Do Gender and Age Matter in Pro-Environmental Behavior? A Non-Experimental Quantitative Study

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ABSTRACT

This study explored the effect of gender and age on the pro-environmental behavior of Filipino workers in the NCR. We had two primary objectives: first, to determine if there was a notable difference in eco-friendly actions between male and female workers; and second, to assess whether an individual's age could predict their level of involvement in conservation efforts. We gathered data from a sample of 629 Filipino workers from both public and private sectors within the NCR. This sample included 260 male and 369 female participants, with ages ranging from 18 to 62 years. Our research employed a quantitative approach, specifically a cross-sectional descriptive as well as predictive design. To assess participants' pro-environmental behaviors, we used a 16-item scale developed by Nieva (2024), an adapted version of Kaiser's (2020) General Ecological Behavior (GEB) scale, which uses a 5-point rating scale. Our analysis revealed no significant difference in pro-environmental behavior between male and female workers. Additionally, a simple linear regression analysis indicated that age did not significantly predict pro-environmental behavior. This evidence suggests that a participant's age did not appear to influence their engagement in pro-environmental actions. These findings are quite encouraging, as they suggest that the capacity for caring for the environment is not limited by an individual's gender or age among the Filipino workers studied. This implies that anyone, regardless of their gender or age, has the potential to be an active partner or agent in fostering sustainability. This wide inclusivity is important for broad participation in environmental efforts, showing that programs designed to encourage pro-environmental behavior can successfully reach different groups without having to focus on specific genders or ages.

Keywords: pro-environmental behavior, gender, age, descriptive comparative study, cross-sectional predictive study

INTRODUCTION

The 17 Sustainable Development Goals (SDGs) represent a major step in humanity's pursuit of a sustainable future. This endeavor can be traced back to the 17th century, when declining European forest resources led to early calls for reforestation and conservation, thereby establishing the core idea that the present generation is responsible for future generations' welfare (Estoque, 2022). These global objectives aim to address urgent problems such as climate change, human rights, inequality, and power disparities, acknowledging that no single country can achieve these worldwide aims independently (Nieva & Aton, 2025).

In a similar vein, Pope Francis' 2015 encyclical, *Laudato si'*, emphasizes environmental sustainability as crucial for our common home (as cited in Isanbor, 2021). This document addresses humanity's ability to tackle ecological problems arising from issues like nuclear warfare, unchecked industrialization, excessive mining, and harmful biochemical research (Isanbor, 2021). Ultimately, the encyclical links these environmental concerns to the broader goal of achieving global social order, all while being rooted in the philosophical tradition of Catholic Social Teachings (Isanbor, 2021)

When our ecosystems are progressively lost and damaged, affecting flora and fauna, it leads to significant environmental shifts. These shifts create both short-term and long-term threats to human well-being (Quilon, 2024). To effectively predict future environmental needs and social trends and to create useful products,

educational programs, and policies that meet these environmental demands, it's crucial to identify what encourages people to act in an environmentally friendly way.

Psychology of Sustainability

Conservation psychology, also termed the psychology of sustainability (Corral-Verdugo, Aguilar-Luzón, & Hernández, 2019; Nieva, 2024), is a discipline dedicated to understanding the drivers of pro-environmental behaviors and formulating methods to promote them (Clayton & Brook, 2005; Clayton & Myers, 2015; Nieva, 2024). Originating from social psychology in the 1950s, this field is a specialized area of environmental psychology that specifically examines the human dimension of environmental protection. While environmental psychology looks at how people interact with their surroundings in general, conservation psychology was created to tackle specific conservation issues; therefore, even though they have some similarities, these areas often work together.

In the Philippines, the field of environmental psychology is considered nascent. The formation of the Environmental Psychology Special Interest Group (EPSIGPAP) in March 2020 marked its official recognition in the country (Aruta, 2023).

Pro-Environmental Behavior

Psychological traits such as attitudes, values, and motivations, along with social norms, significantly influence individuals' engagement in conservation (Wallen and Landon, 2020). Consequently, conservation psychology centers on both pro-environmental attitudes (defined as a positive inclination toward nature; Hawcroft & Milfont, 2010) and pro-environmental behaviors (PEB), which are actions that benefit the environment, whether intentional or not (Soutter & Mõttus, 2021). More broadly, pro-environmental behavior refers to any individual action aimed at lessening humanity's negative effects on the natural world (Ágoston et al., 2024; Mónus, 2021).

In line with this, environmental psychology largely focuses on pro-environmental behaviors, with Kaiser and Wilson (2004) advocating for its scope to be limited to goal-directed actions (Gatersleben, 2013). Goal-directed behavior theory posits that behavioral intention, the strongest predictor of actual behavior, stems from factors such as motivation, attitudes, social norms, perceived ability, anticipated emotions, and past behavior (Han, 2021).

Building on this theoretical framework, Kaiser and Wilson (2004) developed a unidimensional measure for goal-oriented environmental behaviors based on the Campbell paradigm. This theory suggests that actions related to an environmental goal can be ranked by difficulty; higher engagement in more challenging behaviors indicates stronger environmental concern. Specifically, this measure assumes individuals prefer easier actions, and greater effort or sacrifice toward environmental goals reflects stronger commitment, whereas abandoning simple actions indicates weak dedication (Gatersleben, 2013).

Socialization Theory

Socialization theory offers a framework for understanding why men and women may exhibit different pro-environmental behaviors. This theory posits that an individual's actions are significantly influenced by the gender expectations prevalent within their cultural environment (Schahn & Holzer, 1990; Vicente-Molina et al., 2018; Zelezny et al., 2000).

Specifically, socialization often shapes women into roles that prioritize nurturing and caregiving. This upbringing tends to cultivate traits such as compassion, empathy, and cooperation, which are believed to encourage a more protective stance toward the natural environment (Blocker & Eckberg, 1997). Conversely, male socialization frequently prioritizes roles as economic providers and engagement in market-driven activities. This often fosters assertiveness, rationality, and competitiveness, which may correlate with less pro-environmental attitudes (Blocker & Eckberg, 1997; Hunter et al., 2004; Mohai, 1997).

Adding to this perspective, Brough et al. (2016) indicate a cognitive association between environmentalism and femininity. Their research reveals that individuals who participate in environmentally friendly behaviors often face stereotypes from others and may even perceive themselves as more feminine. Furthermore, men's willingness to participate in green behaviors can be influenced by factors that either challenge or affirm their masculinity, as well as by the use of masculine-oriented rather than conventional environmental branding.

In line with these gendered differences, women's participation in pro-environmental actions appears linked to their lifestyles and societal expectations, whereas men's lifestyles are more influenced by their perspectives on environmental policies (Wut et al., 2021).

Gender and Age in Pro-Environmental Behavior

A study by Hidalgo and associates (2022) explored how gender influences environmental concern and pro-environmental behaviors among 1,210 individuals in Guayaquil, Ecuador. Their findings indicated that women demonstrated greater environmental concern and engaged in more pro-environmental behaviors, leading them to conclude that gender plays a significant role in these areas. This result is similar to findings from both Li et al. (2022) and Xiao and Hong (2010).

Similarly, Li and colleagues (2022) conducted a study with 532 Chinese participants, which also indicated that gender affects how people think and act about the environment. Specifically, their findings showed that Chinese women were more environmentally aware. They also strongly supported actions like banning plastic, held more positive views on reducing plastic use, and were more likely to use reusable shopping bags.

Using path analyses, Xiao and Hong (2010) found gender differences in environmental behaviors in China that mirrored Western trends: women were more involved in household environmental actions, such as recycling. However, no clear gender patterns emerged for environmental behaviors outside the home, like donating to environmental organizations. Interestingly, Chinese women showed less environmental concern than men—a result that contrasts with most studies from Western countries.

On the other hand, the study by Vicente-Molina and colleagues (2018) presents contrasting findings. They found notable gender-based differences in what influences Spanish university students' pro-environmental behavior. Their analysis, using ordinal logistic regression, indicated that men's behavior was generally more responsive to intervention programs, as shown by their higher elasticity values.

Furthermore, there is evidence suggesting that gender differences in pro-environmental behavior may not always exist. For instance, Ichsan et al. (2018) found no significant difference in pro-environmental behavior related to green consumerism between junior high school males and females in Indonesia using a t-test with a 95% confidence level.

In the Philippines, Montebon and colleagues (2022) investigated sustainable practices in select Filipino homes, examining how gender impacts family members' roles in fostering sustainable habits. Their findings showed that women, particularly mothers, play a crucial part in championing and carrying out sustainable development within the household.

In terms of age differences, younger individuals tend to hold slightly more positive intentions and attitudes toward environmentally conscious behavior compared to older demographics (Ágoston et al., 2024; Wiernik et al., 2013). Consistent with this, younger age is frequently linked to heightened climate or eco-anxiety (Ágoston et al., 2022; Ágoston et al., 2024; Clayton & Karazsia, 2020; Kácha et al., 2022).

However, when examining actual pro-environmental behaviors rather than just awareness and emotions, most research suggests that older individuals are more engaged. They are more likely to take part in conservation efforts that aim to protect ecosystems and prevent environmental damage, and they tend to save materials and natural resources. Moreover, older adults frequently participate in outdoor activities (Wiernik et al., 2013). A recent international study across 31 countries supports this trend by finding that older people exhibit more pro-environmental behavior (Wang et al., 2021).

At present, aside from the study conducted by Montebon and colleagues (2022), there exists a paucity of research in the Philippines examining gender and age disparities in pro-environmental behavior, particularly among employees in the National Capital Region (NCR). This is a significant gap, as these individuals regularly commute and consume products that directly impact the environment. Given that the actions and resource use of this population have a direct influence on conservation, it's crucial to determine how to foster sustainability among them and to explore whether gender and age are indeed significant factors in sustainable behavior. Hence, this research endeavors to fill this gap.

Research Question

The purpose of the study was to determine the effect of gender and age on the level of pro-environmental behavior of Filipino workers in the NCR. Specifically, this aimed to answer the following research questions:

1. Is there a significant difference in the level of pro-environmental behavior of the participants when compared according to gender?

2. Is age a significant predictor of the level of pro-environmental behavior of the participants?

METHOD

Design

This study employed a non-experimental quantitative research design, specifically combining a cross-sectional descriptive and predictive approach (Christensen et al., 2020; Johnson, 2001). The cross-sectional dimension signifies that data were collected from participants at a single point. Furthermore, the study incorporated descriptive comparative research, also known as causal-comparative research (Cantrell, 2011). This approach aims to investigate potential cause-and-effect relationships by comparing pre-existing groups, even though the researcher does not manipulate variables or assign participants to groups (Cantrell, 2011). In this context, gender served as the independent variable, while pro-environmental behavior was the dependent variable. Additionally, the research aimed to predict future events or behaviors by looking at trends in the data collected. For this purpose, age was designated as the predictor variable, and pro-environmental behavior was the outcome variable.

Participants

A total of 629 Filipino workers from both public and private sectors within the National Capital Region (NCR) participated in this study. The sample comprised 260 (59%) males and 369 (41%) females, with ages ranging from 18 to 62 years. The average age of the participants was 32 years old, with a standard deviation of 9.45.

Measure

The participants' pro-environmental behavior was assessed using the adapted General Ecological Behavior (GEB) scale. Specifically, this 16-item scale, developed by Nieva (2024), is an adaptation of Kaiser's (2020) GEB scale. While the original General Ecological Behavior (GEB) scale is a well-known self-report tool, this new version was adapted to fit Filipino culture. This adaptation was crucial because cross-cultural validation of measurement tools is essential when used with diverse groups, as they might function differently outside their original cultural context (Nieva, 2023; Nieva et al., 2025; Rada & Nieva, 2024).

This adapted scale utilizes a 5-point rating system (1 = never, 2 = seldom, 3 = occasionally, 4 = often, and 5 = very often). The scoring procedure from Davis, Green, and Reed (2008) was adopted. We calculated an overall GEB score by averaging the responses across all questions. This single indicator means that higher scores reflect greater pro-environmental engagement. In this study, the scale demonstrated strong reliability with McDonald's omega (ω) = 0.723 and Cronbach's alpha (α) = 0.739. Given these values, the scale is considered reliable.

Procedure

Participants were asked to complete an online survey, which was administered via the secure platform Microsoft Forms. However, we first informed them that they could only proceed after providing their informed consent. Each individual received a consent form that explained the study's purpose, its procedures, and how their information would be kept confidential and anonymous. JASP software (version 0.18.1) subsequently analyzed all the data gathered from these questionnaires.

Data Analysis

The initial data analysis involved checking for skewness, kurtosis, mean, and standard deviation to determine the data's normality and its descriptive statistics. The reliability of the GEB scale was assessed using McDonald's omega and Cronbach's alpha. For the main analyses, an independent t-test was used to determine if there were significant differences in the pro-environmental behaviors of the participants when compared according to gender. Furthermore, a simple linear regression analysis was employed to determine if age significantly predicts pro-environmental behavior. According to Field (2018), simple regression is a fundamental tool for understanding and quantifying the linear relationship between two variables, allowing for prediction and explanation within the observed data.

RESULTS AND DISCUSSION

The study aimed to investigate how gender and age influence pro-environmental behavior among Filipino workers in the NCR. Before the primary analysis, researchers conducted a preliminary assessment of the data. This step involved calculating descriptive statistics, specifically the mean, standard deviation, and normality tests using skewness and kurtosis. Additionally, reliability estimates like McDonald's omega and Cronbach's alpha were computed. These steps were important for figuring out if parametric tests could be used for analysis and for checking how reliable the pro-environmental behavior measurement scale was.

Regarding the normality tests, as presented in Table 1, the skewness values for age and pro-environmental behavior were 0.877 and -0.025, respectively. Furthermore, the kurtosis values for both variables were 0.195. These figures suggest a normal data distribution, as George and Mallery (2019) state that skewness and kurtosis values between -2 and +2 fall within acceptable limits. Therefore, the use of parametric inferential statistics is deemed appropriate.

Table 1. Descriptive Statistics

Variables	N	M	SD	Skewness	Kurtosis	Minimum	Maximum
PEB	629	2.903	0.517	-0.025	0.195	1	4.688
Age	629	32.245	9.445	0.877	0.195	18	62

Table 1 displays the mean scores and standard deviations for participants' pro-environmental behavior. The mean score indicates an average level of pro-environmental behavior, as it aligns with the midpoint of 3. Furthermore, the standard deviation values suggest that participants' scores were relatively consistent, demonstrating less variability in their responses.

This finding suggests a moderate level of engagement in sustainable practices among participants. This indicates that while they may adopt some environmentally friendly habits, like recycling regularly or conserving water by showering, they might not consistently practice all behaviors. For instance, they might be active in reducing consumption and waste; however, they may be less involved in broader environmental advocacy, such as financially contributing to organizations or consistently boycotting environmentally damaging products. These average scores reflect a population that is aware of environmental issues and takes some personal responsibility, yet still has room to further integrate a wider range of sustainable actions into their daily lives and expand their sphere of influence beyond individual habits.

Table 2. *t* Statistics

Gender							
<u>Male</u>		<u>Female</u>					
M	*SD*	*M*	*SD*	*t*	*df*	*Sig. (2-tailed)*	*Cohen's d*
2.928	0.541	2.885	0.500	-1.028	198	0.304	-0.083

An independent-samples *t*-test was performed to examine whether there was a difference in the level of pro-environmental behavior between male and female Filipino workers. *The results of Levene's Test for Equality of Variances confirmed the assumption of homogeneity of variances, with F(1, 627) = 0.175 and p = 0.676.* The results, as presented in Table 2, indicated no significant difference in the level of pro-environmental behavior of male and female Filipino workers, $t(198) = -1.028$, $p = .304$.

Our analysis revealed no significant difference in pro-environmental behavior between male and female workers. Although prior research frequently indicates that women are more involved in specific pro-environmental behaviors, our study reveals that male and female workers in this sample exhibit similar levels of such conduct. This finding aligns with Ichsan et al.'s (2018) study, which also reported no significant difference in pro-environmental behavior between junior high school males and females in Indonesia. The result suggests that for our study's population, gender is not a primary factor influencing engagement in sustainable practices. Instead, other factors might be more important in determining how these workers act in ways that help the environment, suggesting that their actions are not just based on typical gender roles but are influenced by stronger factors. Therefore, future research could investigate these alternative influences to better understand what drives pro-environmental behavior in this demographic.

Table 3. Linear Regression

						Collinearity Statistics	
Predictor	B	SE	β	*t*	*p*	Tolerance	VIF
Age	-8.011×10^{-4}	0.002	-0.015	-0.366	0.714	1.000	1.000
Note: Adjusted R² = -0.001, *F* (1,627) = 0.134, *p* = 0.714							

Table 3 displays the outcomes of the linear regression analysis, where pro-environmental behavior was the outcome or dependent variable and age was the predictor or independent variable. Based on the ANOVA result, the regression model as a whole was not a good fit for the data. The result indicates that the predictor or independent variable included in the model does not collectively explain a significant amount of the variation in the dependent variable. Therefore, the analysis revealed that age did not significantly predict pro-environmental behavior, accounting for only -0.1% of the variance in the dependent variable.

While the regression coefficients suggested negative results, implying an inverse trend, the overall finding indicates that a participant's age did not appear to influence their engagement in pro-environmental actions. This contrasts with existing literature that often presents mixed results regarding age and PEB; some studies suggest younger individuals have more positive attitudes or higher eco-anxiety, whereas others show older adults demonstrating more actual conservation behaviors. However, in our sample, age cannot explain the variance in PEB, suggesting that other factors play a more influential role. The result implies that both younger and older workers in this population are equally likely to adopt or neglect sustainable practices. Therefore, future research should explore alternative predictors to better understand the drivers of pro-environmental behavior in this demographic, rather than focusing solely on age. For instance, according to Hoffmann et al. (2022), research also indicates that negative emotions such as guilt or shame can influence pro-environmental behavior.

The overall findings of this research support the literature review by Li et al. (2019). Specifically, Li and colleagues argue that recent environmental behavior research increasingly suggests demographic factors like age and gender, along with social norms, may not always be sufficient to fully explain pro-environmental actions. Instead, the current focus has shifted toward understanding the role of psychological factors. For instance, Nieva (2024) found that personality traits, particularly extraversion, conscientiousness, and openness to experience, positively predict pro-environmental behavior.

CONCLUSION

This study aimed to investigate the influence of gender and age on pro-environmental behavior among Filipino workers in the National Capital Region. Collectively, our findings suggest that neither gender nor age primarily drives individual pro-environmental behavior within this demographic. Although participants usually engage moderately in sustainable practices, the fact that gender and age do not strongly predict this behavior shows that future research should look into other important factors. Such factors could include individual values, environmental knowledge, specific workplace initiatives, socioeconomic conditions, or even emotional responses like guilt or shame, as suggested by external literature. Understanding these alternative drivers will be key to creating more targeted and effective sustainability interventions within this demographic.

Moreover, these results are encouraging because they suggest that the capacity for sustainable progress and innovation among the Filipino workers studied is not limited by an individual's gender or age. This implies that anyone, regardless of their gender or age, has the potential to actively contribute to fostering a more sustainable future. This wide inclusivity is important for getting more people involved in environmental efforts, showing that programs encouraging eco-friendly actions can successfully reach different groups without needing to focus on specific genders or ages.

Future research on pro-environmental behavior among Filipinos should broaden its focus beyond the National Capital Region. This includes studying diverse populations and sectors to improve the generalizability of findings. To better understand how these behaviors develop and what drives them, studies should use longitudinal designs and objective measures to support self-reported data and reduce bias. Since gender and age were not key predictors in this study, future work should explore other influencing factors and their determinants, such as personal values, environmental knowledge, and emotional responses. Finally, qualitative methods could offer more profound insights into the motivations and barriers to environmental action.

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