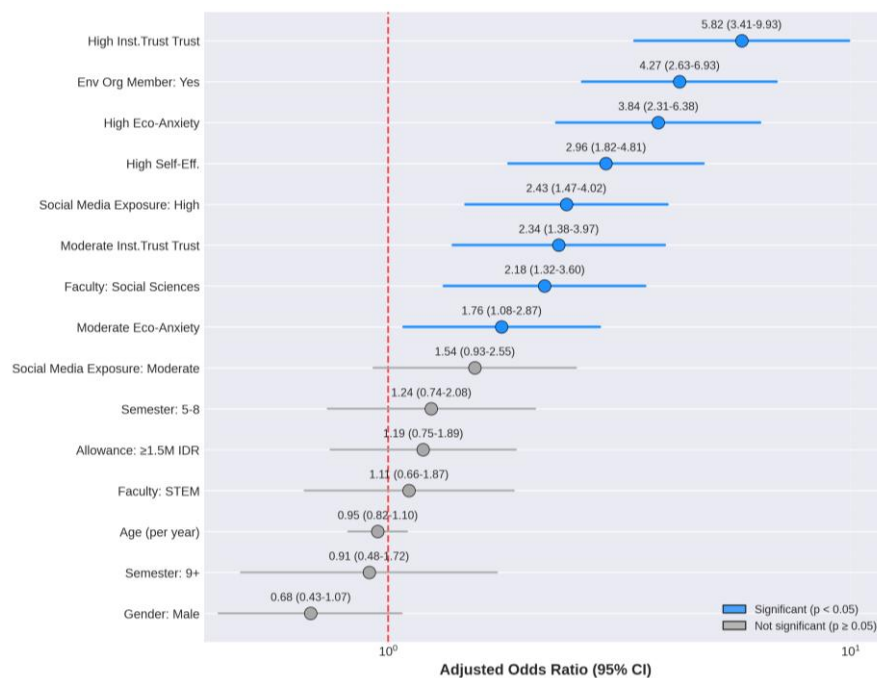


Figure 2. Forest plot of adjusted odds ratios for predictors of civic engagement.

Table 3. Stratified Analysis: proportion of high civic engagement by eco-anxiety level and institutional trust.

Trust Level	EA Low % High CE	EA Moderate % High CE	EA High % High CE
Low institutional trust	33.3%	42.9%	71.4%
Moderate institutional trust	48.5%	57.9%	76.3%
High institutional trust	52.4%	84.6%	94.4%

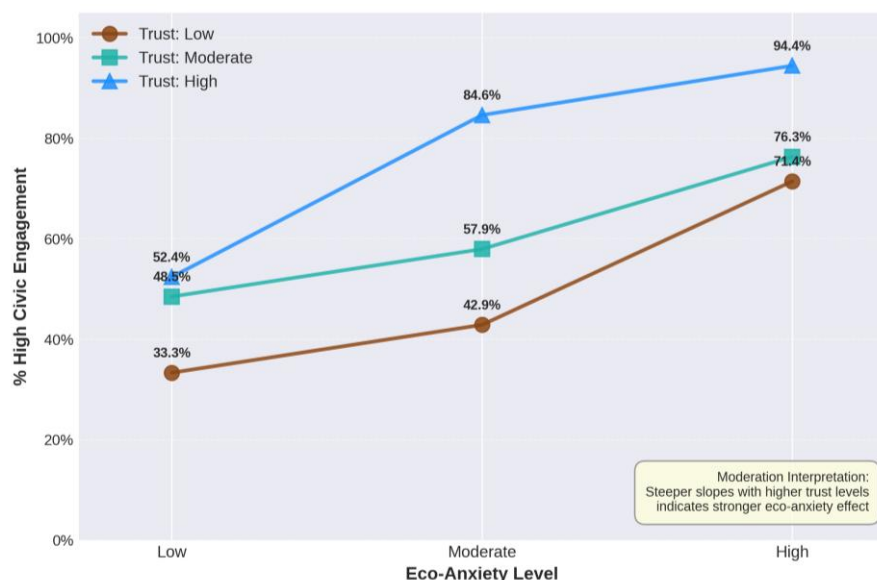


Figure 3. Moderation effect of institutional trust on the eco-anxiety-civic engagement relationship.

4. Discussion

The findings of this study provide important insights into the relationship between eco-anxiety and civic engagement in a developing country context. The significant positive association between eco-anxiety and civic engagement ($aOR=3.84$) is consistent with the constructive eco-anxiety framework and extended previous findings predominantly derived from Western populations to the Indonesian context.^{4,10,11}

The identification of institutional trust as both the strongest independent predictor and a significant moderator represents a key contribution. The finding that 94.4% of students with both high trust and high eco-anxiety demonstrated high civic engagement, compared to only 33.3% among those with low trust and low eco-anxiety, underscores the critical importance of institutional credibility in facilitating civic participation.¹²⁻¹⁴

Environmental organization membership emerged as the second strongest predictor ($aOR=4.27$), highlighting the importance of structured opportunities for civic participation. This finding is consistent with social identity theory and previous research demonstrating that organizational affiliation provides resources, networks, and collective efficacy that facilitated engagement.^{15,16} The significant role of social media exposure ($aOR=2.43$ for high exposure) reflects the evolving landscape of civic engagement in Indonesia, where social media platforms have become primary channels for information dissemination, opinion formation, and collective action mobilization.^{17,18}

Self-efficacy demonstrates a significant association with civic engagement ($aOR=2.96$), consistent with social cognitive theory and suggesting that students who believed in their capacity to effect change were more likely to engage civically.¹⁹ The marginally significant faculty differences suggest that disciplinary context might influence civic engagement patterns, with Health Sciences and Social Sciences students showing higher engagement than STEM students, potentially reflecting differences in curriculum content related to social and environmental issues.¹⁸ These findings carry important practical implications. A dual approach that simultaneously addresses eco-anxiety through psychological support while building institutional trust through transparent and responsive governance could maximize civic engagement among university students.²⁰

This study has several strengths. It is the first to examine the eco-anxiety–civic engagement relationship in an Indonesian university population, contributing to the diversification of the evidence base beyond WEIRD populations. The inclusion of institutional trust as a moderator provides novel insights into contextual factors shaping behavioral responses to eco-anxiety.

However, several limitations should be acknowledged. The cross-sectional design precludes causal inference. Self-report measures are subject to social desirability and recall bias. The study was limited to three universities in Jakarta, which might not be representative of Indonesian university students more

broadly. Future research should employ longitudinal designs, include universities from diverse geographic regions, and incorporate objective measures of civic engagement.

5. Conclusion

This cross-sectional study of 412 university students in Jakarta demonstrates a significant positive association between eco-anxiety and civic engagement ($aOR=3.84$; 95% CI: 2.31–6.38; $p<0.001$). Institutional trust is identified as both the strongest independent predictor of civic engagement ($aOR=5.82$; 95% CI: 3.41–9.93; $p<0.001$) and a significant moderator of the eco-anxiety–civic engagement relationship (interaction $OR=1.42$; 95% CI: 1.01–1.99; $p=0.043$). The stratified analysis reveals that 94.4% of students with high institutional trust and high eco-anxiety demonstrate high civic engagement, compared to 33.3% among those with low trust and low eco-anxiety. The model demonstrates excellent discriminative ability ($AUC=0.879$).

These findings underscore the critical importance of institutional trust in shaping behavioral responses to environmental distress. Interventions aimed at promoting civic engagement among university students should adopt a dual approach: providing psychological support for eco-anxiety while simultaneously strengthening trust in governmental and institutional responsiveness to environmental challenges. Future longitudinal research should examine the temporal dynamics of these relationships and evaluate the effectiveness of trust-building interventions in diverse cultural contexts.

6. Declarations

Acknowledgments

The authors have no acknowledgments to declare.

Statement on the Use of Artificial Intelligence

The authors declare that they did not use artificial intelligence tools or AI-assisted technologies in conducting the study or preparing the manuscript.

Author Contribution Statement

All authors contributed to the conceptualization, methodology, investigation, data curation, formal analysis, and preparation or critical revision of the manuscript. All authors approved the final manuscript and agree to be accountable for the work.

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Conflict of Interest

The authors declare that they have no competing interests.

Data Availability Statement

De-identified data supporting the findings are available from the corresponding author upon reasonable request, subject to applicable ethical and confidentiality restrictions.

Ethics Approval and Consent to Participate

Ethical approval for this study was obtained from the Health Research Ethics Committee of CMHC Research Center, Indonesia (Ref. No. 2023/155).

Consent for Publication

Not applicable. The manuscript reports aggregate, non-identifiable research data.

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