

Cultural Differences on Recycling Behavior Based on Gender and Ethnicity in Malaysia

Saodah Wok* and Wan Fatin Munira

**Department of Communication, Kulliyyah of Islamic, Revealed Knowledge and Human Sciences (KIRKHS), International Islamic University Malaysia (IIUM), Jalan Gombak, Kuala Lumpur, Malaysia*

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1. INTRODUCTION

Malaysia is a multiracial country, composed of Malays (67%), Chinese (26%), Indians (7%) and others [1]. Countrymeter cites that the population of 31,136,183 million (2017) is distributed equally between males and females with 15,788,409 males (50.7%) and 15,347,775 females (49.3%) [2]. The different ethnicities can practice their own religions even though Malaysia is an Islamic country with both its King and elected Prime Minister being Muslims. Each religion has its own beliefs, cultures and traditions. All religions encourage its worshippers and believers to practice cleanliness. One of the ways is to practice recycling.

In 1993, the Government of Malaysia launched its first series of recycling programs and declared November 11 as its National Recycling Day in Malaysia, despite successive campaigns to recycle through publicity and promotional media and methods, yet public response to the programs has been disappointing as they fail to educate, create awareness and motivate the community to respond to it positively [3]. In Malaysia, solid wastes and compositions continue to increase from the high consumption of a high-density population, quick urbanization and development. Solid waste increases from 19,100 tons daily in 2006 to 33,000 tons daily in 2012. Malaysia targets a 22% recycling rate by 2020 but the recycling rate is only at 9% in 2012 [4].

Most literature finds that females tend to recycle more than males [5-9]. But little is known pertaining to the practice of the different races in a multiracial country like Malaysia except for studies by Meen-Chee, Narayanan, Omran, Mutang and Haron [7,8,10]. Is there a difference between males and females in terms of recycling practices? Are there differences among the ethnicities in their recycling behavior and is there an interaction effect of gender and ethnicity?

In addition, the perception of cleanliness-related issues has had some impact on their recycling behavior. Therefore, is there is a relationship between perceived cleanliness-related issues and the recycling behavior? These questions lead to the objectives of the study.

The objectives of the study are: (1) to determine the relationship between perceived cleanliness-related issues and the recycling behavior; (2) to compare the differences among gender groups (males and females) and among ethnicities (Malays, Chinese and Indians) on the recycling behavior; and (3) to predict the impact of the interaction effect of gender and ethnicity on the relationship between perceived cleanliness-related issues and the recycling practice.

2. LITERATURE REVIEW

2.1. The Social Learning Theory and the Recycling Culture

In his Social Learning Theory, Bandura [11] argues that the individual learns from the environment and the behavior of others through observational learning. An individual that is being observed is called a model that sets examples of behavior for the observers to learn. After some time, the observers may copy such behavior [12]. If a person imitates the behavior of a model and receives a pleasant reward, he/she is likely to continue with the behavior. Furthermore, if a person sees another individual practicing good behavior and is being rewarded, it is more likely that he/she will repeat such a behavior. In other words, this behavior has been reinforced (strengthened).

Corresponding author: Saodah Wok, Department of Communication, Kulliyyah of Islamic, Revealed Knowledge and Human Sciences (KIRKHS), International Islamic University Malaysia (IIUM), Jalan Gombak, Kuala Lumpur, Malaysia, Zip Code: 53100, Tel: 0361965112; E-mail: wsadadah@iiu.edu.my

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Building on Bandura's Social Learning Theory, it can be expected that youths are exposed to recycling activities and information, and are rewarded for such good habits and they will feel good doing it. Thus, the likelihood of recycling and encouraging others to do so is also high. Moreover, if youths see that the Malaysian government is serious about recycling issues and campaigns, they will feel and think that they should be concerned about it too.

In a family, the mother is the first person who can be considered as the model at home, especially in recycling. As such, youths tend to follow their mothers' good habits in practicing cleanliness through recycling.

2.2. Cleanliness and Recycling

Cleanliness is essential to any religion. The Islamic concept of cleanliness consists of two aspects: physical and spiritual. As far as physical cleanliness is concerned, it is related to the human body and the environment. Hence, it is important for human beings to have clean souls and to lead a clean lifestyle.

In general, recycling is defined as a process through which used materials are collected, processed, and remanufactured and reused [13]. Recycling has been an important aspect of an effective and efficient solid waste management system. Recycling indirectly contributes to environmental cleanliness as the process of recycling household wastes promotes organization in the human lifestyle. A clean environment can be achieved by mass recycling efforts among the public.

The most common forms of recycling household waste are associated with materials such as paper, plastics, glass and metal. In 1978, the plastic bottle was introduced nationwide and consumers have increasingly embraced plastic packaging, making plastics among the largest household waste material [14]. The burial of waste is not a solution due to environmental consequences. Thus, widespread recycling of waste is of crucial importance.

The benefits of recycling are not limited to the environment but also its impact on citizens. Waste management is one of the fastest developing industries and has created job opportunities and economic savings. In Asia, solid waste generation and management are becoming a major social and environmental issue due to the rapid economic growth and urbanization. The generation of waste gradually increases every year but recycling keeps on moving forward by increasing the percentage of total waste being recycled [15]. However, the rate at which waste is generated is higher than the amount it is recovered. Hence, recycling remains today an important global issue. The onus is on the individuals, may they be males or females, or of different

ethnicities to recycle in helping to clean the environment and to experience healthy living. Therefore, it is postulated that there is a positive relationship between cleanliness-related issues and the recycling behavior (H1).

2.3. Gender and Recycling

Many studies find that women tend to show more concern about environmental issues, especially those related to household-oriented issues than men who are more concerned with the community/society-oriented pro-environmental behavior [5-9]. Zelezny, Chua and Aldrich report a higher environmental behavior for women than for men [9]. In Hong Kong female adolescents score higher than males in terms of issues pertaining to the environmental concern [6]. Specifically, Mutang and Haron find a slightly higher percentage of females who recycle than males [7]. This is because recycling is part of domestic chores, and that they should be undertaken by females, especially in the Asian countries. Malaysia is no exception. Females are labeled as homemakers and most of the house works are entrusted to them. Hence, we postulate that gender moderates the relationship between cleanliness-related issues and the recycling behavior. Specifically, H2 states that females recycle more than males.

2.4. Ethnicity and Recycling

Malaysia being a multi-racial country encourages its populace to recycle waste products as the government has launched recycling campaigns several times. Unfortunately, not much change has taken place. Studies by Meen-Chee and Narayanan find that in Penang, the Chinese tend to recycle more than the Malays [10]. Most of the city dwellers in Penang are Chinese and they do not want their city to be dirty. This could be the reason the Chinese recycle more than the Malays. The Indians and the Malays think that it is the responsibility of the Penang Municipal Council, not theirs. On the contrary, Mutang and Haron find that Malays tend to recycle more than either the Indians or the Chinese [7]. Such findings are like Omran's findings on the recycling of solid wastes [8]. On a similar note, this study predicts that the difference among the Malays, Indians and Chinese in their recycling behaviors and ethnicity moderates the relationship between cleanliness-related issues and the recycling behavior. Specifically, it is hypothesized that Malays tend to recycle more than either the Chinese or the Indians (H3).

2.5. Gender and Ethnicity on Recycling

An added value to this study is the interaction effect of the moderators: gender and ethnicity. Since there is no study to date that has come up with the interaction effect of gender and ethnicity, this study postulates that different gender and different ethnicity have different effects on the recycling

behavior. Such an interaction effect leads to H4: gender and ethnicity moderate the relationship between cleanliness-related issues and the recycling behavior. This is because the different races have their own beliefs, cultures and traditions in relation to recycling. Malays, for sure, expect their females to do the recycling based on their duty as housewives and the expectations of the family is that the mothers do all the domestic work from dawn to late night. The responsibility on recycling is given to the females especially the mothers. Following their mothers' practice, female youths tend to recycle more than male youths.

2.6. Hypotheses of the Study

Based on the theoretical framework of the study, the following hypotheses are formulated:

H1: There is a positive relationship between cleanliness-related issues and the recycling behavior among youths. H2: Gender moderates the relationship between cleanliness-related issues and the recycling behavior.

H3: Ethnicity moderates the relationship between cleanliness-related issues and the recycling behavior.

H4: Gender and ethnicity moderate the relationship between cleanliness-related issues and the recycling behavior.

3. METHODOLOGY

The study employs the quantitative research design using the survey questionnaire as its instrument for data collection. A total of 303 respondents are used in the analysis of the study. The study was conducted in October 2015 among youths in Kuala Lumpur using the simple random sampling technique. Cleanliness-related is measured against 10 items using a 5-point Likert scale where 1=strongly disagree, 2=disagree, 3=slightly agree, 4=agree, and 5=strongly agree. The example of such items is "Recycling is important to maintain cleanliness". The items are found to be reliable with Cronbach's alpha of 0.871. Similarly, the recycling behavior is also measured using a 5-point Likert scale where 1=strongly disagree, 2=disagree, 3=slightly agree, 4=agree, and 5=strongly agree. The recycling behavior scale is also reliable with Cronbach's alpha of 0.931. The items include "I separate the recycle waste at the designated place".

The collected data are analyzed using a General Linear Model for ANOVA to measure the gender and ethnicity interaction effect while controlling the relationship between cleanliness-related issues and the recycling behavior.

4. FINDINGS

The respondents of the study comprise 159 males and 144 females (**Table 1**). Most respondents are Malays (n=246), 25 Chinese and 32 Indians. The relationship between cleanliness-related issues with the recycling behavior is

significant $r=0.494$ ($p=.000$). Such a relationship is considered moderate positive. Therefore, H1 is supported. This means that there is a positive relationship between cleanliness-related issues and the recycling behavior.

Table 1. Descriptive statistics of recycling behavior by gender and ethnicity.

Gender	Ethnicity	Mean	Std. Deviation	N
Male	Malay	3.371	1.014	122
	Chinese	3.639	0.800	13
	Indian	2.842	0.914	24
	Total	3.313	1.001	159
Female	Malay	3.844	0.968	124
	Chinese	3.000	0.986	12
	Indian	4.238	0.602	8
	Total	3.795	0.982	144
Total	Malay	3.609	1.017	246
	Chinese	3.332	0.934	25
	Indian	3.191	1.038	32
	Total	3.542	1.019	303

When analyzed using the General Linear Model for the main and the interaction effects of gender and ethnicity on the relationship between cleanliness-related issues and the recycling behavior (**Table 2**), results show that the cleanliness-related issues can explained for 42.2% on the recycling behavior. Females ($M=3.795$, $SD=0.982$) recycle more than males ($M=3.313$, $SD=1.001$) and the difference is significant ($F=4.379$, $p=.037$) with a contribution of 1.5% on the recycling behavior. Therefore, H2 is supported.

In terms of ethnicity, the Malays ($M=3.609$, $SD=1.017$), Chinese ($M=3.332$, $SD=0.934$) and Indians ($M=3.191$, $SD=1.038$) are different in their recycling behavior and the differences are significant ($F=3.580$, $p=.029$) with a contribution of 2.4%. Therefore, H3 is supported.

The interaction effect of gender and ethnicity is also significant ($F=4.192$, $p=.037$) with a contribution of 2.8%. The explanation is further visualized in **Figure 1**. Results show that Malay females score higher than Malay males in their recycling behavior. Similarly, the Indian females score higher than the Indian males. On the contrary, Chinese males tend to recycle more than the Chinese females. The results reflect the culture of each ethnicity (race) in Malaysia. The Malays are Muslims; the Indians are Hindus while the Chinese are mostly Buddhists. In fact, all religions emphasize on cleanliness. However, Indian males tend to be the lowest in their recycling behavior. The results support

H4 where there is an interaction effect on gender and ethnicity (Figure 2).

Table 2. Main and interaction effects of gender and ethnicity on the relationship between the cleanliness-related issues and the recycling behavior.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	152.008 ^a	6	25.335	46.373	.000	.485
Intercept	2.627	1	2.627	4.808	.029	.016
Cleanliness	117.891	1	117.891	215.792	.000	.422
Gender	2.392	1	2.392	4.379	.037	.015
Ethnicity	3.912	2	1.956	3.580	.029	.024
Gender * Ethnicity	4.580	2	2.290	4.192	.016	.028
Error	161.711	296	.546			
Total	4115.610	303				
Corrected Total	313.719	302				

R Squared = .485 (Adjusted R Squared = .474)

Theoretical Framework

Based on the literature discussed, the theoretical framework is formulated as in Figure 1.

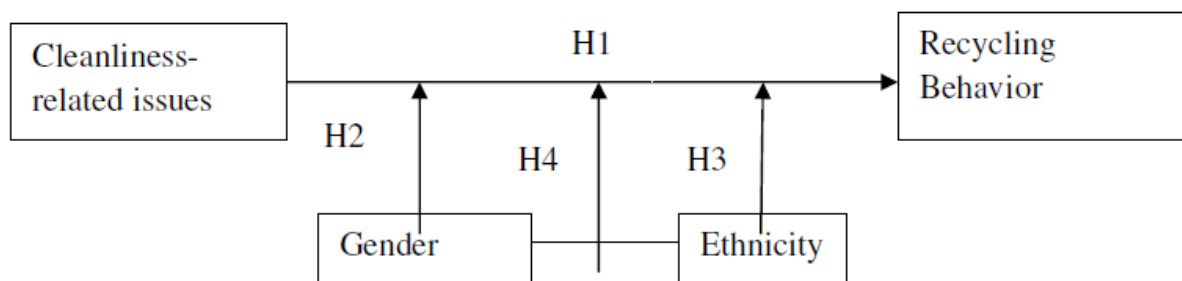


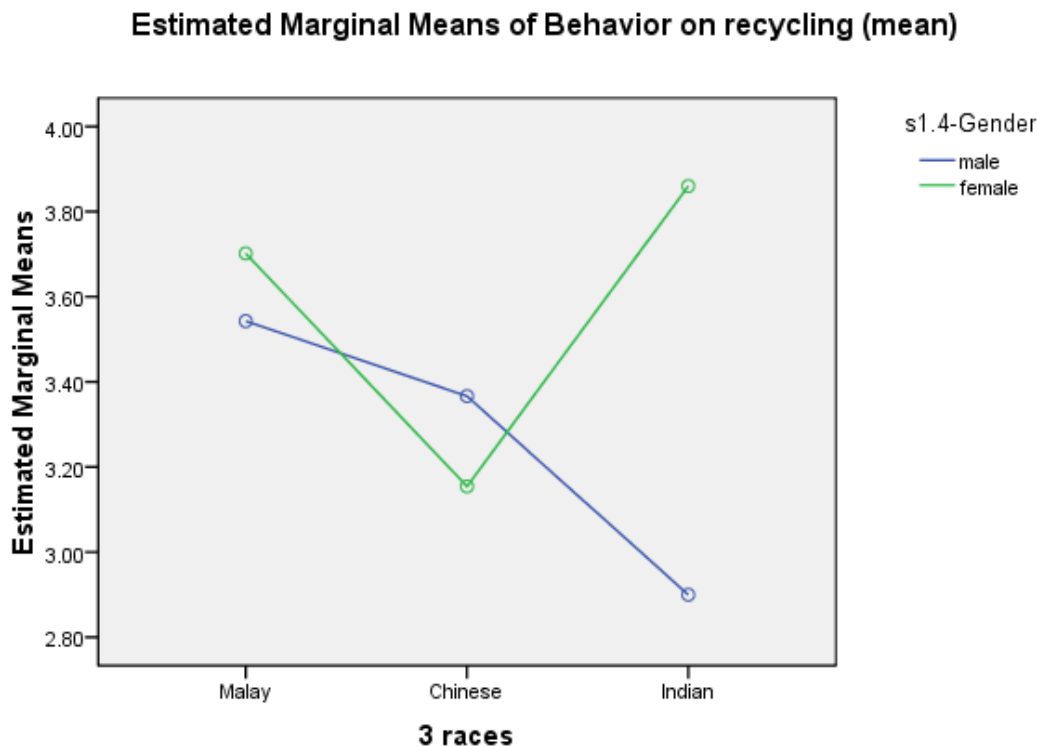
Figure 1. The relationship between cleanliness-related issues and the recycling behavior with the moderators.

5. DISCUSSION

The findings indicate that perceived cleanliness-related issues is associated with recycling behavior and such findings support the hypothesis of the study (H1). This is understandable since knowledge on cleanliness and the beliefs; cultures and traditions inherited enhance the recycling behavior as cleanliness is a part of religious practices and obligations. This is in line with the Social Learning Theory which indicates that the model influences the people around him/her. Females tend to recycle more than males and this is very much related to the responsibility shouldered by females in relation to household chores such

as cleaning, recycling and keeping the house in order. This result supports the research hypothesis (H2) and the previous findings [5-9]. However, the present findings contradict the previous study by Meen-Chee and Narayanan in which it is found that regardless of gender; the Malays are found to recycle more than either the Chinese or the Indians [10]. The finding supports the hypothesis of the study (H3). On the contrary, in Penang, the Chinese tend to recycle more than either the Malays or the Indians. Nonetheless, the present study is supportive of the findings done by Mutang, Haron and Omran [7,8]. Since the previous study does not imply on the interaction effect on gender and ethnicity, hence the present study contributes to the body of knowledge when

involving the interaction effect of gender and ethnicity; thus, the hypothesis of the study is also supported (H4).



Covariates appearing in the model are evaluated at the following values: cleanliness = 4.0370

Figure 2. The interaction effect of gender and ethnicity on recycling behavior.

6. CONCLUSION

Based on 303 respondents residing in Kuala Lumpur, it can be concluded that the perceived cleanliness-related issues influence the recycling behavior. Females recycle more than males and Malays tend to recycle more than the Chinese and Indians. The gap between Indian females is wider than the Indian males, but not so for the Malay females and males. Similarly, the difference between Chinese males and females is slight. Surprisingly, Chinese females tend to recycle less than their male counterparts.

The research is not without its limitations. The respondents are limited to youths residing in Kuala Lumpur whose ages are less than 40 years old. Some may not have their own family yet; hence, the recycling behavior is thought to be done by the municipality of their residence. Therefore, future research should include the range of residences, not limited to the young generation.

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