

Environmental Attitude and Knowledge Among Community Members in Rogojampi: Implications for Community-Based Environmental Education and Spatial Planning

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Abstract: The limited engagement of community members in addressing ecological problems is linked to the lack of environmental understanding. This study described environmental attitude and environmental knowledge among members of the Paguyuban Blok EM community in Rogojampi, compared variables by sex, and examined their relationship. A quantitative survey was conducted with 26 respondents from a population of 58,262 residents. Questionnaire data were analyzed using inferential statistics. Environmental attitude was classified as high ($M = 41.81$), whereas environmental knowledge was moderate ($M = 36.15$). Sex showed no significant association with environmental attitude ($p = .401$) or environmental knowledge ($p = .451$). Pearson correlation analysis revealed no significant relationship between environmental attitude and environmental knowledge ($r = .197$, $p = .335$). However, a Mann–Whitney U test indicated significant differences between their score distributions ($Z = -2.631$, $p = .009$). These findings highlight the need for action-based environmental education to foster behavior.

Keywords: Environmental Attitude, Environmental Knowledge, Environmental Education, Spatial Planning, Community

Abstrak: Rendahnya keterlibatan masyarakat dalam mengatasi permasalahan ekologi berkaitan dengan kurangnya pemahaman lingkungan. Penelitian ini bertujuan mendeskripsikan sikap dan pengetahuan lingkungan anggota komunitas Paguyuban Blok EM di Rogojampi, membandingkan kedua variabel berdasarkan jenis kelamin, serta menguji hubungan di antara keduanya. Penelitian menggunakan desain survei kuantitatif dengan 26 responden yang dipilih dari populasi sebanyak 58.262 penduduk. Data kuesioner dianalisis menggunakan statistik inferensial. Hasil penelitian menunjukkan bahwa sikap lingkungan berada pada kategori tinggi ($M = 41,81$), sedangkan pengetahuan lingkungan berada pada kategori sedang ($M = 36,15$). Jenis kelamin tidak berhubungan secara signifikan dengan sikap lingkungan ($p = 0,401$) maupun pengetahuan lingkungan ($p = 0,451$). Analisis korelasi Pearson menunjukkan tidak terdapat hubungan yang signifikan antara sikap dan pengetahuan lingkungan ($r = 0,197$; $p = 0,335$). Namun, uji Mann–Whitney U menunjukkan adanya perbedaan yang signifikan pada distribusi skor kedua variabel tersebut ($Z = -2,631$; $p = 0,009$). Temuan ini menegaskan perlunya program pendidikan lingkungan berbasis tindakan untuk mendorong terbentuknya perilaku yang lebih peduli terhadap lingkungan.

Kata Kunci: Sikap Lingkungan, Pengetahuan Lingkungan, Pendidikan Lingkungan, Penataan Ruang, Komunitas Masyarakat

INTRODUCTION

The environment is one of the key determinants of human quality of life. Numerous environmental problems including pollution (Cota, 2025), the accumulation of waste, and limited public awareness of environmental cleanliness continue to challenge environmental sustainability (Mifbakhuddin & Prasetyo, 2024). Communities should recognize the importance of protecting the

environment; active community participation, as the principal actor in environmental management and conservation, helps create a stable ecosystem.

Community participation in environmental protection reflects the level of environmental knowledge and environmental attitude that community members hold. Environmental knowledge refers to an individual's understanding of environmental issues, including their causes, impacts, and possible solutions (Santhyami et al., 2021). Sound environmental knowledge can help communities understand the importance of proper waste management and apply environmentally friendly behavior in daily life (Sur et al., 2026). Environmental attitude, in turn, is a psychological disposition reflected in concern, positive evaluation, and commitment toward environmental conservation, expressed through a willingness to behave in an environmentally friendly manner (Baierl et al., 2022). A person with a strong environmental attitude tends to display concern for the environment, accept responsibility, and participate actively in conservation activities (Reese & Jacob, 2015). Communities that possess adequate knowledge together with a positive attitude are expected to be more likely to display behavior that supports environmental sustainability.

Prior research on environmental attitude has shown that, in the Bandung area, community knowledge about the environment is generally sound, yet its application in daily practice remains difficult. This gap has been attributed to unclear legal regulation, low levels of discipline, and a consumerist culture that contributes to increased waste generation (Pangsuma & Surtikanti, 2024). This regulatory ambiguity is noteworthy given that the national legal framework for environmental protection has already been established through Law No. 32 of 2009 on Environmental Protection and Management (Republik Indonesia, 2009) and Law No. 18 of 2008 on Waste Management (Republik Indonesia, 2008). Earlier studies have also shown that an increase in environmental knowledge is positively associated with environmental attitude among students (Herlina et al., 2025); other studies have likewise reported a significant relationship between environmental attitude and environmental knowledge at the student level (Agustin et al., 2019; Pusparani & Miranto, 2021). In addition, environmental legal protection in Indonesia is reinforced by spatial planning law, which governs sustainable environmental management and the use of space in accordance with environmental capacity, as stipulated in Law No. 32 of 2009 and Law No. 26 of 2007 on Spatial Planning (Rahmadi, 2024; Republik Indonesia, 2007; Sutedi, 2023).

The environmental knowledge held by an individual influences how that person responds to environmental issues. Environmental education, such as the science education received in school, shapes individuals and is often reflected in their daily lives. Community knowledge of, and attitude toward, the environment nevertheless tend to vary considerably. Differences in educational background, occupation, experience, access to information, and cultural diversity within a community influence how its members respond to environmental issues (Batool et al., 2023; Sales et al., 2024). A baseline study is therefore needed to determine the existing state of community environmental knowledge and attitude, so that any program or activity designed to strengthen regional and environmental resilience can be tailored to the needs and characteristics of the target community.

The novelty of this study lies in its focus on environmental attitude and knowledge at the community level specifically, within the Paguyuban Blok EM community in Rogojampian area of inquiry that has typically been examined only at the student level. Paguyuban Blok EM is a community located in Rogojampi Subdistrict with considerable potential to participate in environmental conservation activities. Communities with strong environmental awareness tend to more actively support sustainable spatial use, responsible waste management, and pollution-prevention efforts (Baierl et al., 2022; Reese & Jacob, 2015). To date, however, no data have been available describing the level of environmental knowledge and attitude within this community. The absence of such data constitutes an obstacle to designing education, empowerment, or environmental programs that match the actual needs of the Paguyuban Blok EM community.

This lack of baseline data was the starting point for a needs assessment aimed at gathering information on environmental knowledge and attitude within the Paguyuban Blok EM community. A needs assessment is an essential initial method for identifying conditions and problems relevant

to a community's needs in a given domain (Sigit et al., 2022). The results of a needs assessment can serve as the basis for designing more effective and better-targeted education, outreach, and community-empowerment programs (Henrikson & Bishop, 2024). A needs assessment within the Paguyuban Blok EM community was therefore considered necessary to obtain a preliminary picture of community environmental knowledge and attitude as a basis for developing an appropriate and sustainable program.

Based on the foregoing, this study aimed to (1) describe the environmental attitude of the Paguyuban Blok EM community in Rogojampi; (2) describe the environmental knowledge of the Paguyuban Blok EM community; (3) compare environmental attitude and environmental knowledge by sex; and (4) examine the relationship between environmental knowledge and environmental attitude within the Paguyuban Blok EM community. In line with these aims, this study is titled “Environmental Attitude and Knowledge Among Community Members in Rogojampi: Implications for Community-Based Environmental Education and Spatial Planning”.

METHODS

This study used a quantitative approach with a survey design. A survey method was selected because it can be applied to both large and small populations (Kurniawan & Puspitaningtyas, 2016). Data were collected from April to May 2026 within the Paguyuban Blok EM community, Rogojampi. The study population consisted of 58,262 residents of Rogojampi Subdistrict. Sampling combined random sampling and proportional random sampling, covering residents of Rogojampi Subdistrict drawn randomly and heterogeneously from several hamlets (dusun). The final sample comprised all 26 members of the northern Paguyuban Blok EM community. The required sample size was determined using Slovin's formula (Hermawan, 2019).

The instrument used in this study was adapted from Yildirim et al. (2015) for the 15-item environmental knowledge scale, and from Erhabor and Don (2016) for the 12-item environmental attitude scale, yielding 27 items in total. Environmental attitude was measured using a five-point Likert scale (5 = strongly agree, 4 = agree, 3 = undecided, 2 = disagree, 1 = strongly disagree), while environmental knowledge was measured using a three-point scale (3 = yes, 2 = unsure, 1 = no). Data were collected through a questionnaire completed by members of the Paguyuban Blok EM community. The study upheld research ethics by protecting respondent identity: participation was voluntary, personal data were kept confidential, no harm was done to participants, and the study was designed to provide benefit to the community.

Data were analyzed using inferential statistics, with the analytical procedure adapted to each research aim. The first and second aims were addressed using mean-score tests, compared against the interpretation criteria of Kospa and Rahmadi (2019), adapted from Notoatmodjo (2007) for environmental attitude (Table 1), and from Muflihaini et al. (2020) for environmental knowledge (Table 2). For the third aim, the relationship between environmental attitude and environmental knowledge was analyzed using Pearson correlation, preceded by prerequisite tests of normality (Kolmogorov–Smirnov) and linearity. For the fourth aim, an independent-samples t-test was planned if the data were normally distributed and linear; because the data were not normally distributed, a Mann–Whitney U test was used instead.

Table 1. Score-Interpretation Criteria for Environmental Attitude

No.	Mean Score Range	Category
1	1.00–1.80	Very low
2	1.81–2.60	Low
3	2.61–3.40	Moderate
4	3.41–4.20	High
5	4.21–5.00	Very high

Source: Kospa and Rahmadi (2019), adapted from Notoatmodjo (2007).

Table 2. Score-Interpretation Criteria for Environmental Knowledge

Percentage	Quality
$\geq 76\%$	Good
56%–75%	Moderate
$\leq 55\%$	Low/Poor

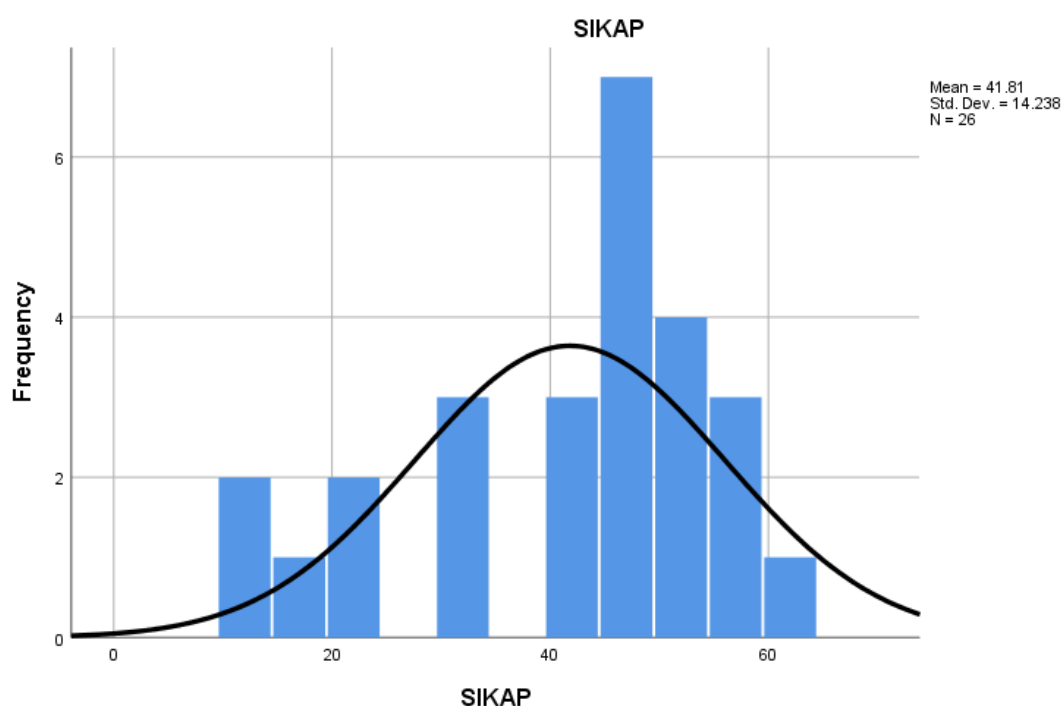
Source: adapted from Muflihaini et al. (2020).

RESULT AND DISCUSSION

All 26 members of the Paguyuban Blok EM community completed the questionnaire on environmental attitude and environmental knowledge. The mean scores for environmental attitude and environmental knowledge are presented in Table 3 and in Figures 1 and 2.

Table 3. Mean and Standard Deviation of Environmental Attitude and Environmental Knowledge

	Environmental Attitude	Environmental Knowledge
N (Valid)	26	26
N (Missing)	0	0
Mean	41.81	36.15
Std. Deviation	14.238	4.532

**Figure 1. Histogram of Environmental Attitude Scores**

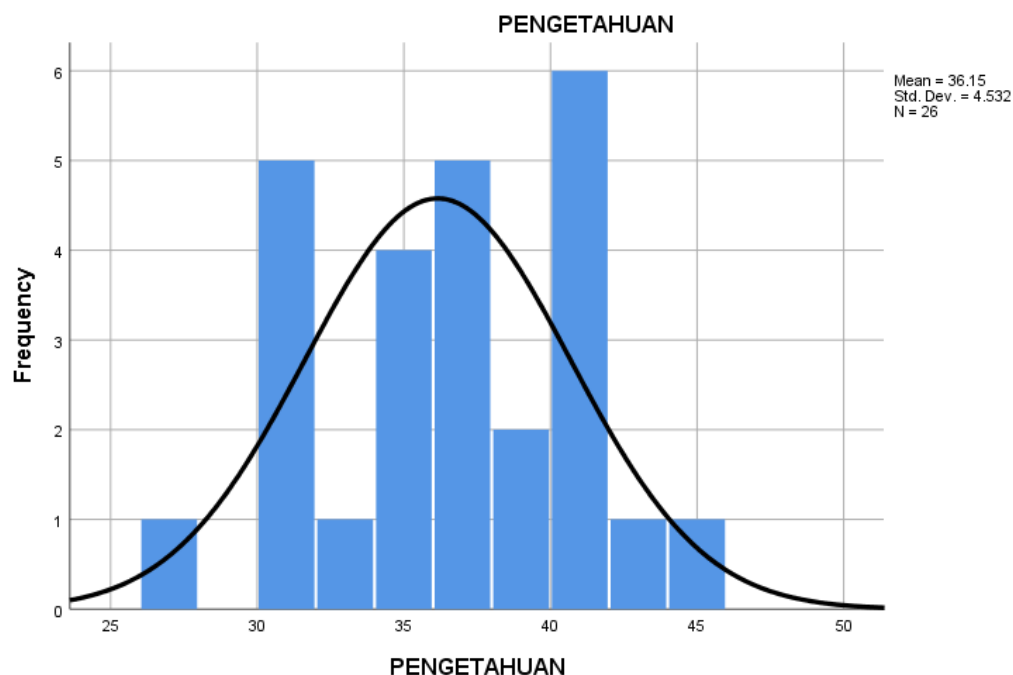


Figure 2. Histogram of Environmental Knowledge Scores

As shown in Figure 1, respondents' environmental attitude scores ranged from 10 to 65. The histogram indicates that the highest response frequency occurred within the 45–50 interval. The relatively high standard deviation suggests that environmental attitude was fairly heterogeneous among respondents. Figure 2 shows that environmental knowledge scores were more narrowly concentrated, ranging from 25 to 45, with the highest frequency occurring in the 40–42 range.

Based on the mean and standard deviation, environmental attitude fell into the high category according to the interpretation criteria of Kospa and Rahmadi (2019), adapted from Notoatmodjo (2007). The mean score was 41.81, with a standard deviation of 14.238 (N = 26). This finding suggests that every individual should ideally hold a caring attitude toward the environment in order to support the sustainability of life (Pangsuma & Surtikanti, 2024). Environmental attitude reflects an individual's concern for the environment, expressed through the belief and awareness needed to preserve the environment and use natural resources sustainably (Furda et al., 2021). Individual behavior in protecting the environment is therefore important and should be practiced in daily life.

Table 4. One-Sample Kolmogorov–Smirnov Normality Test

	Unstandardized Residual
N	26
Mean	.0000000
Std. Deviation	13.95901016
Most Extreme Difference (Absolute)	.189
Most Extreme Difference (Positive)	.134
Most Extreme Difference (Negative)	-.189
Test Statistic	.189
Asymp. Sig. (2-tailed)	.018 ^c

By contrast, environmental knowledge fell into the moderate category according to the interpretation criteria of Muflihaini et al. (2020). The mean score was 36.15, with a relatively small standard deviation of 4.532 ($N = 26$). The narrower spread of scores in Figure 2 indicates that respondents' level of environmental understanding was comparatively homogeneous. These results suggest that the moderate level of environmental knowledge reflects a still-limited community understanding of environmental protection, which is itself reflected in the belief and awareness needed to use natural resources sustainably (Anggraeny et al., 2025).

The normality test produced an Asymp. Sig. (2-tailed) value of .018, below the .05 threshold; the data were therefore considered not normally distributed. A non-parametric Mann–Whitney U test was consequently used, with results presented in Tables 5 and 6.

Table 5. Mann–Whitney Ranks

	N	Mean Rank	Sum of Ranks
Environmental knowledge	26	20.98	545.50
Environmental attitude	26	32.02	832.50
Total	52		

Table 6. Mann–Whitney Test Statistics

Statistic	Value
Mann-Whitney U	194.500
Wilcoxon W	545.500
Z	-2.631
Asymp. Sig. (2-tailed)	.009

Note. Grouping variable: environmental attitude (see Editorial Note 2).

Because the data were not normally distributed, a Mann–Whitney U test was used, yielding an Asymp. Sig. (2-tailed) value of .009. As this value is below .05, the null hypothesis was rejected, indicating a statistically significant difference between the environmental attitude and environmental knowledge score distributions (see Editorial Note 2 regarding the design of this comparison). The analysis then proceeded to a linearity test, presented in Table 7.

Table 7. Linearity Test (ANOVA) for Environmental Attitude and Environmental Knowledge

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	2022.072	11	183.825	.845	.605
Linearity	196.689	1	196.689	.904	.358
Deviation from Linearity	1825.382	10	182.538	.839	.602
Within Groups	3045.967	14	217.569		
Total	5068.038	25			

The linearity test for the relationship between environmental attitude and environmental knowledge indicated a linear relationship, with a Deviation-from-Linearity significance value of .602. Because this value exceeds .05 ($.602 > .05$), the relationship between environmental attitude and environmental knowledge can be considered linear.

Respondents' environmental attitude fell into the high category, with a mean score of 41.81, while environmental knowledge fell into the moderate category, with a mean score of 36.15. This finding is consistent with Erhabor and Don (2016), who reported that students held high environmental knowledge alongside a positive attitude toward the environment.

Table 8. Sex Distribution of Respondents

Sex	Frequency	Percent	Valid Percent	Cumulative Percent
Male	19	73.1	73.1	73.1
Female	7	26.9	26.9	100.0
Total	26	100.0	100.0	

Of the respondents who completed the questionnaire, 19 were male (73.1%) and 7 were female (26.9%), all of whom returned valid responses. Both male and female respondents completed the environmental attitude and environmental knowledge items in full.

Table 9. Simple Linear Regression: Sex Predicting Environmental Knowledge

Model	B	Std. Error	Beta	t	Sig.
(Constant)	34.188	2.716		12.586	.000
Sex	1.549	2.020	.155	.767	.451

Note. Dependent variable: environmental knowledge.

The regression analysis produced a significance value greater than .05 (Sig. = .451), indicating that sex was not significantly associated with environmental knowledge.

Table 10. Simple Linear Regression: Sex Predicting Environmental Attitude

Model	B	Std. Error	Beta	t	Sig.
(Constant)	48.669	8.510		5.719	.000
Sex	-5.406	6.330	-.172	-.854	.401

Note. Dependent variable: environmental attitude.

The simple linear regression analysis produced a significance value of .401 ($p > .05$; see Editorial Note 1), indicating that sex did not significantly predict environmental attitude. There was therefore no significant difference in environmental attitude based on respondents' sex. This finding is supported by Kiso (2025), who likewise reported no association between environmental attitude and sex among prospective teachers. It is also broadly consistent with Zelezny et al. (2000), whose meta-analytic review found only a small, though fairly consistent, gender difference in environmental attitude across multiple countries; the absence of a detectable sex effect in the present sample may therefore reflect its limited size rather than a universal pattern. Consistent with the present findings on the relationship between attitude and knowledge, Pe'er et al. (2007) similarly reported that individuals with limited environmental knowledge can nonetheless display a predominantly positive environmental attitude. Taken together, these results suggest that, within the present sample, sex was associated with neither environmental attitude nor environmental knowledge.

The Pearson product-moment correlation test yielded a correlation coefficient of .197 between environmental attitude and environmental knowledge, with a significance value of .335 ($N = 26$). Because this value exceeds the conventional .05 threshold ($.335 > .05$), no significant correlation was found between environmental attitude and environmental knowledge. This finding is consistent with Erhabor and Don (2016), who likewise reported a non-significant relationship between environmental attitude and environmental knowledge. A related study similarly found no relationship between the two constructs, reporting that individuals with high environmental knowledge do not necessarily hold a positive attitude toward energy conservation (Paço & Lavrador, 2017). This pattern aligns with the theory of planned behavior (Ajzen, 1991), which holds that environmental attitude is shaped by subjective norms and perceived behavioral control rather than by knowledge alone (Kotzya et al., 2024).

Table 11. Pearson Correlation Between Environmental Attitude and Environmental Knowledge

		Environmental Attitude	Environmental Knowledge
Environmental Attitude	Pearson Correlation	1	.197
	Sig. (2-tailed)		.335
	N	26	26
Environmental Knowledge	Pearson Correlation	.197	1
	Sig. (2-tailed)	.335	
	N	26	26

These results indicate that a high level of individual knowledge or understanding of environmental issues does not automatically translate into a corresponding attitude, such as a positive response toward nature conservation. This pattern is consistent with the knowledge–attitude–behavior gap framework (Kollmuss & Agyeman, 2002; Umniyah & Rahmadonna, 2026), according to which knowledge often remains confined to conceptual information that is not readily translated into real-world application. Knowledge also tends to remain at the cognitive level when it is not accompanied by direct practice, emotional engagement, social norms, or an individual's perceived competence to act on it. Other external factors including cultural background (Tam, 2025), habits formed early within the family environment, and the pervasive influence of social media (Umniyah & Rahmadonna, 2026) can likewise encourage either indifference toward, or greater concern for, the environment.

Furthermore, the absence of a significant correlation between environmental knowledge and environmental attitude carries important implications for the design of environmental campaigns and educational approaches, which should be tailored to community needs. Environmental conservation programs have, to date, tended to focus too heavily on enriching knowledge alone; program evaluation is needed to ensure that interventions can both increase knowledge and cultivate a genuine environmental attitude (Saputra et al., 2024). Systematic reviews of environmental education likewise indicate that the most consistently effective program designs combine local relevance, stakeholder partnership, and concrete action components rather than knowledge transmission alone (Ardoïn et al., 2020). To bridge the gap between knowledge and attitude, educational methods should therefore shift toward experience-based approaches, social action, and direct, hands-on problem-solving (Saputri et al., 2026). In this way, an individual's environmental knowledge can be translated into moral awareness and a personal commitment to environmental protection.

The finding that community environmental attitude fell into the high category, while environmental knowledge remained only moderate, carries important implications for the implementation of environmental law and spatial-planning law. From an environmental-law perspective, limited community understanding may hinder the exercise of the rights and obligations set out in Articles 65 and 70 of Law No. 32 of 2009, which emphasize the importance of community participation in environmental protection and management (Republik Indonesia, 2009). From a spatial-planning perspective, a less-than-optimal level of community knowledge may also reduce the effectiveness of land-use monitoring, particularly in preventing land use inconsistent with regional spatial plans, as regulated under Law No. 26 of 2007 on Spatial Planning (Republik Indonesia, 2007). Community-based environmental education programs therefore serve not only to raise ecological awareness but also to strengthen public understanding of the legal framework governing spatial use and environmental protection.

The absence of a significant correlation between knowledge and attitude suggests that compliance with environmental regulations is shaped not only by the level of knowledge but also by social, cultural, and law-enforcement factors. Within environmental-law studies, this finding

points to the need for a preventive approach through education, complemented by a more deterrent approach through the enforcement of administrative, civil, or criminal sanctions for environmental violations. Synergy among environmental education, community participation, and law enforcement therefore remains essential for achieving sustainable development and environmentally sound spatial management.

Accordingly, an action-based educational program of this kind would support the community-participation instruments mandated under Law No. 32 of 2009 on Environmental Protection and Management (Republik Indonesia, 2009) and Law No. 18 of 2008 on Waste Management (Republik Indonesia, 2008). Building on the baseline data generated by this study, future environmental conservation programs can be designed with a stronger ecological and legal foundation, supporting more effective implementation of environmental policy at the community level.

CONCLUSION

The findings indicate that the environmental attitude of the northern Paguyuban Blok EM community in Rogojampi fell into the high category ($M = 41.81$), whereas environmental knowledge fell into the moderate category ($M = 36.15$). Sex was not significantly associated with either environmental attitude or environmental knowledge, and no significant correlation was found between environmental knowledge and environmental attitude ($p = .335 > .05$). These findings suggest that an increase in knowledge alone is insufficient to shape a positive environmental attitude. Community-based environmental education, accompanied by stronger enforcement of environmental law, should therefore be developed through more applied approaches, such as social action and direct, hands-on environmental problem-solving.

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