Social and Religious Influences on Environmentally Ethical Behavior of Muslim Community in Malaysia

Zubaidah Mohd Nasir[1]*, Mashitoh Yaacob[2]

[1]Institute of Islam Hadhari, Universiti Kebangsaan Malaysia, Bangi, Malaysia
[2]School of Liberal Studies, Universiti Kebangsaan Malaysia, Bangi, Malaysia
Email: *zuenasir@ukm.edu.my

Abstract

In Malaysia, one of the proven consequences of the human impact on the environment is the increasing waste generation over the years. This situation highlights the urgent need for a solution, obtained by exploring the factors related to environmentally ethical behavior (EEB), namely pre-cycling, reusing and recycling. As the Muslim community represents the largest population in Malaysia, it is important to explore how Muslims manage waste in their daily lives. In this study, we investigated the influence of social and religious factors on the EEB of the Muslim community in Malaysia. A cross-sectional study was conducted in which a set of questionnaires was distributed to 3822 Muslims in Malaysia. Stratified random sampling was applied to the populations of 16 states in Malaysia. The data were analyzed using Pearson correlation for the significance, direction and strength of the relationship between social and religious factors and EEB among the Muslim community in Malaysia. The results illustrated that there was a statistically significant correlation between social factors and EEB, as well as between religious factors and EEB. Social factors had a stronger correlation in explaining the key factor for Muslims in performing EEB. The findings shed light on a number of ethical issues in environmental practices among Muslims.

Keywords

Environmentally Ethical Behavior, Social Factors, Religious Factors, Muslim Community, 3R

1. Introduction

Islam provides detailed ethical principles on the environment, but the majority

of Muslims display an obvious indifference to environmental issues (Saniotis, 2011). Modern life and urbanization have impacted some of the Muslim community's perceptions of the Islamic environmental guidance. However, Muslims who integrate environmental and religious knowledge form a "critical community" for a religious-based environmental movement (Hancock, 2020). In particular, young Muslim environmental activists base their environmentalism firmly on their Muslim faith and see themselves as *khalifah* (vicegerent), taking upon themselves the task of protecting the Earth (Nilan, 2021). Malaysia is a Muslim majority country, and to date they constitute 61.3% or 20.1 million of the country's population of 32.7 million (Department of Statistics Malaysia, 2021). Thus, their environmentally ethical behavior (pre-cycling, reusing and recycling) has a great impact on the environment in Malaysia.

One of the indicators of human impacts on the environment in Malaysia is the increasing amount of solid waste generated over the years. In 2015, the generation of solid waste recorded had increased by 38,000 tonnes, reaching 12.8 million tonnes of solid waste generated per year. In 2021, it had increased to 15.6 million tonnes. In recent years, the rapid development in Malaysia has accelerated the household daily waste generation, with over 200,000 tonnes a month on average, mostly from food and plastics (Adam, 2021). This fact urges the government to increase recycling efforts among Malaysians. However, Malaysians are still skeptical regarding the advantages of recycling practices, as the current recycling rate in Malaysia is at 31.52% (Bernama, 2021). This is still low in comparison with the rate in other developed countries in Asia which have extended their countries' recycling rate to more than 50%, such as South Korea (60%), Taiwan (China) (55%) and Singapore (52%). Additionally, developing countries in Asia have recorded a recycling rate of 30% to 47% (Kim, 2019; Story of Change, 2019; National Environment Agency, 2021; SWCorp, 2014).

The data on the recycling rate in Malaysia (i.e., 31.52%) refers to the Malaysian population as a whole regardless of their socio-religious backgrounds while the scope of study in this paper is focusing on Muslim community in Malaysia. While the 20.1 million Muslims in Malaysia may be similarly as skeptical as the other 12.6 million Malaysians of other socio-religious backgrounds but the little recycling activities they performed are measured in this study not in terms of their recycling rate but in terms of the level of social and religious influences on their recycling behavior (presented in the discussion section of this paper). A previous study of the Muslim population in Terengganu (one of the states in Malaysia) on their environmentally ethical behavior (EEB), i.e., precycling, reusing, and recycling activities, found that their EEB was highly influenced by a social factor and a lot lesser by a religious factor (Nasir et al., 2021). Another study by Yaacob et al. (2017) on the perspectives of Islamic-based non-governmental organizations in Klang Valley (comprises of the Federal States of Kuala Lumpur and Putrajaya, and the state of Selangor) pertaining to (among others) motivational factors towards EEB of Muslims in Malaysia also found that their EEB

motivated more by a social factor as compared to a religious factor. However, these two previous studies were yet to address the social and religious influences on EEB of the Muslim community in Malaysia as whole. Hence, it is timely to conduct this study, and this paper presents, discusses and concludes the results of this current study. Environmentally ethical behavior (EEB) means actions based on values that are morally friendly or in conformity with environmental well-being. EEB comprises behavior towards the environment, namely pre-cycling, reusing and recycling. Recycling is one type of EEB practiced the most by Muslims in Malaysia compared to other types of EEB, such as composting, which is the least practiced by the Muslim community. Efforts made are more focused on recycling, and almost none are devoted to pre-cycling or reducing and reusing. Hence, the Malaysian government's approach to addressing the waste disposal issue should be changed so as to focus not only on recycling but also on pre-cycling and reusing. Currently, most of the environmental campaigns focus on recycling and neglect the two steps before recycling, which are pre-cycling and reducing and reusing. Recycling is at the lower level of waste management compared to pre-cycling and reducing and reusing (Pires & Martinho, 2019).

Recycling facilities are available within the community, particularly in residential areas such as in Shah Alam, Putrajaya and Bangi. Recycling facilities such as recycling bins, recycling centers (Abdullah et al., 2022), open and sanitary landfills, material recycling facility, facilities for anaerobic digestion, composting, incineration and plasma gasification (Ooi et al., 2021) are available. People reuse and recycle plastics (such as bottles, bags, and containers), papers (such as newspapers, magazines, and junk mails), aluminum (such as food cans, drink cans, and foil cardboards), glass (bottles, jars, and old mirrors), organic waste (such as food waste, green/biological waste, and garden/yard waste), textile (such as old baby clothes, preloved clothing, and fabric retailer's textile waste). Plastic containers are often reused for other purposes, for example for keeping dried cooking ingredients. Papers are reused for wrappers, artworks or to light the fire. Aluminum cans and glass jars are often recycled at the recycling facilities. Organic wastes are often composed for fertilizers. Textile wastes from households are reused in new homes (for example for newborn babies), and textile wastes from fabric retailers (such as AKEMI Malaysia, H&M Malaysia, and Uniqlo Malaysia) are reused for making new products (such as blankets, bedsheets, and soft toys). The recyclables from the recycling facilities are then reused and recycled by manufacturers, social enterprises and individuals for other purposes. For example, Kloth Malaysia recycles textile wastes for industrial wiping cloths, face masks, upcycled *Raya* pouches, multi pocket organizers, denim cable holders, and denim frayed pouches. Additionally, Kloth Malaysia recycles plastic bottles and aluminum cans into plastic straps, polyester stuffing, garments and plastic bottles (Kloth Malaysia, 2021). On the other hand, the collaboration of The Sea Monkey Project, Heng Hiap Industries and Kian Furniture recycled ocean bound

plastic materials (in Malaysia's Tioman Island) into furniture (Kian Furniture, 2020). A government agency, Malaysian Agricultural Research and Development Institute (MARDI) in Serdang Selangor Malaysia composts yard wastes for agricultural use (Rahman et al., 2020). The recycling facilities available in the community and community-based recycling programs paired with governmental and industrial buy-in in reusing recyclables for other purposes are slowly closing the cycle between reduce, reuse, and recycle.

Previous studies in Northern Ireland (D'Elia, 2008), Minnesota (Sidique et al., 2010), Thailand (Ittiravivongs, 2011) and Malaysia (Mahat et al., 2015) have found that some of the main factors influencing EEB are social factors such as convenience, comfort and accessibility to relevant facilities. The researchers stated that recycling facilities and services are important and effective in increasing the recycling rate, including curbside recycling services and drop-off centers. They stressed that attention should be paid to the service accessibility and standard of disposal containers. They explained that the facilities and services should be convenient and easy to access. Otherwise, the insufficiency and inadequacy of the recycling support systems could reduce people's willingness to participate in recycling activities, as well as obstruct their actual recycling behavior. Besides the support of facilities and services, the researchers found that green campaigns that focus more on general environmental threats, rather than specifically on waste, could be more effective in enhancing household recycling rates. In addition, they also found that improvements in the structural and promotional aspects of recycling systems were more helpful to boost recycling rates compared to financial penalties or rewards. Other researchers found that another example of a social factor that accelerates EEB is the role of mass media. Previous studies in Malaysia by Ahmad et al. (2011) and Ahmad (2012) found that the role of mass media, especially television, in promoting such campaigns can boost the environmental awareness of citizens and, at the same time, attract community members to participate in reducing, reusing and recycling activities. Zareie & Navimipour (2016) who studied the students of Tabriz Branch, Islamic Azad University in Iran further explained that environmental knowledge obtained from exposure to media information on the environment can change an individual's attitude and behavior towards the environment. Furthermore, Ali et al. (2012) who studied households in the cities of Bandar Baru Bangi and Kajang (located in the state of Selangor Malaysia) and Hosta & Zabkar (2020) who studied consumers of a developed Central European country found that environmental education could be identified as an important aspect in order to achieve a sustainable life. They added that individuals who have environmental awareness and environmental education will ask other individuals to participate in green activities and influence people to recycle due to the surrounding community members having positive attitudes towards recycling.

The literature reviewed indicates that many of the previous studies examined the perceptions and practices of solid waste recycling, but very few of them in-

vestigated the variables that influenced environmentally ethical behavior in terms of pre-cycling, reusing and recycling in one study. Hence, in the literature reviewed, thus far, many studies were conducted on the influencing factors related to one part of EEB, such as recycling, but only a few studies focused on all three parts (namely pre-cycling, reusing and recycling) of EEB in one study. Hence, this study addresses this gap in exploring the social and religious factors that influence all three of the EEB components, in particular, on the Muslim community's EEB as they represent the majority of the population in Malaysia. Therefore, it is important to investigate the influence of social (namely family, friends, neighbors, co-workers, television programs or advertisements) and religious (namely, *imam*, *ustaz* or other religious figures) factors on the environmentally ethical behavior (namely pre-cycling, reusing and recycling) of the Muslim community in Malaysia.

2. Materials and Methods

This section presents the data collection and analysis methods, namely the research design, questionnaire, sample and profile of respondents, and the reliability and validity of the items and scales/constructs used.

2.1. Research Design, Questionnaire, Sample, Profile of Respondents

A cross-sectional survey was conducted in which the data in a population were collected only at one point of time for the same respondents (Wang & Cheng 2020). The questionnaire consisted of three sections, as follows: Section A—Pre-Cycling; Section B—Reusing and Recycling; and Section C—Household Information. Every item for Section A and Section B contained two measured scales/constructs: first, EEB, i.e., pre-cycling, reusing and recycling activities, and second, the influential factors, i.e., social and religious factors. A Likert scale from 0 to 4 measured the strength of responses, where 0 = "strongly disagree", 1 = "disagree", 2 = "somewhat agree", 3 = "agree", 4 = "strongly agree". Section C included open-ended questions regarding respondents' backgrounds, such as gender, age, marital status, highest education level, monthly income and house ownership status. This section also measured work involvement with the environment, using a Likert scale from 0 to 4, where 0 = "no direct involvement", 1 = "a little direct involvement", 2 = "some direct involvement", 3 = "strong direct involvement" and 4 = "very strong direct involvement". At the end of the questionnaire, a space was provided allowing respondents to leave their comments or insights regarding environmentally ethical behavior issues. The questionnaire items for EEB (pre-cycling, and reusing and recycling) scales/constructs and the questionnaire items for influential factor (social factors and religious factors) scales/constructs are presented in Table 1. Additionally, Table 1 presented types of items people recycle, for example, household organic waste, food cans, drink cans, aluminum foil, and glass bottles/jars.

Table 1. Questionnaire items per scale/construct.

Scale/Construct		Questionnaire Item
Environmentally Ethical Behavior (EEB)	Pre-cycling	1) Shop at a flea market or a second-hand shop for my household.
		2) Buy refillable items for my household such as pens, perfumes or dishwasher liquids.
		3) Buy fruits and vegetables loose, not packaged, or with as little packaging as possible.
		4) Use my own bag when going shopping, rather than one provided by the shop.
		5) Buy products because either the products or their packaging can be used again, rather than those that can only be used once.
		6) Buy products with the phrase "environmentally friendly" on the label.
		7) Buy canned drinks or glass-bottled drinks, rather than plastic-bottled drinks.
		8) Buy a bulky pack rather than a small pack for products that my household consumes in quantity.
		9) Minimize waste by using every bit of the food that I prepare for my family and throwing away as little as possible.
		10) Buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies.
	Reusing and recycling	1) Try to get something repaired rather than buying a new one.
		2) Take old recyclable items to a recycling center.
		3) Sort out my household waste according to whether or not it is recyclable.
		4) Reuse paper, cardboard, junk mail, magazines or newspapers for other purposes, such as wrappers, artworks or to light the fire.
		5) Feed animals such as my pets, livestock, wild birds, stray cats and so forth with my household organic waste.
		6) Compost my household organic waste.
		7) Freeze food leftovers for another meal, or unexpected guests.
		8) Reuse plastic items such as bottles, bags, containers and so forth.
		9) Recycle food cans, drink cans or foil.
		10) Reuse textile such as old baby clothes for a new baby.
		11) Recycle or reuse glass bottles or jars.
Influential factors	Social factor	Family, friends, neighbors, co-workers, television programs or advertisements (21 items, i.e., 1 item per each of the pre-cycling, and reusing and recycling items).
	Religious factor	*Imam*[1], *ustaz*[1] or other religious figures (21 items, i.e., 1 item per each of the pre-cycling, and reusing and recycling items).

[1]Islamic leadership position and Muslim scholar, respectively.

Of the total 20,389,632 Muslims among 16 states in Malaysia, questionnaires were distributed to 4660 of them, all aged 20 and above, and 3822 of them responded, with a response rate of 82.0%. They were selected through stratified random sampling. Table 2 illustrates the sample collected using stratified random sampling. The sample size was calculated using the G*Power 3.1.9.7 application (Faul et al., 2007). This study had a statistical power of 0.95 and a small size effect of $f = 0.15$ for age, gender, marital status, education level and monthly income at a significance level of $p < 0.01$, which required a minimum sample of 3172 respondents. Hence, this study involved 3822 respondents.

The age of respondents ranged between 20 and 79 years old and above, most of them were female, and the majority of respondents were married. For the majority of them, their highest education level was at the level of the Malaysian Certificate of Education (SPM/MCE), and they had an income between RM1001 and RM2500 a month, although the majority of them did not state their income.

Table 2. Sample size of Muslim respondents against Muslim population by states in Malaysia.

State	Muslim Sample Size (n/%)	Muslim Population (N/%)[2]
1) Selangor	212/5.6%	3,887,104/19.0%
2) Johor	200/5.2%	2,123,328/10.4%
3) Sabah	240/6.3%	1,956,002/9.6%
4) Kelantan	349/9.1%	1,753,984/8.6%
5) Kedah	283/7.4%	1,705,280/8.4%
6) Perak	170/4.4%	1,403,264/6.9%
7) Pahang	260/6.8%	1,333,888/6.5%
8) Terengganu	328/8.6%	1,208,320/5.9%
9) Sarawak	114/3.0%	1,052,672/5.2%
10) W.P. Kuala Lumpur[1]	170/4.4%	909,632/4.5%
11) Pulau Pinang	170/4.4%	750,336/3.7%
12) Negeri Sembilan	150/4.0%	678,848/3.3%
13) Melaka	240/6.3%	545,728/2.7%
14) Perlis	323/8.5%	227,392/1.1%
15) W.P. Labuan[1]	268/7.0%	116,928/0.6%
16) W.P. Putrajaya[1]	345/9.0%	100,672/0.5%
Not specified	-	636,254/3.1%
Total	**3822/100.0%**	**20,389,632/100.0%**

[1]Federal territorial state; [2]Source: Wikipedia (2021).

Most of them owned outright their dwellings, and their jobs had some direct involvement with the environment. Majority of respondents were government servants such as teachers, lecturers, doctors, nurses, pharmacists, firemen, policemen, and engineers. Other respondents were from the private sectors such as contractors, operators, mechanics, human resource officers, and helpers. Other occupations were self-employment and students. Reduce, reuse and recycle (3R) and lean management with 5S (sort; set in order; shine, standardize; and sustain) programs are actively carried out in offices of government agencies as instructed by the respective government authorities (Zain et al., 2013). Private sectors are also conducting environmental programs such as 3R, 5S and 5R (reduce; reuse; repair; rot; and recycle) as part of their corporate social responsibility (CSR) program which is eligible for tax incentives (Hoong, 2022). Hence, most of the respondents reported some direct involvement and strong direct involvement with the environment. A summary of the respondents' profiles is presented in Table 3.

Data were analyzed using descriptive analysis, namely mean and standard deviation. Descriptive analysis is typically used to assess the mean value, while standard deviation is used to identify the most influential factor. The data were also analyzed using Pearson correlation in order to investigate the significance, direction and the strength of the relationship between social and religious factors and EEB (pre-cycling, reusing and recycling).

2.2. Reliability and Validity

The reliability and validity of 63 survey items with 5 scales each were tested. The Cronbach's alpha value for the pre-cycling factor was 0.813 (social factor was 0.872 and religious factor was 0.920); that for the reusing and recycling factor was 0.863 (social factor was 0.896 and religious factor was 0.927). The result of the reliability analysis illustrated that the Cronbach's alpha value was high, which means that the consistency among items in the research instruments was high. The high value of Cronbach's alpha means that the social and religious factors were reliable and the items were well understood by respondents (Table 4).

A test of validity was conducted to identify whether the items measured what they were supposed to measure. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) for the items greater than 0.7 (i.e., 0.802) indicated that a set of variables in the correlation matrix was sufficiently high and suitable for factor analysis (Guad et al., 2021). Furthermore, the significance value was less than 0.01, which demonstrates that the factor analysis was significant with the data (Table 5).

The results from the factor analysis, as presented in Table 6, indicated that the items in each of the scales/constructs were loaded into two significant factors, which means that all items in each of the scales/constructs were loaded above 0.30 and each item in each of the scales/constructs was loaded with its proposed scales/constructs. The pre-cycling and reusing and recycling behavior were identified as Factor 4 and Factor 3, respectively, and social and religious factors were identified as Factor 2 and Factor 1, respectively.

Table 3. The demographic profile of respondents.

Demographic characteristics		Sample (n/%)
Age	20 - 29	1927/50.4%
	30 - 39	923/24.1%
	40 - 49	455/11.9%
	50 - 59	212/5.5%
	60 - 69	60/1.6%
	70-above	11/0.3%
	Not specified	234/6.2%
	Total	**3822/100.0%**
Gender	Male	1672/43.7%
	Female	1907/49.9%
	Not specified	243/6.4%
	Total	**3822/100.0%**
Marital status	Single	1571/41.1%
	Married	1831/47.9%
	Separated/divorced	59/1.5%
	Not specified	361/9.5%
	Total	**3822/100.0%**
Highest education level	Primary	42/1.1%
	Lower Certificate of Education (PMR/LCE)	105/2.7%
	Malaysian Certificate of Education (SPM/MCE)	1203/31.5%
	Certificate	315/8.2%
	Diploma	601/15.7%
	Degree	812/21.2%
	Master's degree	110/2.9%
	PhD	37/1.0%
	Not specified	597/15.7%
	Total	**3822/100.0%**

Continued

	Government Servant	1875/49.1%
	Private Sector	612/16.0%
Occupation	Self-employment	536/14.0%
	Students	413/10.1%
	Not specified	386/10.8%
	Total	**3822/100.0%**
	None	227/5.9%
	<RM1000	560/14.7%
	RM1001 - RM2500	1000/26.2%
Monthly income	RM2501 - RM5000	590/15.4%
	>RM5001	138/3.6%
	Not specified	1307/34.2%
	Total	**3822/100.0%**
	Own outright	1553/40.6%
	Own, paying off mortgage	136/3.6%
	Rent from private landlord	1148/30.0%
Status of house ownership	Rent from public housing authority	239/6.3%
	Family owned	372/9.7%
	Not specified	374/9.8%
	Total	**3822/100.0%**
	No direct involvement	266/7.0%
	A little direct involvement	430/11.3%
	Some direct involvement	1094/28.6%
Level of work involvement with the environment	Strong direct involvement	1084/28.4%
	Very strong direct involvement	386/10.1%
	Not specified	562/14.6%
	Total	**3822/100.0%**

Table 4. Cronbach's alpha value and mean scores of scales/constructs' reliability.

Scale/Construct	Number of items	Mean (M)[1]	Cronbach's alpha
Pre-cycling	10	2.643	0.813
Social factor	10	2.885	0.872
Religious factor	10	2.505	0.920
Reusing and recycling	11	2.706	0.863
Social factor	11	2.894	0.896
Religious factor	11	2.566	0.927

[1]Mean: 0.00 - 0.49 lowest, 0.50 - 1.49 fairly low, 1.50 - 2.49 moderate, 2.50 - 3.49 high and 3.50 - 4.00 highest.

Table 5. Kaiser-Meyer-Olkin (KMO) value of sampling adequacy.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**0.802**
	Approx. Chi-Square	21884.986
Bartlett's Test of Sphericity	df	45
	Sig.	0.000

Table 6. Scales/constructs' factor loading of validity test.

Scale/Construct		Factor loading			
		1	2	3	4
Pre-cycling	Social factor		0.839		0.923
	Religious factor	0.861			
Reusing and recycling	Social factor		0.759	0.902	
	Religious factor	0.809			

3. Results

This section presents the results of this study in two parts. The first part is the results of the descriptive analysis of the mean score on the tendency of the respondents towards performing EEB, i.e., pre-cycling, reusing and recycling activities, as well as on the ranking of the influential factors, i.e., social and religious factors. The second part is the results of the Pearson correlation analysis on the relationship between social and religious factors and EEB.

3.1. Results of Descriptive Analysis of Mean Score and Standard Deviation Value

Descriptive analysis was conducted to identify the mean score and standard deviation value in order to discover the tendency among respondents to partici-

pate in EEB, i.e., pre-cycling, reusing and recycling activities.

Table 7 illustrates the items that measured the pre-cycling, reusing and recycling behaviors (as EEB scales/constructs) and the mean scores, as well as the standard deviation values of the EEB scales/constructs, respectively. In this paper, social factors include family, friends, colleagues and neighbors who adopt environmentally friendly activities, as well as television programs and advertisements related to the environment, while the religious factor refers to religious leaders such as *imam*, *ustaz* and scholars who associate their religious values with the environment in their talks and sermons in the mosques, religious centers and other religious events.

Table 7. Mean scores and standard deviations of environmentally ethical behavior (EEB) scales/constructs.

Environmentally Ethical Behavior (EEB) Scales/Constructs	Mean (M)[1]	Standard Deviation (SD)
Pre-Cycling	2.74	±0.563

1) Shop at a flea market or a second-hand shop for my household.

2) Buy refillable items for my household, such as pens, perfumes or dishwasher liquids.

3) Buy fruits and vegetables loose, not packaged, or with as little packaging as possible.

4) Use my own bag when going shopping, rather than one provided by the shop.

5) Buy products because either the products or their packaging can be used again, rather than those that can only be used once.

6) Buy products with the phrase "environmentally friendly" on the label.

7) Buy canned drinks or glass-bottled drinks, rather than plastic-bottled drinks.

8) Buy a bulky pack rather than a small pack for products that my household consumes in quantity.

9) Minimize waste by using every bit of the food that I prepare for my family and throwing away as little as possible.

10) Buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies.

Reusing and Recycling	2.73	±0.596

1) Try to get something repaired rather than buying a new one.

2) Take old recyclable items to a recycling center.

3) Sort out my household waste according to whether or not it is recyclable.

4) Reuse paper, cardboard, junk mail, magazines or newspapers for other purposes, such as wrappers, artworks or to light the fire.

5) Feed animals such as my pets, livestock, wild birds, stray cats and so forth with my household organic waste.

6) Compost my household organic waste.

7) Freeze food leftovers for another meal, or unexpected guests.

8) Reuse plastic items such as bottles, bags, containers and so forth.

9) Recycle food cans, drink cans or foil.

10) Reuse textile such as old baby clothes for a new baby.

11) Recycle or reuse glass bottles or jars.

[1]Mean: 0.00 - 0.49 lowest, 0.50 - 1.49 fairly low, 1.50 - 2.49 moderate, 2.50 - 3.49 high and 3.50 - 4.00 highest.

From the results of the mean scores for both EEB scales/constructs presented in Table 7, i.e., pre-cycling and reusing and recycling, the tendency of respondents very slightly leaned towards performing pre-cycling activities more, with a mean score of 2.74, as compared to reusing and recycling activities, with a mean score of 2.73. However, overall, the respondents performed EEB at a high rate. Additionally, from the standard deviation values of pre-cycling and reusing and recycling scales/constructs, the respondents were slightly more consistent with performing pre-cycling activities, with a standard deviation value of ±0.563, as compared to performing reusing and recycling activities, with a standard deviation value of ±0.596.

3.2. Results of the Pearson Correlation Analysis

The data were analyzed with Pearson correlation to investigate the relationship between social and religious factors and EEB in terms of the significance, direction and strength of the relationship, as well as to determine the most influential factor (social and religious factors) from the perspectives of the respondents.

The interpretation of the means is as follows: mean values of 0.00 - 0.49 were classified as the lowest, 0.50 - 1.49 were fairly low, 1.50 - 2.49 were moderate, 2.50 - 3.49 were high and 3.50 - 4.00 were the highest. The interpretation of the correlations is as follows: $r = 0.01 - 0.19$ was considered the smallest/very weak, $r = 0.20 - 0.39$ was small/weak, $r = 0.40 - 0.59$ was medium/moderate, $r = 0.60 - 0.79$ was large/strong and $r = 0.80 - 0.100$ was the largest/strongest (Laeheem, 2014).

From the results of the mean scores for both influential factors' scales/constructs presented in Table 8, i.e., social factors and religious factors, respondents reported to be influenced more by the social factors, with a mean score of 2.88, as compared to the religious factors, with a mean score of 2.53, in performing their EEB. However, overall, the respondents reported to be highly influenced by both the social and the religious factors in performing their EEB. Additionally, from the standard deviation values of the social factors and religious factors, the respondents were more consistently influenced by the social factors, with a standard deviation value of 0.683, as compared to the religious factors, with a standard deviation value of 0.771, in performing their EEB.

Table 8. Correlations between influential factors and environmentally ethical behavior (EEB).

| Influential Factor | Environmentally Ethical Behavior (EEB) | | | | |
	Mean (M)[1]	Standard Deviation (SD)	r	p value	Magnitude
Social factor	2.88	0.683	0.453	0.000	Medium/Moderate
Religious factor	2.53	0.771	0.395	0.000	Small/Weak

[1]Mean: 0.00 - 0.49 lowest, 0.50 - 1.49 fairly low, 1.50 - 2.49 moderate, 2.50 - 3.49 high and 3.50 - 4.00 highest.

The results presented in Table 8 illustrate that there was statistically significant correlation between social factors (r = 0.453, $p < 0.01$) and EEB (pre-cycling, reusing and recycling). The results also illustrate a statistically significant correlation between religious factors (r= 0.395, $p < 0.01$) and EEB. Additionally, the positive r values indicate that the relationships between the influential factors (social factors and religious factors) and EEB were positive, which means the higher the influence of the social and religious factors, the higher the EEB performance by the respondents, and the lower the influence of the social and religious factors, the lower the EEB performance by the respondents. The r value of 0.453 illustrates a medium or moderately positive linear relationship between the social factors and EEB, while the r value of 0.395 illustrates a small or weakly positive linear relationship between the religious factors and EEB. The r value of the social factors, at 0.453 (medium/moderate), was much higher than the r value of the religious factors, which was 0.395 (small/weak). Hence, the results indicate that social factors were reported by the majority of respondents as the factors that more strongly influenced them to take part in pre-cycling, reusing and recycling activities as compared to religious factors.

4. Discussion

Table 8 illustrates that there was a statistically significant correlation between social factors (r = 0.453, $p < 0.01$) and EEB (pre-cycling, reusing and recycling). Hence, the influence of social factors (such as family, friends, neighbors, co-workers, television programs or advertisements) on Muslim respondents' EEB in Malaysia was statistically significant, although the strength of the influence was at a moderate level. Additionally, the direction of the influence of social factors was positive, meaning that the greater the influence of social factors on Muslim respondents, the higher their EEB performance.

The results also demonstrated a statistically significant correlation between religious factors (r = 0.395, $p < 0.01$) and EEB, i.e., pre-cycling, reusing and recycling (Table 8). Thus, the influence of religious factors (such as *iman*, *ustaz* or other religious figures) on the EEB of Muslim respondents in Malaysia was statistically significant, although the strength of the influence was at a weak level. Furthermore, the direction of the influence of religious factors was positive, meaning that the greater the influence of religious factors on Muslim respondents, the higher their EEB performance. These results were supported by previous literature indicating that religious factors are quite essential in intrinsically motivating people towards practicing EEB.

Previous researchers found that some parents were involved in pre-cycling, reusing and recycling activities because of encouragement from their family members, such as their children (Omran & Mahmood, 2009). EEB such as pre-cycling—in particular, purchasing behavior by consumers—was found by previous researchers to be influenced by individuals' family members, close friends and other people in their community who performed such behaviors (Kim, 2019).

According to previous researchers, people were more likely to intend to recycle when their societies had positive attitudes towards recycling. People might also hesitate to take part in recycling activities if they feel that recycling is an irregular practice in their participating societies (Ittiravivongs, 2011). Many previous researchers agreed that cultural values and norms are highly correlated with environmental attitudes and play a very important role in shaping people's behavior (Ahmad et al., 2011; Ahmad, 2012; Ali et al., 2012; Zareie & Navimipour, 2016; Hosta & Zabkar, 2020; Samarasinghe, 2012; Kollmuss & Agyeman, 2002). Previous researchers also discovered that educators such as teachers have an important role as a change agent in encouraging EEB practices, not only among their students but also in the community (Mahat et al., 2015). They discovered that educating a community on recycling is an effective method to improve the recycling rate (Sidique et al., 2010). They further explained that some form of environmental knowledge can change people's attitudes and behavior towards the environment (Ahmad, 2012). Many researchers identified that environmental knowledge, environmental attitudes and environmental concerns have significant influences on green consumer behavior intention (Ooi et al., 2012; Sinnappan & Rahman, 2011; Samarasinghe, 2012; Anvar & Venter, 2014). Hence, environmental education among the public is essential in order to create sustainable quality of life (Ahmad, 2012; Ali et al., 2012).

Many previous researchers also found that recycling facilities and services, such as curbside recycling services and drop-off centers, are effective in influencing the participation of societies in recycling activities and simultaneously increasing the rate of recycling (D'Elia, 2008; Sidique et al., 2010; Ittiravivongs, 2011; Kollmuss & Agyeman, 2002). Other researchers observed that the improvement of these recycling support systems should be expressly prioritized by the government as the insufficiency and inferiority of the system could largely reduce communities' willingness to recycle, as well as hindering their actual recycling behavior (D'Elia, 2008; Sidique et al., 2010; Ittiravivongs, 2011; Mahat et al., 2015).

Other researchers also discovered that pro-environmental behaviors can be accelerated if the necessary facilities and infrastructures are provided (Kollmuss & Agyeman, 2002). According to the researchers, in this case, the government has its own role to play in order to increase the participation level among community members in pre-cycling, reusing and recycling activities. The researchers observed that the facilities and services provided by the government should be easily accessible (Ooi et al., 2012; Sinnappan & Rahman, 2011).

Besides the social factor, previous researchers indicated that religious factors also influenced EEB. A search of the literature found few studies on the influence of religious factors such as religious values in relation to EEB. The religious factor seems to be significantly related to recycling behavior and statistically linked with reasons for which respondents recycle. Previous researchers found that Muslim and Christian respondents recycle more than those who do not attend

any function in a mosque or church (Felix et al., 2013). The researchers explained that, according to Muslim respondents, recycling is one way to worship Allah, since cleanliness is a part of faith in Islam and it is an inseparable part of the Muslim's life. Moreover, they found that Muslim respondents justified their action of recycling by stating that a good Muslim will not waste his wealth through extravagant spending, as Islam recommends moderation (Kadikon & Othman, 2010; Ahmad, 2020; Khan & Kirmani, 2018).

Previous researchers also found that religious teachings and religiosity are related to pro-environmental behavior (Rice, 2006). According to past researchers, religion is linked statistically with reasons for which individuals begin recycling (Felix et al., 2013) and seems to be significantly related to recycling behavior (D'Elia, 2008). Another researcher argued that religions are becoming more environmentally friendly (Taylor, 2016). However, a recent researcher found mixed results on the influence of a religious factor on consumers' EEB. On one hand, consumers' religiousness influences their motivation, commitment and love for nature. However, on the other hand, another factor, i.e., an economic factor strongly mediated the influence of a religious factor in that consumers with high intrinsic and extrinsic religiousness were more likely to be motivated by economic factors, and being religious does not make consumers more environmentally friendly (Arli et al., 2021).

Studies by past researchers also discovered that Muslim respondents recycle more because of their own awareness about the importance of recycling (Felix et al., 2013). Moreover, there is a strong pro-environmental principle in Islamic teachings (Rice, 2006). A previous study on Muslim consumers in Malaysia and Indonesia found that religious values have a positive impact on natural environmental orientation, environmental concerns, green purchase attitudes and green purchase intentions (Ghazali et al., 2018). An early review by a past researcher on the involvement of Islamic religious leaders in Malaysia concluded that the participation of religious leaders in environmental causes was visible but efforts to enhance their participation should be further explored (Sobian, 2012).

Past researchers explained that individuals practice EEB, i.e., pre-cycling, reusing and recycling, because they perceive that such activities can be considered an act of worship, as these activities may result in avoiding harm to others, avoiding waste, helping to sustain the environment for future generations and conserving natural resources to maintain a green and healthy environment (Felix et al., 2013; Kadikon & Othman, 2010; Ahmad, 2020; Khan & Kirmani, 2018).

Therefore, a recent study proposed that the Malaysian government should integrate the element of religion into environmental policies, and major institutions such as education and media should use religion as an element to enhance EEB (Abdullah & Keshminder, 2020). Additionally, another recent study found that Islamic values positively moderated the relationships between environmental education and ecologically friendly behavior, as well as between environmental education and environmental responsibility (Begum et al., 2021).

In comparison, the Muslim respondents in Malaysia were more influenced by the social factors than the religious factors. Previous researchers explained that this is due to the religious leaders or figures expressing generic concerns towards the environment in their religious teachings, talks, sermons and preaches on the environment, instead of specific ones (Oom Do Valle et al., 2005; Kalland, 2002; Thogersen, 2000). Hence, Muslim respondents did not immediately recognize their EEB as being influenced by religious teachings, but further probing may have caused them to realize that they were intrinsically influenced by their religious teachings beyond the influence of the teachings of their religious leaders or figures. On another note, Muslim respondents performed slightly more pre-cycling activities as compared to reusing and recycling activities, despite the fact that the environmental campaigns of the government and non-governmental organizations in Malaysia are often focused on recycling as compared to pre-cycling (such as reducing waste) (Yusoff & Amuni, 2021). This is a good sign for the future of environmental well-being as prevention is always better than a cure.

5. Conclusion

Social factors clearly had a strong correlation in explaining the key factor for Muslims performing environmentally ethical behavior compared to religious factors. The findings presented in this paper identify a number of ethical issues pertaining to social and religious factors in environmental practices among the Muslim community. Hence, further research should be conducted on ethical issues pertaining to other factors, such as economic and political factors, faced by Muslims when managing waste. Additionally, other types of social factors, besides family, friends, neighbors, co-workers, television programs and advertisements, and other types of religious factors besides *iman*, *ustaz* and other religious figures, that may influence the environmentally ethical behavior of Muslims should be studied in future research.

Fund

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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