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Green leadership and climate change awareness effects on police performance: A mediation analysis

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Abstract
This study aims to analyze the effects of green leadership and climate change awareness on personnel performance, with pro-environmental behavior as a mediating variable, at the Riau Regional Police. The study adopts a quantitative approach using a survey method. The research population consists of 11,588 personnel, with a sample of 100 respondents selected through proportionate stratified random sampling. Data were collected using a Likert-scale questionnaire and analyzed using Partial Least Squares–based Structural Equation Modeling (SEM-PLS). The results indicate that climate change awareness and green leadership have positive and significant effects on personnel performance. In addition, both variables also significantly influence pro-environmental behavior, which in turn has a positive effect on personnel performance. The mediation analysis reveals that pro-environmental behavior significantly mediates the relationships between climate change awareness and green leadership and personnel performance. These findings imply that strengthening green leadership practices and enhancing climate change awareness programs can encourage pro-environmental behavior and improve personnel performance within police organizations.
Keywords: Green Leadership, Climate Change Awareness, Pro-Environmental Behavior, Personnel Performance.

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INTRODUCTION

Climate change is one of the most serious global challenges, directly affecting social, economic, and security stability. The increasing frequency of ecological disasters such as forest and land fires, floods, and environmental degradation not only threatens ecosystem sustainability but also creates new complexities in the duties and functions of law enforcement agencies (Supandi et al., 2024). In the Indonesian context, Riau Province is one of the regions most vulnerable to the impacts of climate change, particularly forest and land fires (karhutla), which have widespread consequences for public health, economic activities, and the government's public image.

As a law enforcement institution with a strategic role in maintaining public security and order, the Riau Regional Police (Polda Riau) is required not only to carry out repressive and preventive functions but also to actively participate in managing environmental issues. This challenge demands improved personnel performance that is not merely measured by conventional operational achievements but also by adaptive, responsive, and sustainable capabilities in addressing environmental problems (Cosa & Torelli, 2024). Therefore, enhancing the performance of Polda Riau personnel is an important issue that needs to be comprehensively examined within a framework of environmental sustainability.

The grand theory underlying this study is the Theory of Planned Behavior (TPB), which explains that individual behavior is the result of behavioral intentions influenced by attitudes, subjective norms, and perceived behavioral control (Li et al., 2023). In the context of this study, green leadership plays a role in shaping subjective norms and an organizational climate that supports environmentally friendly practices, while climate change awareness influences individual attitudes toward the importance of sustainable behavior. The combination of these factors encourages the emergence of pro-environmental behavior as the actualization of behavioral intentions, which subsequently impacts personnel performance. TPB provides a strong conceptual framework for explaining how leadership factors and cognitive awareness can be translated into concrete behaviors and performance outcomes, particularly in public organizations facing environmental challenges such as Polda Riau.

One key factor believed to influence personnel performance in addressing environmental challenges is leadership (Boeske, 2023). The concept of green leadership emphasizes the role of leaders in instilling values, attitudes, and leadership practices oriented toward environmental sustainability (Ahmad et al., 2021). Leaders who implement green leadership not only encourage compliance with environmental regulations but also serve as role models through environmentally friendly behavior, ecologically oriented decision-making, and the creation of an organizational culture that cares about the environment. In public organizations such as the police, green leadership is increasingly relevant because it can broadly influence personnel attitudes, motivation, and behavior.

In addition to leadership, climate change awareness is also an important factor influencing individual behavior and performance (Farrukh et al., 2024). Climate change awareness reflects the level of understanding, concern, and perception of personnel regarding the impacts and urgency of climate-related issues (Todaro et al., 2021). Personnel with high climate change awareness tend to be more responsible, proactive, and supportive of policies and programs oriented toward environmental protection. In the context of Polda Riau, the level of personnel climate change awareness is crucial given the intensity of environmental problems faced in this region.

However, the influence of green leadership and climate change awareness on personnel performance is not always direct (Khan, 2023). Contemporary literature indicates that pro-environmental behavior plays an important role as a mechanism that mediates the relationship between leadership factors, individual awareness, and performance outcomes (Lili & Rafiq, 2025). Pro-environmental behavior includes concrete individual actions that support environmental conservation, both in the workplace and in daily life, such as compliance with environmentally friendly procedures, participation in environmental activities, and decision-

making that considers ecological impacts. In police organizations, such behavior can contribute to task effectiveness, institutional image, and overall performance improvement.

The phenomenon underlying this study is the still suboptimal integration of environmentally oriented leadership and climate change awareness into the daily work behavior of Polda Riau personnel, despite the region facing high environmental pressure due to forest and land fires and other climate change impacts. In practice, efforts to address and prevent environmental problems often remain reactive, procedural, and focused solely on law enforcement aspects, while the internalization of sustainability values, pro-environmental behavior, and ecological responsibility within the work culture has not been fully developed. This condition affects variations in personnel performance, particularly in terms of effectiveness, coordination, and consistency in carrying out tasks related to environmental issues, resulting in a gap between the strategic role expected of the police in addressing the climate crisis and actual performance practices in the field.

Although many previous studies have examined green leadership, climate change awareness, and pro-environmental behavior, there remain significant research gaps in terms of context, research models, and timing. Studies by Ahuja et al. (2023), Ahmad et al. (2022), and Farrukh et al. (2022) emphasize the role of green leadership and pro-environmental behavior in improving employee performance and behavior; however, these studies were largely conducted in the private sector, service industries, and hospitality, making their organizational contexts different from law enforcement institutions. Research by Mansour (2023) and Nugroho et al. (2021) shows that environmental awareness influences behavior and performance, but does not simultaneously integrate climate change awareness and green leadership into a comprehensive research model. Furthermore, studies by Aryati (2025) and Kurniawati and Riani (2024) examine mediating roles in the relationship between environmental variables and public sector employee performance, but do not specifically position pro-environmental behavior as a mediator between green leadership and climate change awareness on performance. On the other hand, studies by Fadhiilah and Malau (2024) and Faizal (2024) conducted within police institutions focus more on conventional leadership styles and spiritual leadership, without incorporating dimensions of environmental sustainability and climate change. Therefore, this study fills the research gap by integrating climate change awareness and green leadership in the context of policing and examining the mediating role of pro-environmental behavior on personnel performance at Polda Riau, a region with high environmental vulnerability.

Based on the above discussion, this study is important to conduct in order to analyze the effects of green leadership and climate change awareness on the performance of Polda Riau personnel, with pro-environmental behavior as a mediating variable.

LITERATURE REVIEW

Green Leadership

Green leadership is a leadership concept that emphasizes the integration of environmental sustainability values into leaders' behaviors, policies, and decision-making processes (Ahmad et al., 2021). Green leadership refers to a leader's ability to influence subordinates to engage in behaviors that support environmental protection and sustainability (Khan et al., 2023). Green leadership is a leadership style that promotes green innovation, compliance with environmental regulations, and the development of an environmentally oriented organizational culture (Siswanti & Muafi, 2022). In the context of public organizations, green leadership is also understood as a leadership commitment to balancing organizational performance achievement with ecological responsibility (Yoo, 2024).

The indicators of green leadership in this study reflect the role of leaders in internalizing environmental sustainability values within the organization (Muhktar et al., 2025). These indicators include leaders' role modeling of environmentally friendly behavior, leaders' commitment to environmental sustainability, and their ability to integrate environmental considerations into decision-making processes. In addition, green leadership is measured

through leaders' support for organizational environmental policies and programs, consistency in enforcing environmental rules and standards, leaders' ability to communicate sustainability visions and values to personnel, and leaders' encouragement of active personnel participation in environmentally oriented activities.

Climate Change Awareness

Climate change awareness refers to the level of individuals' understanding, concern, and perception regarding the causes, impacts, and urgency of climate change (Calculli, 2021). According to Tang (2025), climate change awareness encompasses cognitive (knowledge), affective (concern), and conative (readiness to act) dimensions. York et al (2021) add that individuals with high climate change awareness tend to perceive climate issues as real threats that require collective and institutional action.

The indicators of climate change awareness in this study reflect personnel's level of understanding and concern regarding climate change issues (Calculli, 2021). These indicators include personnel's understanding of the causes of climate change, understanding of the impacts of climate change on the environment and social life, and concern about the risks posed by climate change. In addition, climate change awareness is measured through personnel's perceptions of climate change threats to police duties, awareness of individual responsibility in addressing climate change issues, and awareness of institutional responsibility in supporting climate change mitigation and adaptation efforts.

Pro-Environmental Behavior

Pro-environmental behavior is defined as individuals' conscious actions aimed at minimizing negative environmental impacts and supporting sustainability (Pong & Tam, 2023). Kaiser and Wilson state that pro-environmental behavior encompasses various activities, both in personal and organizational contexts, that contribute to environmental conservation (Tian & Liu, 2022). In organizational settings, Ones and Dilchert define pro-environmental behavior as voluntary and formal work behaviors that support organizational environmental goals. This behavior serves as an important mechanism linking attitudes and leadership to performance outcomes (Martin, 2024).

The indicators of pro-environmental behavior in this study describe personnel's concrete actions in supporting environmental sustainability in the workplace (Ansari et al., 2021). These indicators include compliance with environmentally friendly work procedures, energy-saving behavior during task execution, and conservation of water and other resources. In addition, pro-environmental behavior is measured through proper waste management practices, responsible use of work facilities and equipment, participation in organizational environmental programs and activities, personal initiatives to maintain workplace environmental sustainability, and consistency in environmentally friendly behavior during daily work activities

Personnel Performance

Personnel performance refers to the level of achievement of individual work results in carrying out tasks and responsibilities in accordance with organizational standards and objectives (Andreas, 2022). According to Mangkunegara (2019), performance is the quality and quantity of work results achieved by an individual in performing assigned tasks.

The indicators of personnel performance in this study reflect the overall level of individual work achievement. These indicators include the quality of task execution outcomes, the quantity of work completed, and the timeliness of task completion. Furthermore, personnel performance is measured through work effectiveness, efficiency in the use of work resources, compliance with applicable procedures and work regulations, and the ability to cooperate with colleagues in carrying out organizational duties (Kuswati & Hartati, 2021).

RESEARCH METHOD

This study employs a quantitative approach using a survey method to analyze the effects of green leadership and climate change awareness on the performance of Riau Regional Police personnel, with pro-environmental behavior as a mediating variable. The research population consists of 11,588 personnel of the Riau Regional Police. The sample size was determined using the Slovin formula with a margin of error of 10 percent, expressed as:

$$n = \frac{N}{1 + N(e)^2}$$

Where n represents the sample size, N is the total population, and e is the margin of error. Based on this calculation

$$n = \frac{11{,}588}{1 + 11{,}588(0.10)^2} = \frac{11{,}588}{116.88} = 99.15$$

This was rounded to 100 respondents for practical purposes. The respondents were selected using proportionate stratified random sampling to ensure proportional representation of each organizational stratum. Data were collected through a structured questionnaire using a five-point Likert scale, and the data analysis was conducted using Partial Least Squares–based Structural Equation Modeling (SEM-PLS) to examine both direct and indirect effects among variables, including the mediating role of pro-environmental behavior, preceded by validity and reliability tests to ensure the quality of the research data.

RESULTS AND DISCUSSION

RESULT

In Partial Least Squares Structural Equation Modeling (PLS-SEM) based research, the loading factor value that is considered to meet the convergent validity criteria is ≥ 0.70. The results of loading factor measurements in this research model can be seen in the PLS model presented in the following figure and table.

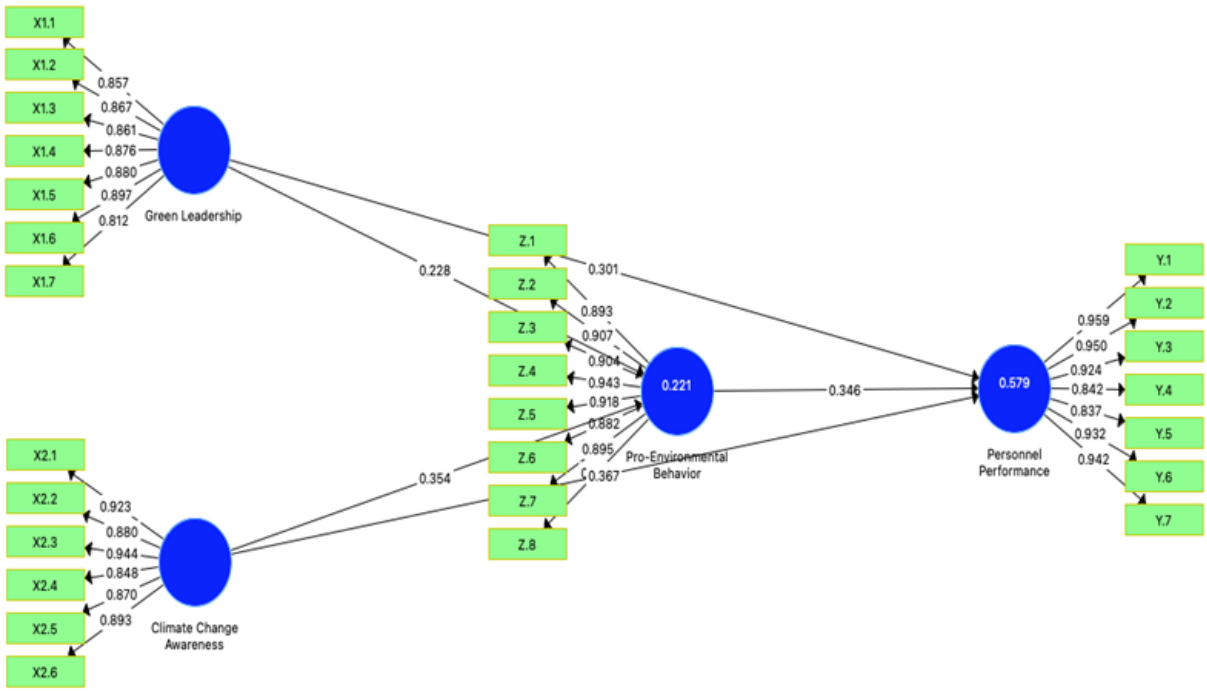

Figure 1. Structural Model and Outer Loading Factors Test Results
Source: Processed Primary Data, 2025

Table 1. Outer Loading Factors Test Results

	Green Leadership	Climate Change Awareness	Personnel Performance	Pro-Environmental Behavior
X1.1	0.857			
X1.2	0.867			
X1.3	0.861			
X1.4	0.876			
X1.5	0.880			
X1.6	0.897			
X1.7	0.812			
X2.1		0.923		
X2.2		0.880		
X2.3		0.944		
X2.4		0.848		
X2.5		0.870		
X2.6		0.893		
Y.1			0.959	
Y.2			0.950	
Y.3			0.924	
Y.4			0.842	
Y.5			0.837	
Y.6			0.932	
Y.7			0.942	
Z.1				0.893
Z.2				0.907
Z.3				0.904
Z.4				0.943
Z.5				0.918
Z.6				0.882
Z.7				0.895
Z.8				0.942

Source: Processed Primary Data, 2025

Based on the results of the outer loading test, all indicators of the Climate Change Awareness, Green Leadership, Pro-Environmental Behavior, and Personnel Performance variables show factor loading values above the minimum threshold of 0.70. This indicates that each indicator demonstrates strong convergent validity in representing its respective construct. The Green Leadership indicators have loading values ranging from 0.812 to 0.897, Climate Change Awareness indicators range from 0.848 to 0.944, Pro-Environmental Behavior indicators range from 0.882 to 0.943, and Personnel Performance indicators range from 0.837 to 0.959. Therefore, all indicators are considered valid and appropriate for use in further structural model testing.

Table 2. Construct Validity and Reliability Test Results

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Climate Change Awareness	0.950	0.960	0.960	0.798
Green Leadership	0.944	0.947	0.954	0.747
Personnel Performance	0.967	0.978	0.972	0.835
Pro-Environmental Behavior	0.971	0.977	0.975	0.829

Source: Processed Primary Data, 2025

Based on the results of the construct validity and reliability tests presented in Table 2, all research variables exhibit Cronbach's Alpha, rho_A, and Composite Reliability values exceeding the minimum threshold of 0.70, indicating that all constructs have a very high level of reliability. In addition, the Average Variance Extracted (AVE) values for each variable are above 0.50, confirming the achievement of convergent validity. Climate Change Awareness, Green Leadership, Personnel Performance, and Pro-Environmental Behavior each demonstrate strong internal consistency and a robust ability to explain the variance of their indicators. Therefore, all constructs are deemed valid and reliable and are suitable for further structural model analysis.

Discriminant validity in this study was assessed using the Heterotrait–Monotrait Ratio (HTMT) to ensure that each construct in the research model is empirically distinct from the others. The HTMT method is recommended in PLS-SEM analysis because it provides a more sensitive assessment of discriminant validity compared to traditional approaches. A construct is considered to have adequate discriminant validity if the HTMT value is below the recommended threshold of 0.90. The results of the HTMT analysis for all constructs in this study are presented in the following table.

Table 3. Discriminant Validity Assessment Using HTMT

	Climate Change Awareness	**Green Leadership**	**Personnel Performance**	**Pro-Environmental Behavior**
Climate Change Awareness				
Green Leadership	0.278			
Personnel Performance	0.592	0.524		
Pro-Environmental Behavior	0.419	0.329	0.596	

Source: Processed Primary Data, 2025

Table 3 presents the results of the discriminant validity assessment using the Heterotrait–Monotrait Ratio (HTMT). The results indicate that all HTMT values between the constructs are below the recommended threshold of 0.90, suggesting that each construct in the model is empirically distinct from the others. The highest HTMT value is observed between Personnel Performance and Pro-Environmental Behavior (0.596), while the lowest value is between Climate Change Awareness and Green Leadership (0.278). Since all values fall within the acceptable range, the results confirm that the measurement model demonstrates adequate discriminant validity.

Discriminant validity was also evaluated using the Fornell–Larcker criterion to further ensure that each construct in the research model is empirically distinct from the others. According to this criterion, the square root of the Average Variance Extracted (AVE) for each construct should be greater than the correlations between that construct and other constructs in the model. This indicates that a construct shares more variance with its own indicators than with other constructs. The results of the discriminant validity assessment using the Fornell–Larcker criterion are presented in the following table.

Table 4. Discriminant Validity Assessment Using the Fornell–Larcker Criterion

	Climate Change Awareness	**Green Leadership**	**Personnel Performance**	**Pro-Environmental Behavior**
Climate Change Awareness	0.894			
Green Leadership	0.270	0.865		
Personnel Performance	0.593	0.513	0.914	
Pro-Environmental Behavior	0.415	0.323	0.596	0.911

Source: Processed Primary Data, 2025

Table 4 presents the results of the discriminant validity assessment using the Fornell–Larcker criterion. The results show that the square root of the Average Variance Extracted (AVE) for each construct is higher than the correlation values with other constructs in the model. For instance, the square root of AVE for Climate Change Awareness (0.894), Green Leadership (0.865), Personnel Performance (0.914), and Pro-Environmental Behavior (0.911) is greater than their respective inter-construct correlations. These findings indicate that each construct shares more variance with its own indicators than with other constructs, confirming that the measurement model demonstrates adequate discriminant validity.

To further evaluate the structural model, this study examines the effect size (f^2) to determine the magnitude of the influence of each exogenous variable on the endogenous variables. The f^2 value indicates how strongly an independent variable contributes to explaining the variance of a dependent variable in the model. According to the guidelines of PLS-SEM analysis, f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effect sizes, respectively. The results of the f^2 effect size analysis are presented in the following table.

Table 5. Effect Size (f^2) Results

	Climate Change Awareness	Green Leadership	Personnel Performance	Pro-Environmental Behavior
Climate Change Awareness			0.259	0.149
Green Leadership			0.188	0.062
Personnel Performance				
Pro-Environmental Behavior			0.222	

Source: Processed Primary Data, 2025

Table 5 shows the results of the effect size (f^2) analysis for the relationships among the variables. The results indicate that Climate Change Awareness has a moderate effect on Personnel Performance (0.259) and Pro-Environmental Behavior (0.149). Green Leadership shows a moderate effect on Personnel Performance (0.188) and a small effect on Pro-Environmental Behavior (0.062). In addition, Pro-Environmental Behavior has a moderate effect on Personnel Performance (0.222). Overall, these results indicate that the variables included in the model contribute meaningfully to explaining the variation in the endogenous variables.

The coefficient of determination (R-square) is used to assess the explanatory power of the structural model in predicting the endogenous variables. The R-square value reflects the proportion of variance in the endogenous variables that can be explained by the exogenous variables included in the model. In PLS-SEM analysis, R-square values are generally interpreted as weak (0.25), moderate (0.50), and substantial (0.75). The results of the R-square analysis for the endogenous variables in this study are presented in the following table.

Table 6. Coefficient of Determination (R^2)

	R Square	R Square Adjusted
Personnel Performance	0.579	0.566
Pro-Environmental Behavior	0.221	0.205

Source: Processed Primary Data, 2025

Table 6 shows that the R^2 value for Personnel Performance is 0.579 with an adjusted R^2 of 0.566, indicating that 57.9% of the variance in Personnel Performance can be explained by the variables included in the model, which can be categorized as having moderate explanatory power. Meanwhile, the R^2 value for Pro-Environmental Behavior is 0.221 with an adjusted R^2 of 0.205, indicating that 22.1% of the variance in Pro-Environmental Behavior is explained by the model. These results suggest that the model has a moderate ability to explain Personnel Performance and a relatively weaker explanatory power for Pro-Environmental Behavior.

The direct effect hypothesis is a presumptive statement that explains the causal relationship between two variables without going through intermediary variables (mediation). In the context of this study, the direct hypothesis shows the direct effect that occurs from the independent variable on the dependent variable based on the results of the statistical analysis that has been carried out. The test of the direct hypothesis is carried out to determine whether an independent variable significantly affects the dependent variable without the intervention of other variables, as can be seen in Table 7 below:

Table 7. Path Coefficients (Direct Effect)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Climate Change Awareness -> Personnel Performance	0.367	0.365	0.105	3.502	0.001
Climate Change Awareness -> Pro-Environmental Behavior	0.354	0.361	0.103	3.438	0.001
Green Leadership -> Personnel Performance	0.301	0.299	0.089	3.381	0.001
Green Leadership -> Pro-Environmental Behavior	0.228	0.232	0.098	2.334	0.020
Pro-Environmental Behavior -> Personnel Performance	0.346	0.344	0.106	3.266	0.001

Source: Processed Primary Data, 2025

Based on the results of the path coefficients (direct effect) test presented in Table 7, all relationships among the variables demonstrate positive and significant effects. Climate Change Awareness has a significant effect on Personnel Performance with a coefficient value of 0.367 and a p-value of 0.001, and it also significantly affects Pro-Environmental Behavior with a coefficient of 0.354 and a p-value of 0.001. Green Leadership is also proven to have a significant effect on Personnel Performance ($\beta = 0.301$; p-value = 0.001) and on Pro-Environmental Behavior ($\beta = 0.228$; p-value = 0.020). In addition, Pro-Environmental Behavior has a significant effect on Personnel Performance with a coefficient value of 0.346 and a p-value of 0.001. These results indicate that higher levels of climate change awareness and the implementation of green leadership lead to increased pro-environmental behavior and improved personnel performance, thereby confirming that all direct-effect hypotheses in this study are supported.

Indirect effect testing is conducted to examine whether the influence of an independent variable on a dependent variable occurs through an intervening (mediating) variable. This analysis aims to determine the role of the mediating variable in transmitting the effect of the independent variable to the dependent variable, thereby providing a deeper understanding of the underlying mechanism of the causal relationship within the research model.

Table 8. Path Coefficients (Indirect Effect)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Climate Change Awareness -> Pro-Environmental Behavior -> Personnel Performance	0.123	0.127	0.062	1.974	0.045

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Green Leadership -> Pro-Environmental Behavior -> Personnel Performance	0.119	0.113	0.051	1.934	0.048

Source: Processed Primary Data, 2025

Based on the results of the path coefficients test presented in Table 8, the indirect effects indicate that Pro-Environmental Behavior functions as a mediating variable in the relationships between Climate Change Awareness and Personnel Performance, as well as between Green Leadership and Personnel Performance. Climate Change Awareness has a significant indirect effect on Personnel Performance through Pro-Environmental Behavior, with a coefficient value of 0.123 and a p-value of 0.045, indicating a significant mediating effect. Similarly, Green Leadership shows a significant indirect effect on Personnel Performance through Pro-Environmental Behavior, with a coefficient value of 0.119 and a p-value of 0.048. These findings suggest that increasing climate change awareness and implementing green leadership can more effectively enhance personnel performance through the development of pro-environmental behavior, thereby confirming the mediating role of Pro-Environmental Behavior in the research model.

Discussion

The Effect of Climate Change Awareness on Personnel Performance

The results of this study indicate that climate change awareness has a positive and significant effect on personnel performance. This finding confirms that personnel understanding and concern regarding climate change issues not only influence attitudes but also directly contribute to improvements in work quality, effectiveness, and responsibility in carrying out police duties. Theoretically, climate change awareness shapes individuals' cognitive and affective frameworks in interpreting work as part of social and ecological responsibility. Mansour (2023) emphasizes that individuals with high levels of environmental awareness tend to demonstrate better performance because they understand the long-term consequences of their work-related actions for both the environment and the organization.

This finding is also consistent with the study by Nugroho et al. (2021), which states that environmental awareness among civil servants significantly affects performance through increased compliance, responsibility, and public service orientation. Aryati (2025) further emphasizes that in the Indonesian public sector, environmental awareness serves as a critical foundation for the development of sustainable performance. In the context of the Riau Regional Police, climate change awareness has strategic relevance given the high risk of forest and land fires and other ecological disasters. Personnel who understand the impacts of climate change tend to be more alert, adaptive, and responsive in carrying out both preventive and repressive duties related to environmental protection.

The Effect of Climate Change Awareness on Pro-Environmental Behavior

The results of this study show that climate change awareness has a positive and significant effect on pro-environmental behavior. This indicates that the higher the level of personnel awareness of climate change, the stronger their tendency to exhibit environmentally friendly work behaviors. Empirically, Mansour (2023) explains that climate change awareness is a key determinant of pro-environmental behavior, as individuals who understand environmental risks possess intrinsic motivation to act responsibly. This awareness functions as a trigger for actual behavior within organizational settings.

Studies by Nugroho et al. (2021) and Kurniawati and Riani (2024) also demonstrate that environmental awareness significantly influences pro-environmental behavior in both public and

private sectors, as awareness shapes attitudes, norms, and intentions to behave in environmentally responsible ways. Within police organizations, pro-environmental behavior not only reflects individual concern but also indicates alignment with institutional values. Climate change awareness strengthens the moral legitimacy of personnel to engage in work practices that support sustainability. Therefore, these findings confirm that enhancing climate change awareness is a critical prerequisite for fostering consistent pro-environmental behavior in police work environments.

The Effect of Green Leadership on Personnel Performance

The results of this study indicate that green leadership has a positive and significant effect on personnel performance. This finding suggests that leadership that integrates environmental sustainability values can directly and systematically enhance personnel performance. Fadhiilah and Malau (2024) found that value- and ethics-oriented leadership styles significantly influence police personnel performance. This is reinforced by Ratnasari et al. (2024), who state that leadership is a dominant factor shaping personnel performance through motivation, discipline, and compliance.

Faizal (2024) further emphasizes that value-based leadership improves police personnel performance by strengthening work meaning and organizational commitment. In the context of green leadership, sustainability values become a distinguishing element that expands performance orientation from mere output to long-term impact. Within the hierarchical structure of police organizations, leadership plays a decisive role in determining the direction and quality of personnel performance. Leaders' consistency and role modeling in implementing green leadership principles send strong signals regarding organizational priorities.

The Effect of Green Leadership on Pro-Environmental Behavior

The results of this study show that green leadership has a positive and significant effect on pro-environmental behavior. This finding confirms that environmentally friendly behavior among personnel is strongly influenced by leaders' roles and exemplary conduct. Ahuja et al. (2023) argue that green leadership shapes pro-environmental behavior through the creation of norms, motivation, and organizational support. Khalid et al. (2024) also find that green leadership encourages pro-environmental behavior through moral obligation and work values. Farrukh et al. (2022) add that green leadership significantly affects pro-environmental behavior because leaders act as role models who reinforce social learning within organizations.

In police organizations, where command structures are particularly strong, leadership influence is more dominant than in many other sectors. Therefore, green leadership holds substantial potential in shaping collective, environmentally oriented behavior. These findings emphasize that efforts to enhance pro-environmental behavior should begin at the leadership level as agents of organizational change.

The Effect of Pro-Environmental Behavior on Personnel Performance

The results of this study indicate that pro-environmental behavior has a positive and significant effect on personnel performance. This finding suggests that environmentally friendly work behavior does not hinder performance but instead enhances it. Mansour (2023) shows that pro-environmental behavior contributes to improved green performance through efficiency, compliance, and work quality. Sajuyigbe et al. (2024) also find that environmentally responsible behavior strengthens organizational performance through a more accountable work culture. Fawehinmi et al. (2020) emphasize that pro-environmental behavior enhances performance because individuals work with greater moral awareness and commitment to organizational goals.

In the policing context, pro-environmental behavior encourages more efficient resource use, greater procedural compliance, and increased professionalism. Therefore, pro-

environmental behavior can be viewed as a strategic asset in sustainably improving police personnel performance.

The Mediating Role of Pro-Environmental Behavior in the Relationship between Climate Change Awareness and Personnel Performance

The results of this study indicate that pro-environmental behavior significantly mediates the relationship between climate change awareness and personnel performance. This finding suggests that climate awareness improves performance through changes in work behavior. Ahmad et al. (2022) found that environmental awareness and knowledge influence performance through pro-environmental behavior as a mediating mechanism. Aryati (2025) also emphasizes that pro-environmental behavior serves as a critical link between environmental awareness and public employee performance.

Nugroho et al. (2021) demonstrate that without actual behavioral change, environmental awareness tends to have a limited impact on performance. This reinforces the mediation findings of the present study. In the context of the Riau Regional Police, this mediation highlights that sustainability-based performance improvement requires behavioral internalization rather than mere knowledge enhancement.

Thus, pro-environmental behavior serves as a key mechanism linking climate change awareness to personnel performance.

The Mediating Role of Pro-Environmental Behavior in the Relationship between Green Leadership and Personnel Performance

The results of this study indicate that pro-environmental behavior significantly mediates the relationship between green leadership and personnel performance. This suggests that the influence of green leadership on performance is largely realized through the formation of environmentally friendly work behavior. Ahuja et al. (2023) as well as Sachdeva and Singh (2024) found that green leadership enhances performance primarily through pro-environmental behavior. Khalid et al. (2024) also emphasize the mediating role of behavior in the relationship between green leadership and performance. These findings are consistent with social learning theory, which posits that leaders shape subordinate behavior through role modeling and norm reinforcement.

In police organizations, this mediation underscores that leadership effectiveness is measured not only by policies but by tangible behavioral changes among personnel. Consequently, pro-environmental behavior serves as a strategic bridge linking green leadership to improved police personnel performance.

Managerial Implications

The findings of this study provide several managerial implications for the Riau Regional Police in improving personnel performance through environmentally oriented leadership and awareness. First, police leaders are encouraged to adopt green leadership practices by integrating environmental values into organizational policies, daily operations, and leadership behavior. Leaders can promote environmentally responsible practices such as energy conservation, waste reduction, and environmentally friendly operational procedures within police units. Second, increasing climate change awareness among personnel through training programs, environmental campaigns, and internal education initiatives can foster greater environmental responsibility within the organization. Third, encouraging pro-environmental behavior among personnel can strengthen the positive impact of leadership and awareness on performance outcomes. By integrating environmental values into leadership practices and organizational culture, the police institution can simultaneously enhance environmental responsibility and personnel performance.

Research Limitations

This study has several limitations that should be considered when interpreting the findings. First, the research uses a cross-sectional design, which captures data at a single point in time and therefore limits the ability to observe changes in behavior or performance over time. Second, the sample is limited to personnel from the Riau Regional Police, which may restrict the generalizability of the findings to other police institutions or organizations with different structural and cultural contexts. Third, the data were collected using self-reported questionnaires, which may introduce the possibility of response bias or social desirability bias. Future research is recommended to use longitudinal approaches, involve multiple police institutions or public organizations, and incorporate additional data sources to obtain a more comprehensive understanding of the relationships among green leadership, climate change awareness, pro-environmental behavior, and personnel performance.

CONCLUSION

Based on the results of data analysis using Partial Least Squares–based Structural Equation Modeling (SEM-PLS), empirical findings were obtained regarding both the direct and indirect effects among variables in the research model. These findings are subsequently formulated into the following main conclusions:

1. Climate Change Awareness has a positive and significant effect on Personnel Performance, with a coefficient value of β = 0.367, T-statistics = 3.502, and a p-value = 0.001. This finding indicates that an increase in climate change awareness directly enhances personnel performance.
2. Climate Change Awareness has a positive and significant effect on Pro-Environmental Behavior, with a coefficient value of β = 0.354, T-statistics = 3.438, and a p-value = 0.001, indicating that climate awareness encourages more environmentally friendly work behavior.
3. Green Leadership has a positive and significant effect on Personnel Performance, with a coefficient value of β = 0.301, T-statistics = 3.381, and a p-value = 0.001, confirming the important role of green leadership in improving personnel performance.
4. Green Leadership has a positive and significant effect on Pro-Environmental Behavior, with a coefficient value of β = 0.228, T-statistics = 2.334, and a p-value = 0.020, indicating that leaders' role modeling and support promote pro-environmental behavior.
5. Pro-Environmental Behavior has a positive and significant effect on Personnel Performance, with a coefficient value of β = 0.346, T-statistics = 3.266, and a p-value = 0.001, demonstrating that environmentally friendly behavior contributes to improved personnel performance.
6. Pro-Environmental Behavior mediates the relationship between Climate Change Awareness and Personnel Performance, with an indirect effect value of β = 0.123, T-statistics = 1.974, and a p-value = 0.045, indicating a significant mediating effect.
7. Pro-Environmental Behavior also mediates the relationship between Green Leadership and Personnel Performance, with an indirect effect value of β = 0.119, T-statistics = 1.934, and a p-value = 0.048, confirming that the mediating effect is significant.

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