

Research Article

# Islam and Ecology: Gender Dynamics in Employee Green Behavior (EGB) among Muslim Employees

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## ABSTRACT

This study aims to analyze gender-based differences in Employee Green Behavior (EGB) among Muslim employees. EGB refers to pro-environmental actions voluntarily undertaken by employees in support of environmental sustainability in the workplace. This study used a quantitative approach with a cross-sectional survey design and involved 226 Muslim respondents (111 men and 115 women) from various industrial sectors in Indonesia. The instrument used was a five-item EGB scale adapted from Norton et al. (2015), with a reliability of  $\alpha = 0.83$ . Data analysis was conducted using an independent t-test to test differences in EGB scores based on gender. The results showed that there were significant differences in most dimensions of EGB, with female employees consistently showing higher scores than male employees. The largest difference was in the habit of bringing reusable cutlery/drinking utensils. This finding reflects the influence of gender identity and religiosity in shaping environmentally friendly behavior. The Islamic perspective that places humans as caliphs on earth is an important ethical foundation for Muslim employees in internalizing ecological responsibility. This study suggests the importance of developing sustainability programs that are sensitive to gender differences and religiosity, as well as the need for specific strategies to increase male employees' engagement in environmentally friendly behaviors in order to achieve organizational sustainability goals more inclusively and effectively.

**Keywords:** Employee Green Behavior; Gender; Muslim Employees; Organizational Sustainability

## 1. INTRODUCTION

Employee Green Behavior (EGB) has become a critical focus in an organization's efforts to achieve environmental sustainability and stability (Yantu et al., 2023). EGB refers to voluntary actions undertaken by individuals to support environmentally friendly initiatives in the workplace, such as engaging in waste reduction activities, participating in energy conservation programs, and practicing the recycling of materials used in daily operations (Norton et al., 2015; Putri, 2024). Numerous findings have been conducted to examine and find the supporting and inhibiting factors of EGB, including the role of Green Human Resource Management (GHRM) practices and ethical leadership patterns (Zacher et al., 2023). The impacts of climate change and environmental degradation across the world have emerged as pressing challenges that require a collective response from various supporting sectors, including business organizations and workforce actors. The growing awareness of environmental sustainability is no longer limited to formal organizational policies but also extends to individual employee behaviors that contribute to pro-environmental efforts (Ones & Dilchert, 2012). The concept of EGB, as proposed by Norton et al. (2015), has become a key conceptual framework for understanding how employees can contribute to environmental sustainability goals (Norton et al., 2015). EGB refers to the attitudes, actions and behaviors of individuals in the workplace aimed at supporting environmental sustainability within organizations (Katz et al., 2022; Zacher et al., 2023).

The study of EGB has significantly advanced, particularly in the analysis of its antecedents, including organizational culture (Kim et al., 2019), green leadership (Gu & Liu, 2022), personal values (Inoue & Alfaro-Barrantes, 2015) and environmental identity (Tian et al., 2020). However, there remains notable growth in understanding the role of EGB within broader social contexts, particularly regarding the gap in knowledge on how social identity factors such as gender, socio-demographics and religious beliefs may influence the manifestation of pro-environmental behaviour in the workplace (Ashforth & Mael, 1989; Yuriev et al., 2020). In the context of gender, pro-environmental behavior has received increasing

scholarly attention. Some studies have found that women tend to demonstrate higher environmental concern compared to men (Saguy et al., 2021; Vicente-Molina et al., 2018; Zelezny et al., 2000b), while other studies have found that gender differences in pro-environmental attitudes may be statistically insignificant (Gkargkavouzi et al., 2019; Karpudewan, 2024). Furthermore, a Meta-analysis by Gifford and Nilsson (2021) reveals that the relationship between gender and pro-environmental behavior is complex and likely moderated by contextual and sociocultural factors (Gifford & Nilsson, 2014). Various studies on Employee Green Behavior (EGB) have been conducted in the last decade, most of which still focus on organizational factors such as green culture (Kim et al., 2019), green leadership (Kim et al., 2019), and green human resource management (Zacher et al., 2023), as well as the influence of personal values and behavioral norms (Inoue & Alfaro-Barrantes, 2015; Tian et al., 2020).

However, studies linking social identity factors such as gender and religious affiliation in the context of pro-environmental behavior are still limited (Yuriev et al., 2020). In fact, studies such as Gifford and Nilsson (2014) show that social and contextual factors such as gender roles and religious values can moderate environmentally friendly behavior (Gifford & Nilsson, 2014). Emphasized the tendency of higher pro-environmental behavior in women, but did not link it to a religious framework (Vicente-Molina et al., 2018; Zelezny et al., 2000a). Meanwhile, research on the integration of Islamic values such as the concept of the caliph in forming EGB is still minimal and then, emphasized the importance of Islamic ethics in the context of sustainability (Helfaya et al., 2018). Therefore, an in-depth study is needed to explore gender identity in interacting with other social identity factors, such as religious affiliation, social community, socio-political, economic and other factors that support the formation of positive EGB in the world of work (Leach et al., 1995). Furthermore, in the Islamic perspective, the concept offered is in understanding pro-environmental behavior. Islam has a strong foundation in building pro-environmental ethics based on the concept of the caliph on earth which is stated in the verses of the Quran (Abdelzaher et al., 2019; Helfaya et al., 2018). This indicates a need for deeper exploration of gender identity as it interacts with other dimensions of social identity, including religious affiliation, sociocultural backgrounds, political orientation, and economic status, in shaping positive EGB within the workplace (Leach et al., 1995). Furthermore, from an Islamic perspective, there is a well-established ethical foundation for pro-environmental behavior, grounded in the concept of khalifah (stewardship) on Earth as articulated in the Qur'an. This framework underscores human responsibility to protect and preserve the environment as part of spiritual and ethical obligations (Abdelzaher et al., 2019; Helfaya et al., 2018).

This is important because in Muslim societies, religious values such as the concept of the caliph in Islam can provide a unique ethical foundation in shaping pro-environmental behavior (Abdelzaher et al., 2019; Rakhmat, 2022). In addition, gender variables have not been studied in depth in relation to EGB in a religious context. In fact, several studies indicate that gender can be an important factor in shaping environmental behavioral preferences and tendencies (Gifford & Nilsson, 2014; Zelezny et al., 2000a, 2000b). Therefore, there is a literature gap (research gap) in terms of understanding the relationship between gender, Islamic religious values, and EGB in the workplace that needs to be filled by this study. As a khalifah (steward), human beings are entrusted by Allah SWT with the responsibility to protect and preserve the earth from destruction, rather than excessively exploiting it in ways that harm the natural environment (Khalid et al., 2024). In the context of Muslim employees working in the industrial and business sectors, the value of khalifah must be internalized to foster a deeper sense of environmental responsibility regarding the consequences of human-driven environmental exploitation. The implementation of resource conservation practices is expected to influence environmentally friendly workplace policies (Rahman, 2022; Shamoon & Ali, 2022). The khalifah concept guides and motivates individuals to maintain and preserve ecological balance in their interactions with the environment, which, in industrial and business settings, is manifested through actions such as energy conservation, waste reduction, and sustainable innovation (Rakhmat, 2022; Taisir et al., 2024). Studies have begun to integrate gender factors and Islamic values into the analysis of EGB, offering new insights into how individuals in the workplace can develop more effective interventions to promote pro-environmental behaviour. While prior research has underscored the importance of Islamic values in supporting EGB, understanding the interaction between these values and gender dynamics enables organizations employing Muslim workers to design more inclusive and effective strategies for fostering green behavior. These strategies align with Islamic ethical principles while also taking gender differences into account.

Based on the description above, the main problem studied in this study is whether there are differences in environmentally friendly behavior (EGB) between male and female Muslim employees in the workplace. This study aims to analyze and describe gender-based differences in EGB behavior among Muslim employees by considering the context of Islamic values and the socio-cultural roles inherent in each gender. This study is expected to provide conceptual and practical contributions in efforts to develop a more inclusive organizational sustainability strategy, by considering the dynamics of gender and religious identities in the workplace. In addition, the results of this study are also expected to enrich the literature on environmentally friendly organizational behavior in developing countries with a Muslim majority population such as Indonesia.

## 2. RESEARCH METHOD

This study uses a quantitative approach with a cross-sectional survey design that aims to explore differences in employee green behavior (Employee Green Behavior/EGB) based on gender among Muslim employees. The quantitative approach was chosen because it is able to provide an objective picture of the phenomenon being studied and allows analysis of relationships and differences between variables through statistical processing (Creswell & Creswell, 2021; PH. and Chang, 2009). The population in this study were Muslim employees working in various organizational and company sectors in Indonesia. The research subjects consisted of Muslim individuals who were actively working and had the potential to be involved in pro-environmental activities in the workplace. The sample was determined using the convenience sampling technique, namely the selection of respondents based on ease of access and willingness to participate. From this process, a total of 226 respondents were obtained, consisting of 111 men and 115 women. Data collection was carried out online by distributing online questionnaires from October 2024 to January 2025. The instrument used was the Employee Green Behavior (EGB) scale developed by Norton et al. (2015) and has been adapted to the local Indonesian context (Norton et al., 2015). This instrument consists of five items describing environmentally friendly behavior in the workplace, such as the use of reusable cutlery, energy conservation, and recycling practices, with measurements using a 5-point Likert scale. This instrument has a good reliability value with a Cronbach's alpha of 0.83, indicating high internal consistency. Data analysis was carried out using SPSS software version 26.0, starting with descriptive analysis to determine the distribution of data (mean, standard deviation, and frequency), followed by a normality test using Kolmogorov-Smirnov, and a homogeneity test of variance using Levene's test. To test the differences in EGB behavior between male and female respondents, the Independent Sample t-test was used with a significance level of  $p < 0.05$ . In addition, Cohen's d calculation was carried out to determine the effect size of the differences found.

## 3. RESULTS AND DISCUSSION

### 3.1 Results

Figure 1 illustrates the distribution of demographic characteristics of a sample of the 226 respondents:

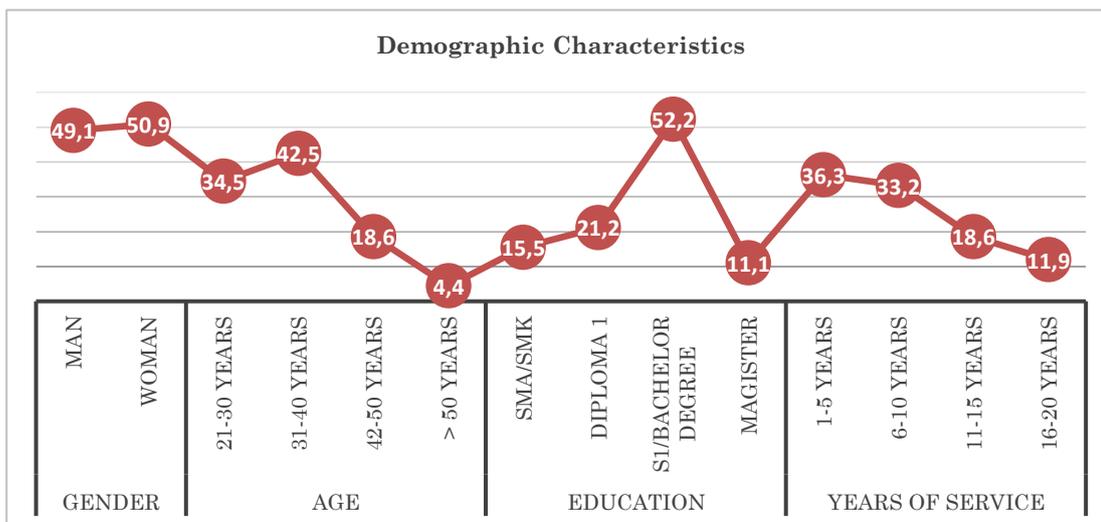


Figure 1. Sample Demographic Characteristics

Based on the Figure 1, it can be concluded that in terms of gender, females (50.9%) slightly outnumber males (49.1%). Regarding age, there is a significant variation, with the 31-40 age group dominating the sample at 42.5%, followed by the 21-30 age group at 34.5%. In terms of educational attainment, bachelor's degree holders represent the majority at 52.2%, significantly surpassing other education levels. Concerning work tenure, the majority of respondents fall within 1-5 years (36.3%) and 6-10 years (33.2%) categories, while a sharp decline is observed among those with longer work experience. Furthermore, descriptive statistical analysis of EGB of Employee Green Behavior (EGB) across all instrument items, disaggregated by gender, is presented in Table 1.

**Table 1.** Results of the EGB descriptive statistical test

Item Employee Green Behavior	Gender	Mean	SD
EGB1 (Print/photocopy documents on both sides)	P.	3.87	0.95
	PR	4.14	0.78
EGB2 (Bring food/drink utensils that can be used repeated)	P.	3.70	1.08
	PR	4.26	0.75
EGB3 (Turn off the lights when leaving the office)	P.	4.03	0.89
	PR	4.21	0.76
EGB4 (Purchase the product in refillable packaging)	P.	3.74	0.97
	PR	4.12	0.85
EGB5 (Walking for short distances)	P.	3.57	1.10
	PR	3.84	0.96

Based on **Table 1**, the results indicate that female respondents reported a higher value (Mean) score in EGB compared to their male counterparts. This trend suggests that women exhibit a greater tendency toward environmentally friendly behaviors in the workplace and may serve as potential role models in the implementation of EGB. Further analysis was conducted using independent t-test to examine gender differences across individual EGB items, with the results presented in **Table 2**.

**Table 2.** Independent T-Test Results

Aspects of EGB	t	Mr. (2-tailed)	Mean Difference	Cohen's d
EGB1	-2.450	0.015*	-0.274	0.327
EGB2	-4.771	0.000**	-0.558	0.637
EGB3	-1.585	0.114	-0.166	0.212
EGB4	-3.104	0.002**	-0.363	0.414
EGB5	-2.115	0.036*	-0.283	0.282
EGB Total	-3.607	0.000**	-0.329	0.482

\*p < 0.05, \*\*p < 0.01

The data in **Table 2** show significant gender-based differences in almost all EGB items: EGB1 (p=0.015), EGB2 (p=0.000), EGB4 (p=0.002), and EGB5 (p=0.036). However, EGB3 did not show a statistically significant difference (p=0.114). The negative values in the Mean Differences indicate that female respondents consistently scored higher than males, with the largest gap observed in EGB2 (-0.558). Overall, the gender difference in EGB was highly significant (p=0.000), with an effect size (Cohen's d) of 0.482, suggesting a moderate to substantial and meaningful difference between males and females employees in pro-environmental workplace behavior.

### 3.2 Discussion

The results of the study showed a significant difference in Employee Green Behavior (EGB) between male and female Muslim employees, with a t value = -3.607 and p < 0.001. The average EGB score for female employees was 4.09 (SD = 0.62), higher than male employees at 3.76 (SD = 0.75). The effect size calculated using Cohen's d of 0.482 indicates a moderate practical difference. These results support previous studies stating that women generally show more concern for environmental issues than men (King et al., 2017; Scharfenkamp & Wicker, 2024; Vicente-Molina et al., 2018; Zelezny et al., 2000a). This finding is also in line with the results of the studies of Xu et al. (2021) and Schwartz et al. (2021) which shows that women tend to adopt biocentric and altruistic orientations in responding to environmental issues, such as supporting species conservation and avoiding activities that harm living things (Lin et al., 2021; Wittmann, 2005).

This difference can be explained through the perspective of social gender, where women are associated with higher values of empathy, caring, and social responsibility than men (Armajani, 2024; Li et al., 2024). However, not all studies find similar results. Gkargkavouzi et al., (2019) and Karpudewan, (2024) found that in some contexts, gender differences in pro-environmental behavior were not significant. These differences are likely influenced by socio-cultural variations, educational background, and gender norms in society. For example, in some cultures, men may avoid pro-environmental activities because they are considered “less masculine” (Berisha et al., n.d.). Within this framework, Reyes Gender, (2023) states that EGB behavior is often associated with feminine characteristics such as caring and emotional sensitivity, which are less associated with masculine identities. In line with the findings of Yusof et al., (2025), these results also reinforce the importance of a gender-based approach in developing environmental campaign strategies in the workplace so as not to be biased against men or women. This approach must consider the different values in motivating both groups, such as through participatory programs and assignment of strategic roles in environmental projects. Studies by Pillai et al., (2025) and Asaley & Strydom, (2024) also emphasize the importance of institutional roles in creating a gender-friendly work environment in sustainability issues. Programs such as the use of sustainable cutlery, waste retraining, or plastic reduction policies can be further developed by considering the gender context.

In terms of religiosity, these results are also in line with Islamic principles on the importance of preserving the earth as part of the responsibility as a caliph Rahman, (2022). This value is rooted in the concept of maqasid al-shari'ah, namely the objectives of sharia that include environmental protection as part of the divine mandate (Bouwers, 2023; Rakhmat, 2022). Studies by Abdelzاهر et al., (2019) and (Helfaya et al., 2018) show that Islamic ethics can contribute to shaping ecological values among Muslims, including employees in the industrial world. However, organizational structures and gender divisions of labor still often place women in social or CSR roles, while men tend to be in technical or operational functions (Metcalf et al., 2021; Saputri & Nawangsari, 2024). This difference has the potential to shape different expectations of men's and women's involvement in environmental issues in the workplace.

The findings of this study are supported by a number of previous studies which also show that women tend to have higher levels of pro-environmental behavior than men. For example, Zelezny et al. (2000) in their study found that women showed greater levels of empathy and environmental responsibility, especially in the context of personal and social behaviors that support environmental conservation (Zelezny et al., 2000a). Then female students at the University of the Basque Country had higher levels of participation in environmentally friendly activities than male students (Vicente-Molina et al., 2018). In addition, (Xu et al., 2021) emphasized that women are more likely to express concern for the environment through concrete actions such as recycling, reducing energy consumption, and supporting conservation policies. Gifford and Nilsson also concluded that social factors and personal values that are more prominent in women make them more responsive to environmental issues than men (Gifford & Nilsson, 2014). Even in an organizational context, Study in South Africa showed that female employees' intrinsic environmental motivation is stronger and contributes significantly to the organization's environmental performance (Fatoki, 2023). All these findings are in line with the results of the current study, which indicate that the gender dimension has an important influence in encouraging environmentally friendly behavior in the workplace, especially in the context of Islamic values and the social culture of Muslim communities in Indonesia.

Thus, the results of this study not only strengthen previous findings but also provide a local context in the Muslim employee population in Indonesia. This study suggests the need for data-based policies in developing inclusive and gender-neutral work environment programs. Further research is suggested to explore the influence of Islamic values in more depth as a moderator or mediator variable in forming EGB, while also taking into account the gender role structure in the organization. Islam presents a comprehensive framework for environmental protection, rooted in the theological belief that humans are entrusted as stewards of God's creation. This principle is anchored in the Qur'anic verse Al-Baqarah 2:30 (Rasyaad, 2022):

"And (mention, Muhammad) when your Lord said to the angels, 'Indeed, I will make upon the earth a successive authority (khalifah). They said, 'Will you place upon it one who causes corruption therein and sheds blood, while we declare Your praise and sanctify You?' Allah said, 'Indeed, I know that which you do not know.'" This verse highlights the human role as khalifah, tasked with the responsibility of protecting and managing the earth responsibly. The concept of khalifah applies equally to all Muslims in this study (Helfaya et al., 2018). The results, showing higher EGB among female employees, may indicate a heightened awareness among women of this divine stewardship. As Hashim and Yusof (2021) assert, the concept of khalifah encompasses values of care and preservation, traits often culturally associated with femininity (Fatton, 2024). This may explain why Muslim female employees are more inclined to engage in environmentally friendly actions.

The gender differences in EGB identified in this study can be interpreted through the lens of traditional Muslim societies, where women are frequently associated with nurturing roles—roles that align closely with values of protection and sustainability (Vases, 2010). These nurturing values resonate with Islamic environmental principles and may make Muslim women more receptive to religious messages about environmental conservation. According to Khadduri and Iqbal (2023), structural and institutional factors can also influence gender differences in the application of Islamic values related

to the environment (Ayten & Hussam, 2017; Metcalfe et al., 2021). In many organizational settings, women are often assigned to manage "soft issues," such as social and environmental responsibility, whereas men are typically tasked with technical or financial roles. Thus, Islamic values may influence the green behaviors differently among male and female employees.

#### 4. CONCLUSION

The findings of this study reveal a significant gender-based difference in EGB among Muslim employees in the work environment. Female employees showed higher levels of EGB compared to their male counterparts, with statistical result showing a moderate practical difference between the two groups. Several theoretical perspectives can help explain this disparity. From a gender perspective, women tend to exhibit greater concern, empathy, and a stronger sense of social connectedness values that are reflected in environmentally friendly attitudes and behaviors. From a sociocultural standpoint, EGB is often associated with feminist traits such as care and emotional value processing, while men may be less engaged due to concerns about maintaining traditional masculine identities. The Islamic concept of humans as khalifah (stewards) on Earth emphasizes care and responsibility attributes often culturally associated with women which may partly explain why Muslim female employees are more inclined toward pro-environmental actions. Structural factors within organizations also play a role, as women are frequently assigned responsibilities related to "soft" issues such as social and environmental concerns, while men are typically tasked with technical or operational roles. In practical terms, the findings underscore the need for workplace environmental awareness programs to account for gender differences. This implies that organizations in the business and industrial sectors should design tailored strategies aimed at encouraging male employees to cultivate pro-environmental attitudes and behaviors. Furthermore, gender-sensitive approaches that consider the distinct motivations and value systems of men and women should be adopted to avoid reinforcing gender bias in the promotion of green behavior within the workplace.

#### RECOMMENDATIONS

Companies should implement gender-sensitive poverty programs by developing technical and social activities, embedding the concept of khalifah in internal training and communications, empowering women as green ambassadors, and integrating and reporting on environmental policy makers separately by gender so that interventions can be tailored and more effective.

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#### AUTHOR'S CONTRIBUTIONS

All authors discussed the results and contributed to from the start to final manuscript.

#### CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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