Article

Does Contextual Factor Influence Travelers' Towel Reuse Behavior? Insights from Circular Economy

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Abstract: This study examines the role of environmental knowledge, perceived consumer effectiveness, and willingness to sacrifice on travelers' towel reuse behavior. Additionally, it tests whether environmental consciousness moderates the effect of environmental knowledge, perceived consumer effectiveness, willingness to sacrifice, and attitude towards towel reuse on actual towel reuse behavior. The proposed research model was tested using Amazon Mechanical Turk data. Using partial least square structural equation modelling, we analyzed the hypotheses. The results demonstrate that environmental knowledge, perceived consumer effectiveness, and willingness to sacrifice have significant influences on travelers' towel reuse behavior. Additionally, findings about environmental consciousness indicate that high levels of environmental consciousness can help bridge the attitude-behavior gap. To bridge the gap between travelers' attitude and behavior, managers should develop communication strategies to raise awareness and a sense of responsibility among them.

Keywords: perceived consumer effectiveness; circular economy; towel reuse; willingness to sacrifice; environmental consciousness; environmental knowledge

1. Introduction

A significant contribution to global warming is attributed to the hotel industry [1]. About 75% of the negative environmental impacts caused by hotels come from the excessive consumption of energy and natural resources [2]. One such example could be the release of pollutants directly into the air, water, and soil, contributing to environmental pollution [2]. However, travelers tend to reflect their concern for the environment in a variety of ways, one of which might be choosing to stay at a green hotel while traveling [3]. Even though travelers are becoming more aware of environmental concerns and having a positive attitude toward reusing towels during their hotel stays, their actions do not reflect these attitudes [4]. This results into an attitude-behavior gap [5], causing researchers to focus on this concern.

This research responds to the call by examining how individual and contextual factors such as perceived effectiveness, environmental knowledge, and willingness to sacrifice are related to travelers' intention to reuse towels. Notably, towel reuse is a part of the circular economy, as it reduces waste generation by reusing products [6]. We thus argue that understanding travelers' towel reuse behavior would not only aid in bridging the gap between their attitude and behavior, but would also help in achieving sustainability at hotels through the concept of circular economy. Although the circular economy literature indicates that consumers' willingness to sacrifice is studied [7], but not in the context of towel reuse programs. Since 'willingness to sacrifice' is a key indicator of travelers' attitude and actual behavior [8], we decided to include it as a driver of attitude and towel reuse behavior.

According to the current literature, the research on the towel reuse program or circular economy has grown considerably in developed nations, while in developing nations such as India, consumer awareness of environmental protection has seen a slow growth. Interesting to note that Indians place a high value on the environment, which results in them having a positive outlook toward environmental safety [9]. Further, the hospitality industry contributes approximately 5% to 7% [3] of India's GDP, providing a significant growth opportunity. As a result, we chose India as the context for our study.

In light of the above discussion, this study seeks to answer the following research questions:

(RQ1) Do contextual factors (perceived consumer effectiveness, and willingness to sacrifice) influence travelers' attitude and their behavior?
(RQ2) How does environmental knowledge influence travelers' attitude and their behavior?
(RQ3) What role does environmental consciousness play in bridging the attitude-behavior gap?

Using the attitude-behavior-contextual (ABC) theory [10] and knowledge-attitude-behavior (KAB) model [11], this study aims to answer the above-mentioned research questions. Due to the fact that both theoretical frameworks (i.e., ABC and KAB) discuss disparity between attitude and behavior, both are relevant to this study. Since attitude does not always translate into behavior, additional factors are required to bridge the most debatable gap. To answer our research questions and support the translation of attitude into behavior, we rely on environmental knowledge, perceived consumer effectiveness, willingness to sacrifice, and environmental consciousness.

Academicians and practitioners can gain three significant insights from our study. First of all, this is the first study to integrate both KAB and ABC theory in the context of circular economy. Secondly, ours is the first study to consider willingness to sacrifice as a significant factor in the circular economy context. Third, since the towel reuse program is a major factor in achieving sustainability, managers can adopt this program and use our findings to bridge the gap between travelers' attitude and behavior.

Further, the study offers a brief overview of circular economy and towel reuse programs. This was followed by the development of a research model. Sections 3 and 4 present the adopted methodology and the analysis of the data collected. In Section 5, the findings are discussed in light of existing literature. Lastly, Section 6 discusses conclusions and limitations, as well as future directions.

2. Materials

2.1. Circular Economy

Of late, the concept of circular economy is becoming more popular as a way to achieve sustainability. In essence, circular economy focuses on minimizing wastage of natural resources, leading to sustainability. While, due to the rise of sustainability issues, the circular economy is being considered by policy makers in a more critical manner [12], yet there are still questions about an acceptable definition of circular economy [6]. Previously, Ellen MacArthur Foundation [13] defined circular economy as "an industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models". Moreover, Kirchherr et al. [14] have analyzed over 100 definitions of circular economy in order to create a comprehensive definition and proposed it as an economic system that replaces the "end-of life" concept with reducing, alternatively reusing, recycling, and recovering materials in production/distribution and consumption processes". The above two definitions highlight that circular economy focuses on 'zero waste and emission' and 'design to reduce the waste'. Lastly, the most acceptable definition of circular economy is given by European Commission [15] as "an economic system that keep the added value in products for as long as possible and eliminate waste". Despite the diverse definitions and divergent approaches to circular economy, academic research has been able to produce an impressive number of

studies. While there are numerous studies examining circular economy in the hospitality industry, there are none that investigate how circular economy is manifested in towel reuse behaviors (see Table 1). Therefore, this study is the first to investigate role of towel reuse program in achieving sustainability.

Table 1. Circular economy and hospitality.

Authors	Method	Study Focus
Rodríguez-Antón and Mar Alonso-Almeida [16]	The qualitative multicase	Circular economy in hospitality industry
Jones and Wynn [17]	Review study	Role of resilience and natural capital in circular economy in hospitality domain.
Khodaiji and Christopoulou [18]	Case Study	Circular economy's role in achieving sustainability in hospitality industry
Sorin and Sivarajah [19]	Interviews	Circular economy in hotels' supply chain.
Manniche et al. [20]	Review study	Circular economy in hospitality industry
van Keulen and Kirchherr [21]	Interviews	Barriers and enablers of circular economy in hospitality industry
Khan et al. [22]	Survey	Circular economy in hospitality industry
Aguilar et al. [23]	Review study	Role of quality of life and work-life balance in circular economy in hospitality industry
Vecchio et al. [24]	Interviews	Circular economy in hospitality industry

Note: The list includes articles published only in journals that are indexed either in the Australian Business Dean Council journal quality list or Web of Science.

2.2. Knowledge-Attitude-Behavior Model

KAB model was proposed by Kallgren and Woods [11] to study the influence of consumer knowledge on attitude and behavior. According to the theory, consumers develop an attitude based on knowledge, either a positive one or a negative one, in order to behave in the way they desire. The current study adopts KAB model since; (1) this theory has been applied to discover sustainable consumption patterns behavior. For example, Dhir et al. [25] and Taufique et al. [26] examined the role of environmental knowledge in the development of attitude and consumption behavior; (2) it helps in examining the knowledge-behavior gap and the attitude-behavior gap, which are significant barriers for achieving sustainability behavior [25].

2.3. Attitude-Behavior-Context Theory

ABC theory was put forth by Guagnano et al. [10] to study the most debatable gap, namely the attitude-behavior gap. ABC theory states that consumer behavior is an outcome of attitude and contextual factors. Further, scholars such as Dhir et al. [25] and Zhang et al. [27] suggest that a consumer acts in a specific way to obtain a certain outcome behavior. The manifestation of such behavior requires consumers to develop a positive attitude toward it, combined with the significant influence of contextual factors [27]. By increasing the predictability of consumers' behavior in a given situation, such contextual factors increase the uniqueness of a given situation [28]. Hence, we adopted the ABC theory in this study. The reasons are three-fold (1) ABC theory has been used to investigate the influence of environmental attitudes on target behavior in the past [29], (2) Researchers use the ABC theory to understand the gap between attitude and behavior [25], (3) Lastly, this theory has third constituent as a contextual factor, which is significantly related to consumers' decision making [30].

3. Model and Hypotheses Development

3.1. Attitude towards Towel Reuse and Towel Reuse Behavior

Previously, many scholars in the area of environmental sustainability claim that attitude is among the strongest predictors of actual behavior [25,26,31]. In the case of the towel reuse program, attitude is a significant and strong predictor of behavior [32], while Budovska et al. [5] observed a weak relationship between attitude and behavior. Inferring that attitude may not always results in towel reuse behavior. We therefore examined the relationship between attitude and behavior in order to explain the paradoxical observation of the attitude-behavior gap. Therefore, we anticipate the following.

Hypothesis 1 (H1). *Attitude towards towel reuse has a significant influence on towel reuse behavior.*

3.2. Environmental Knowledge, Attitude towards Towel Reuse, and Towel Reuse Behavior

Environmental knowledge refers to "an individual's general knowledge of facts, concepts and relationships related to environmental protection and its major ecosystems" [4] (p. 69). Extant research on environmental sustainability highlights that mapping environmental knowledge is important as it helps to understand the 'sustainability movement' of any country [33]. Further, as travelers become more aware of sustainability issues, their attitude towards sustainability issues changes as well. For example, Taufique et al. [26] observed that environmental knowledge develops a positive attitude towards sustainability. On the contrary, Dhir et al. [25] and Han et al. [32] suggests that environmental knowledge may not always lead to a positive attitude in behavior and hence, there exists a knowledge-attitude-behavior gap. Yet, scholars such as Teng, Lu, and Huang [34], Wang et al. [35] suggest that increasing environmental literacy leads to changes in behavior. Accordingly, we argue that knowledge motivates travelers to adopt a positive attitude toward towel reuse and adoption. Thus, we hypothesize.

Hypothesis 2 (H2). *Environmental knowledge has a positive influence on attitude towards towels reuse.*

Hypothesis 3 (H3). *Environmental knowledge has a positive influence on towel reuse behavior.*

3.3. Perceived Consumer Effectiveness, Attitude towards Towel Reuse and Towel Reuse Behavior

Perceived consumer effectiveness refers to "as the degree of the consumers' domain-specific self-belief that they will be able to solve the problem at hand" [36] (p. 3593). In a situation where consumers believe their actions could significantly impact the outcome, they are more likely to take steps towards making a positive difference [37]. Indeed, prior research highlights that consumers with positive perceptions of their effectiveness in resolving sustainability issues are more likely to develop positive attitude [9,38]. Similarly, Dhir et al. [36] noted that consumers with high perceived consumer effectiveness in sustainable consumption were more likely to adopt sustainable consumption to address sustainability issues. In accordance with the existing literature, this study assumes that travelers with a high perception of consumer effectiveness are more likely to express positive attitudes about towel reuse and actual towel reuse behavior. Thus, we hypothesize.

Hypothesis 4 (H4). *Perceived consumer effectiveness has a positive influence on attitude towards towels reuse.*

Hypothesis 5 (H5). *Perceived consumer effectiveness has a positive influence on towel reuse behavior.*

3.4. Willingness to Sacrifice and Towel Reuse Behavior

Researchers have found that willingness to sacrifice is an important determinant of travelers' decision making [39]. Travelers who are committed to creating a sustainable world are willing to make sacrifices to reach that goal [40]. Such 'sacrifice' is defined as "the degree to which one's behavior prioritises the benefit of the environment despite the expense/loss of his/her immediate costs, self-interest, and time/effort" [41] (p. 2121). If travelers show a strong desire to solve sustainability issues, they are more likely to pay premium or step outside of their comfort zone to protect the planet [42]. For example, Burhanudin and Unnithan [43] found that travelers who were willing to sacrifice did so in an environmentally-friendly manner behavior. Indeed, in case of towel reuse, travelers who have strong willingness to sacrifice are more likely to perform action. Thus, we hypothesize.

Hypothesis 6 (H6). *Willingness to sacrifice has a positive influence on towel reuse behavior.*

3.5. Indirect Effect through Attitude towards Towel Reuse

Attitude towards towel reuse refers to as "the degree of favourable or unfavourable predisposition a person has to respond to a behavior in question (in our case towel reuse)" [5] (p. 107). Attitude is considered as an important factor that drives travelers' actual behavior, yet the literature on sustainability issues remedy program such as the attitude-behavior gap exists [5,32]. By examining the indirect effect of travelers' attitude on the relationship of towel reuse behavior with environmental knowledge and consumer perceptions, the authors argue that the gap between attitude and actual behavior can be better understood. The KAB theoretical framework proposed by Kallgren and Woods [11] postulates attitude as the mediating influence between knowledge and behavior. This has been tested in literature related to sustainability. For example, Dhir et al. [25] determined that knowledge significantly influences the development of attitudes, which lead to the purchase of green apparel. Similarly, Taufique et al. [26] argued that individuals with a high level of knowledge about the environmental issues are likely to perform sustainable behavior. The possible justification is derived from the Kargren and Woods [11] model that environmental knowledge leads to sustainable behavior as knowledge nurtures a positive attitude, which is then translated into actual behavior. Therefore, we argue that environmental knowledge indirectly influences towel reuse programs through attitude. Hence, we hypothesize.

Hypothesis 7a (H7a). *Attitude towards towel reuse significantly mediates the association of environmental knowledge with towel reuse program.*

Research on perceived consumer effectiveness in sustainability has been well documented [9,37]. It is considered as one of the significant factors that derive actual sustainable behavior [38]. We argue that travelers with high perceived consumer effectiveness would adopt sustainable behavior such as towel reuse behavior because travelers' effectiveness to solve sustainability issues lead to development of their attitude towards remedy action, which in turn results in towel reuse behavior. Therefore, we hypothesize.

Hypothesis 7b (H7b). *Attitude towards towel reuse significantly mediates the association of perceived consumer effectiveness with towel reuse program.*

3.6. The Moderating Effect of Environmental Consciousness

Environmental consciousness refers to as "an element of the belief system that denotes to specific psychological influences related to individuals' propensity to join pro-environmental behaviors" [44] (p. 200). Policy makers suggest that measuring a country's environmental consciousness is relevant for understanding that country's 'sustainability activities' [45]. One of the major factors that affect consumers' sustainable consumption decisions is their environmental consciousness [46]. As a result, travelers who are aware

of environmental issues are more likely to adopt sustainable behavior to mitigate the effects [47].

Further, extant research on sustainability suggests that environmental consciousness has been studied as one of the significant predictors of sustainable behavior [45,46]; while some researchers have considered it as a moderator on the relationship of sustainable behavior with its drivers [48,49]. Interestingly, Kautish et al. [48] claimed that individuals having high environmental consciousness are more likely to increase the conversion of perceived consumer effectiveness into actual behavior, towel reuse behavior in our case. Similarly, rise in environmental consciousness among travelers results into rise in awareness about environmental/sustainability issues [50], resulting into adoption of sustainable behavior [26]. In the same vein, according to Kautish et al. [48] travelers with high environmental consciousness are likely to be more willing to contribute to preserving the environment or sacrifice for it, which results into higher chances of sustainable behavior adoption. Further, travelers exhibiting strong attitude towards towel reuse are less likely to go for towel reuse behavior [5], reflecting a disparity between attitude and actual behavior. Therefore, extant literature [45,51] suggests that high environmental consciousness among travelers develop positive attitude towards sustainability, which in turn leads to adoption of sustainable behavior. Therefore, we assume that environmental consciousness is significantly bridge the attitude-behavior gap. Thus, we hypothesize.

Hypothesis 8a (H8a). *Environmental consciousness positively moderates the association of environmental knowledge with towel reuse behavior.*

Hypothesis 8b (H8b). *Environmental consciousness positively moderates the association of perceived consumer effectiveness with towel reuse behavior.*

Hypothesis 8c (H8c). *Environmental consciousness positively moderates the association of willingness to sacrifice with towel reuse behavior.*

Hypothesis 8d (H8d). *Environmental consciousness positively moderates the association of attitude towards towel reuse with towel reuse behavior.*

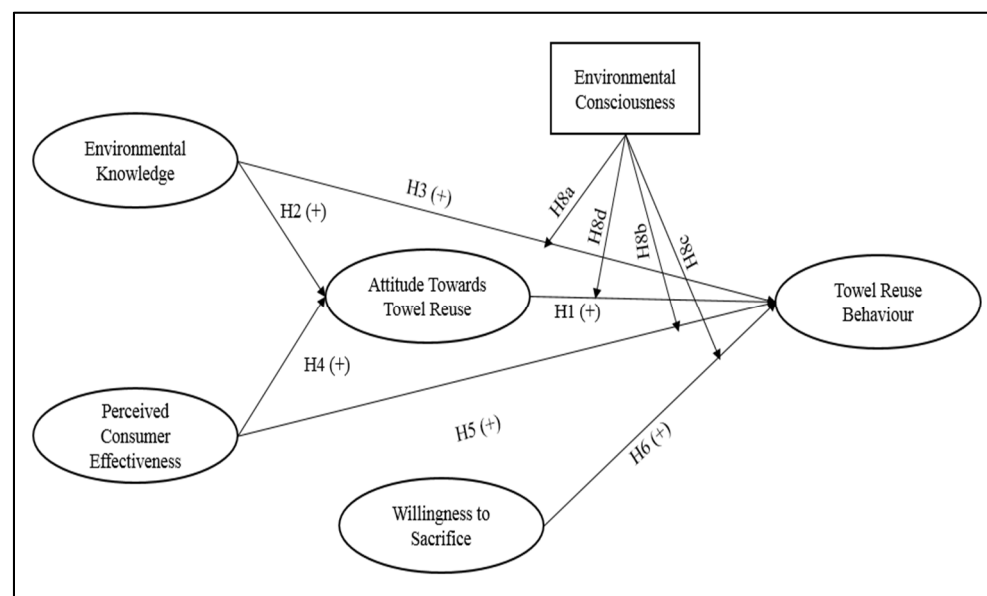As a result of the foregoing arguments, we developed a conceptual model (see Figure 1).

Figure 1. Conceptual model.

4. Methods

4.1. Measure

This research aims at understanding the role of environmental knowledge, perceived consumer effectiveness, willingness to sacrifice, and environmental consciousness in adoption of towel reuse behavior. As part of our research, we developed a questionnaire containing 20 items to test our hypotheses. All the items were measured on a 5-point Likert scale. To measure attitude towards towel reuse, we used the 5-items scale of Budovska et al. [5]. The sample items were "For me, reusing a towel at a hotel when travelling is—(a) Extremely undesirable (1)/Extremely desirable (5); (b) Extremely unpleasant (1)/Extremely pleasant (5); (c) Extremely unfavorable (1)/Extremely favorable (5)". Three items were adapted from Wang et al. [38] and Sadiq et al. [33] to measure perceived consumer effectiveness ("An individual's behavior has a positive impact on society if he/she reuses towels during hotel stay") and environmental knowledge ("Reusing towels is a substantial way to reduce wasteful use of natural resources"; "Reusing towels is a great way to conserve natural resources"), respectively. To measure willingness to sacrifice, we adopted the two-items scale from Han et al. [41]. The items were "Even when it is inconvenient to me, I am willing to reuse towel as I think it is best for the environment"; "I am willing to reuse towel for the environment, even if I'm not thanked for my efforts". Similarly, four items [38] were used to measure environmental consciousness ("I am extremely worried about the situation of the world's environment and what it will mean for my future"; "Mankind is severely abusing the environment"). Lastly, we adapted the 3-items ("I feel that I have played a great part in helping the environment when I reuse towel during my hotel stay"; "I feel more comfortable when I use fresh towels rather than reuse the same towel during my hotel stay") to measure towel reuse behavior from Kautish et al. [48].

4.2. Data Collection

The sample size for this study was calculated based on the recommendation of Hair et al. [52], sample size should be ten to fifteen times of latent variables that are there in the research model i.e., 15 × 20 = 300. In addition, extant literature on sustainable behavior in India highlights that studies with sample size in between 200 to 500 [29,53,54] provide reliable and valid results. Therefore, this research made available the questionnaire on M-Turk on 21 January 2022 for 350 respondents. We have terminated the survey on 24 January 2022 after receiving 350 responses. We have selected MTurk because it is known for providing reliable and valid data with a few errors [55]. Yet, we have taken precautions to reduce the probability of getting unreliable data. For this, the current study has set three inclusion criteria: (1) Screening question: Do you have any recent experience (six months) with hotels that offer towel reuse programs? (2) only those respondents can take part in the survey who has an acceptance rate of 98% or above; and (3) respondents should be a resident of India.

Of 350 respondents, 203 (58%) were male and 147 (42%) were female. Majority of the respondents (70.8%) hold graduation degree and are single (67.4%). Approximately half (51.1%) of the respondents belong to income group of 100,000 INR or above.

4.3. Statistical Tools

To test our research model, we have used Partial Least Square based Structural Equation Modelling in ADANCO software. Further to test the moderation effect, we have used process macro for SPSS.

4.4. Common Method Bias

In social science research, common method bias is a major problem [36]. Therefore, to tackle the CMB problem, we have taken three steps. First, to test respondents' attention, we have reversed a few items in the questionnaire and informed them that there is no right and wrong answer. Second, we check CMB of the collected data through Harman's single factor test. According to the result, 28.3% of variance was attributed to a single factor, which

is within the threshold limit of 50%. Hence, it confirms that there exist no CMB problem in the data. Lastly, to re-confirm the absence of CMB problem in our data, we have used Marker Variable Test. The result re-confirms that our data is free from any CMB issue.

5. Results

To test the research model, we have adopted two-step structural equation modelling. The first step is to test the reliability and validity of the research model. Next, is to assess the hypotheses. The study tested the validity, reliability, and model fitness of the proposed research model. Henseler [56] suggested three criteria to test model fitness; "unweighted least squares discrepancy (dULS)"; "geodesic discrepancy (dG)"; and "standardized root mean square residual (SRMR)" (p. 2223). All these values should be lower than threshold values i.e., HI99 [56]. According to the results (see Table 2), the values obtained for three criteria are below the threshold levels, which is suggestive of good fit for the proposed research model.

Table 2. Model fit.

	SRMR	dULS	dG
Observed values	0.057	0.738	0.416
HI95	0.061	0.791	0.483
HI99	0.072	0.949	0.617

Further, our research model has also been tested for reliability and validity. "Cronbach's alpha" (α) and "Joreskog's rho" (ρ) were used to determine the reliability. Similarly, convergent and discriminant validity of the research model was tested through average variance extracted (AVE) and "Heterotrait–Monotrait Ratio of Correlation" (HTMT). The findings reveal that the research model is reliable as value of α and ρ are higher than the minimum cut-off value of 0.70 for each employed variable (see Table 3).

Table 3. Measurement model results.

Variable	Item Code	λ	AVE	α	ρ
Perceived consumer effectiveness	PCE2	0.82	0.65	0.81	0.79
	PCE3	0.79			
Environmental knowledge	EK1	0.83	0.72	0.89	0.88
	EK2	0.87			
	EK3	0.84			
Willingness to sacrifice	WtS1	0.71	0.54	0.88	0.86
	WtS2	0.76			
Attitude towards towel reuse	A1	0.78	0.60	0.91	0.88
	A2	0.71			
	A3	0.83			
	A4	0.81			
	A5	0.75			
Towel reuse behavior	TRB1	0.84	0.64	0.85	0.84
	TRB2	0.77			
	TRB3	0.79			

Key: λ = factor loadings; AVE = average variance extracted; α = Cronbach's alpha; ρ = Joreskog's rho.

Additionally, the AVE value for each variable exceeds the threshold of 0.50, hence, convergent validity of the research model is ascertained. Similarly, values of all variables in the HTMT analysis are less than 0.90, indicating discriminant validity (see Table 4).

Table 4. HTMT analysis.

	PCE	**EK**	**WtS**	**A**	**TRB**
PCE	1				
EK	0.51	1			
WtS	0.58	0.64	1		
A	0.45	0.67	0.48	1	
TRB	0.37	0.51	0.53	0.31	1

5.1. Hypotheses Testing

Results indicate that attitude influences towel reuse behavior both significantly but weakly ($\beta = 0.21$, $p < 0.05$; $f^2 = 0.11$), therefore, H1 was supported (see Figure 2).
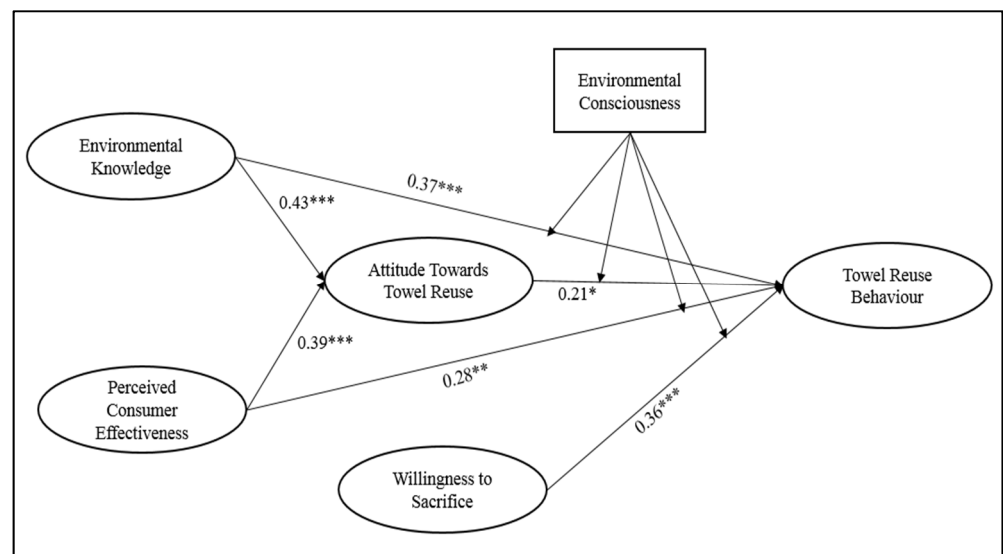

Figure 2. Structural model. * $p < 0.5$; ** $p < 0.01$; *** $p < 0.001$.

Further, environmental knowledge influences attitude both significantly and moderately ($\beta = 0.43$, $p < 0.001$; $f^2 = 0.32$) and towel reuse behavior ($\beta = 0.37$, $p < 0.001$; $f^2 = 0.18$). Therefore, H2 and H3 were supported. Perceived consumer effectiveness significantly and moderately influences travelers' attitude towards towel reuse ($\beta = 0.39$, $p < 0.001$; $f^2 = 0.17$). Similarly, perceived consumer effectiveness significantly but weakly influences towel reuse behavior ($\beta = 0.28$ $p < 0.01$; $f^2 = 0.12$). Therefore, H4 and H5 were supported. Lastly, willingness to sacrifice significantly and moderately associated with towel reuse behavior ($\beta = 0.36$ $p < 0.001$; $f^2 = 0.24$), therefore, H6 was supported. Table 5 shows that all the direct hypotheses were supported.

Table 5. Direct hypotheses results.

Hypothesis	**Path**	**β**	**Supported?**
H1	A → TRB	0.21 *	Yes
H2	EK → A	0.43 ***	Yes
H3	EK → TRB	0.37 ***	Yes
H4	PCE → A	0.39 ***	Yes
H5	PCE → TRB	0.28 **	Yes
H6	WtS → TRB	0.36 ***	Yes

R^2 value of Attitude towards towel reuse = 41.3%. R^2 value of Towel reuse behavior = 44.7%. * $p < 0.5$; ** $p < 0.01$; *** $p < 0.001$.

Next, we tested the indirect effects of environmental knowledge (H7a) and perceived consumer effectiveness (H7b) on towel reuse behavior through attitude towards towel reuse. Table 6 shows that H7a and H7b were supported as the values between ULCI and LLCI do not have zero. In addition, attitude has a partial mediating effect as direct links of towel reuse behavior with perceived consumer effectiveness and environmental knowledge remained significant.

Table 6. Results of Indirect effect.

Hypothesised Pathway	β	ULCI	LLCI	Mediation Type
EK → A → TRB (H7a)	0.09 *	0.194	0.073	Partial
PCE → A → TRB (H7b)	0.08 *	0.158	0.062	Partial

* $p < 0.5$.

5.2. Moderating Analysis

We test the hypotheses related to moderation effect of environmental consciousness using the 'Model 1' in process macro. Table 7 shows that environmental consciousness significantly and positively moderates the relationship of towel reuse behavior with environmental knowledge, perceived consumer effectiveness, willingness to sacrifice, and attitude towards towel reuse. Thus, H8a, H8b, H8c, and H8d were supported. For a graphical view, see Figures 3–6.

Table 7. Moderation result.

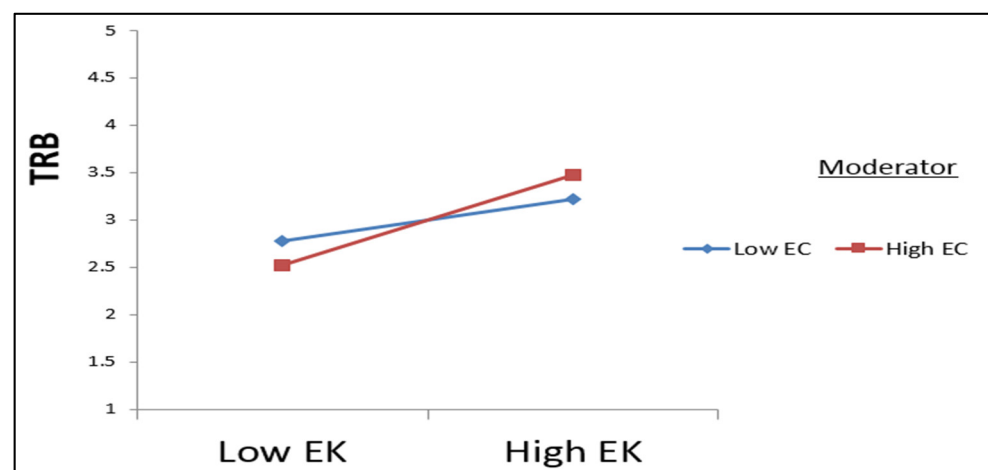| Moderator: Environmental Consciousness				
Path	β	ULCI	LLCI	Moderation
EK → TRB	0.13 **	0.473	0.097	Yes
PCE → TRB	0.05 *	0.118	0.039	Yes
WtS → TRB	0.11 **	0.419	0.086	Yes
A → TRB	0.07 *	0.184	0.091	Yes

* $p < 0.5$; ** $p < 0.01$.

Figure 3. The relationship between environmental knowledge (EK) and towel reuse behavior (TRB) is significantly moderated by environmental consciousness (EC).
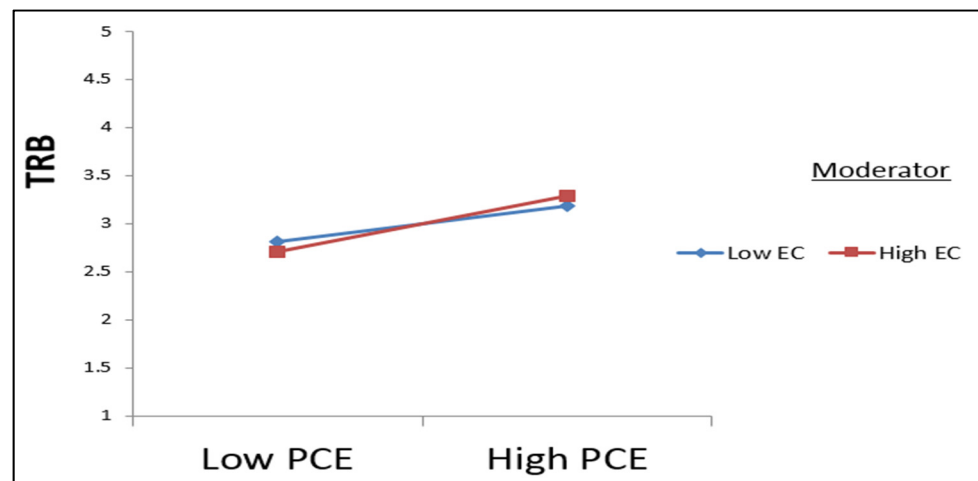
Figure 4. The relationship between perceived consumer effectiveness (PCE) and towel reuse behavior (TRB) is significantly moderated by environmental consciousness (EC).
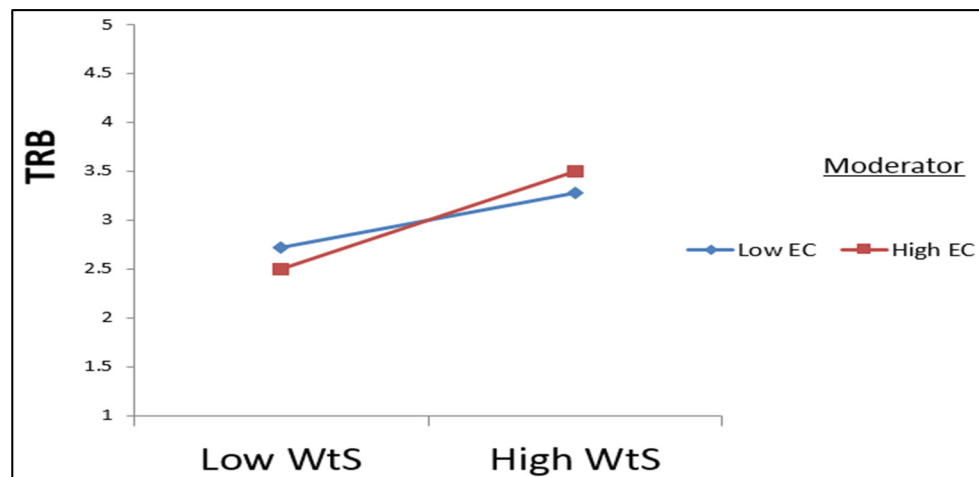

Figure 5. The relationship between willingness to sacrifice (WtS) and towel reuse behavior (TRB) is significantly moderated by environmental consciousness (EC).
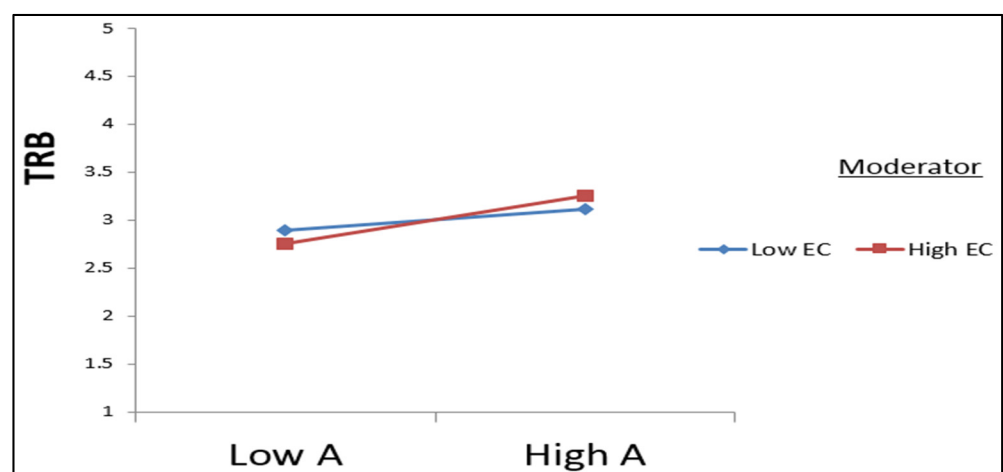

Figure 6. The relationship between attitude towards towel reuse (A) and towel reuse behavior (TRB) is significantly moderated by environmental consciousness (EC).

6. Discussion

The aim of this research was to examine the influence of environmental knowledge, perceived consumer effectiveness, willingness to sacrifice, and environmental consciousness on the development of travelers' attitude and towel reuse behavior. For this, we have proposed six direct, two indirect, and four moderating hypotheses using the theoretical lens of KAB model and ABC theory.

The study supports H1, wherein it was claimed that attitude towards towel reuse has a significant and positive influence on towel reuse behavior. This finding is in line with the observation of Budovska et al. [5] and Cvelbar, Grün, and Dolnicar [57]. Further, our finding of H1 also supports the existence of attitude-behavior gap as the influence of attitude on actual behavior is weak ($f^2 = 0.11$). The possible reason is that travelers are health conscious, which leads them to avoid reusing the same towel multiple times. In addition, health consciousness among travelers might have increased due to COVID-19 [31]. Further, lack of internal locus of control to perform certain actions is another possible reason for attitude-behavior gap. For example, Trivedi et al. [58] suggests that individuals who exhibit no interest in accomplishing the task because they are low on internal locus of control, result into creating attitude-behavior gap.

Our study extends support to H2 and H3 that state environmental knowledge has a significant and positive association with attitude towards towel reuse and towel reuse behavior. These findings are in line with Dhir et al. [25], and Yadav and Pathak [51]. In their research, they have found that individuals with high environmental knowledge have a strong attitude, resulting in actual environmental-friendly behavior. These findings imply that travelers have awareness about the towel reuse program and its capability to resolve sustainability issues. These relationships offer a significant implication, which is that environmental knowledge can help in bridging the disparity between attitude and behavior. Similarly, H4 and H5 were supported in our research, wherein we argue that perceived consumer effectiveness has a positive and significant relationship with attitude and towel reuse behavior. These findings concur with Jaiswal and Kant [9], Taufique and Vaithianathan [59], and Wang et al. [38], while H5 contradicts with the observation of Dhir et al. [36]. The possible justification of H4 and H5 is that sustainable behavior is considered to be more driven by internally controlled factors such as traveler's effectiveness rather than effectiveness of a group [60]. Therefore, travelers with high perceived consumer effectiveness tend to have a positive attitude towards saving the environment, resulting in adoption of towel reuse behavior. In addition, our study established that willingness to sacrifice has a positive and significant association with towel reuse behavior (H6). This finding is in line with Burhanudin and Unnithan [43] and Rahman and Reynolds [40], while contradicts those of Han et al. [41]. This finding implies that travelers are ready to willingly sacrifice the luxury of using a new towel every day. Therefore, such travelers are ready to exhibit towel reuse behavior during their hotel stay.

We further tested the mediating effect of attitude towards towel reuse between the association of towel reuse behavior with environmental knowledge (H7a) and perceived consumer effectiveness (H7b). The hypotheses H7a and H7b are partially supported as the direct relationship is significant in both the cases. The finding of H7a is in line with Taufique et al. [26], wherein it was found that knowledge about sustainability issues leads to the development of a positive attitude and actual behavior. The possible justification is taken from the knowledge-attitude-behavior model [11], i.e., travelers with high environmental knowledge tend to have a strong and positive attitude towards towel reuse, which in turn results into towel reuse behavior. Similarly, the finding of H7b is in line with Wang et al. [38], wherein travelers with high perceived consumer effectiveness exhibit strong attitude and likelihood of performing behavior. This finding implies that travelers with high perceived consumer effectiveness (i.e., they believe that their efficacy to solve the problem) tend to have a strong and positive attitude, resulting in actual towel reuse behavior.

Next, we tested the moderation effect of environmental consciousness between the association of towel reuse behavior with environmental knowledge (H8a), perceived con-

sumer effectiveness (H8b), willingness to sacrifice (H8c), and attitude towards towel reuse (H8d). All the hypotheses were supported in the current study. To the best of our knowledge, it is the first study to examine the moderating influence of environmental consciousness between the relationship of towel reuse behavior with environmental knowledge and attitude towards towel reuse. Therefore, we cannot correlate our findings with the extant literature on sustainability.

6.1. Implications

Our study offers significant theoretical implications that contribute to the literature on towel reuse programs and the circular economy. First, there are numerous research studies that have used KAB and ABC in general green consumer behavior literature (for e.g., see [17,29]), but no study has proposed a comprehensive research model of towel reuse by merging KAB and ABC theory in the circular economy literature. Second, after a critical review of sustainable tourism literature, we have found that willingness to sacrifice has been studied in a few studies (see, [40,41,43]), while no study has used it in the circular economy literature. Further, Rahman and Reynolds [40] suggest that travelers' willingness to sacrifice is one of the significant factors to achieve sustainability in the tourism and hospitality industry. Therefore, our study extends the circular economy literature by examining the role of willingness to sacrifice. Lastly, we have responded to the call of Budvsko et al. [5] to conduct empirical research to bridge the attitude-behavior gap. For this, we have examined the moderating role of environmental consciousness between the attitude and behavior. Our results suggest that environmental consciousness significantly bridges the attitude-behavior gap. Further, to the best of our knowledge, this study is the first to examine the moderating role of environmental consciousness to bridge the attitude-behavior gap in the sustainability/circular economy literature.

Besides the theoretical, our study also offers significant implications for managers. First, the current research shows that knowledge about sustainability issues stimulates the development of a positive and strong attitude, which results in towel reuse behavior. This highlights that increasing environmental knowledge leads to increased adoption of sustainable behavior. In the light of this finding, we suggest managers draft policies to bridge the attitude-behavior gap. They should aim at disseminating environmental knowledge. For this, managers can use social media platforms to teach travelers about sustainability issues. Second, this study reveals that travelers' efficacy to solve the sustainability problem leads to development of a positive attitude, resulting in actual tower reuse behavior. This reflects that increasing travelers' perception about effectiveness of their action helps in reducing the disparity between attitude and behavior. Therefore, we suggest managers to draft policies to enhance perceived consumer effectiveness to bridge the attitude-behavior gap. Further, managers should also communicate the societal and community responsibility to boost up the sense of their responsibility towards solving the sustainability issues. Third, our study shows that willingness to sacrifice significantly influence the towel reuse behavior. This indicates that increasing the sense of sacrifice among travelers results in higher adoption of towel reuse behavior. We suggest managers do effective marketing strategies to develop a sense of willingness to sacrifice for the environment among travelers. Lastly, our study reflects that environmental consciousness plays an important role in bridging the attitude-behavior gap. Therefore, we suggest managers to create concern among travelers they can develop communication strategies to highlight the initiatives that they have taken to solve the sustainability issues. Additionally, they can also communicate that if individuals do not participate in solving sustainability issues, it will affect the sustainability of the planet.

6.2. Limitations and Future Research Avenues

The current study has a few limitations and offers some important future avenues for researchers. First, we have collected the data using a 'single cross-sectional approach' which may restrict the generalisability of our findings as consumer behavior changes with time. Therefore, future academicians are suggested to conduct longitudinal research to

better gauge the towel reuse behavior. Second, our stdy was conducted in India, which has a different culture in comparison to ASEAN nations and western world such as Vietnam, and the USA. This may restrict the generalisability of our findings to other nations with different cultural setups. Therefore, we suggest future researchers should replicate our research model in different cultural systems. Third, we suggest future scholars to extend our research model by considering other contextual factors such as price sensitivity, and environmental commitment that may help in bridging the attitude-behavior gap in circular economy literature. Lastly, Mturk as a method of collecting data raises a number of concerns, so future researchers should seek to collect data through more traditional methods, such as conducting field surveys.

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