

Consumers' pro-environmental belief, ethical concern and purchase intentions of green cosmetics: fresh evidence from Indian Muslims using an enhanced TPB

Fahad, Mehfooz Zaki and Mohd Hamid

Department of Commerce, Aligarh Muslim University, Aligarh, India

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Abstract

Purpose – This investigation examines the determinants of Muslim consumers' attitudes and purchase intentions (PI) toward green cosmetics (GC) in India by extending the theory of planned behaviour (TPB). Prior research on GC has largely focused on conventional TPB constructs; limited attention has been given to Muslim customers in India and the role of ethical and consequence-based cognitive factors.

Design/methodology/approach – A detailed review of related work on GC and TPB supported the finalisation of the conceptual model of the current investigation. Owing to the unavailability of a comprehensive list of Muslim consumers, a cross-sectional survey was conducted among Muslim consumers using a purposive sampling approach. The responses obtained from the respondents were screened to remove possible outlier responses. After confirming the validity and reliability of the study data ($n = 469$), confirmatory factor analysis and structural equation modelling (SEM) were performed to examine the hypothesised relationships among the factors in the study's conceptual model.

Findings – The results reveal that health consciousness (HC) ($\beta = 0.21, p < 0.001$), awareness of consequences (AoC) ($\beta = 0.27, p < 0.001$) and ethical concern (EC) ($\beta = 0.30, p < 0.001$) significantly enhance consumers' attitudes. It also confirmed a favourable association between AoC ($\beta = 0.34, p < 0.001$) and EC ($\beta = 0.26, p < 0.001$) and the pro-environmental beliefs (PEB) of the consumers. SEM findings showed that HC ($\beta = 0.24, p < 0.001$), Attitude ($\beta = 0.25, p < 0.001$), perceived behavioural control ($\beta = 0.14, p < 0.01$) and PEB ($\beta = 0.24, p < 0.001$) of consumers are shown to have a positive and significant linkage with their PI of GC among the consumers. Interestingly, subjective norm ($\beta = 0.02, p = 0.624$) is found to have no substantial effect on the PI of the consumers. Additionally, SEM outcomes suggested that the conceptual model forecasted significant variation in consumers' Attitudes, PEB and PI, as evidenced by R^2 (multiple squared correlation) values of 68.9% for attitude, 27% for PEB and 60.7% for PI.

Practical implications – Based on the investigation's outcomes, several implications are presented for GC marketers that may aid in the broader diffusion of GC across the audience. The findings provide direction for positioning GC by communicating its health, ethical and environmental values. Marketers are advised to communicate the health benefits, an ethical production process, and environmental responsibility to consumers, thereby strengthening their attitudes and purchase decisions regarding GC among Muslim consumers in India and other similar nations.

Originality/value – This is one of the first few investigations uniquely extending the TPB with HC, AoC, EC and PEB in explaining attitudes and PI of the consumers. Additionally, this is one of the first investigations to primarily focus on and explore the constituents impacting the attitude, PEB and PI of GC among Muslim consumers in India's developing economy.

Keywords Green cosmetics, Health consciousness, Awareness of consequence, Ethical concern, Pro-environmental belief, Theory of planned behaviour

Paper type Research article

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1. Introduction

Green cosmetics (GC) have historically been integrated into conventional cosmetic procedures that utilise organic components, including herbs, oils and plant extracts (Koay and Ahmed, 2025; Khurana *et al.*, 2025). This concept has recently expanded to include sustainable procurement, environmentally conscious production, eco-friendly packaging and ecologically friendly testing, demonstrating an extensive approach to environmental sustainability that merges classic knowledge with contemporary solutions (Zahan *et al.*, 2024). The transformation is becoming apparent in the cosmetics industry, with the organic goods market anticipated to expand from \$35 billion in 2021 to \$59 billion by 2031 (Sonkar *et al.*, 2025). Cosmetics account for approximately 40% of the personal care sector, positioning the industry advantageously to spearhead sustainable initiatives (Limbu and Ahamed, 2023). This transition is primarily driven by increasing consumer mindfulness of the health and environmental effects of traditional or conventional cosmetics. As these concerns escalate, corporations face mounting pressure to implement ecologically sustainable methods in their operations (Zahan *et al.*, 2024). GC includes beauty and personal care products that are mindful of the environment and made with natural, organic and sustainable ingredients or materials (Testa *et al.*, 2024). Marketers present GC as healthy for humans and the ecosystem because it aims to mitigate environmental damage by avoiding or minimising the use of hazardous components in its production, promoting biodegradability, utilising sustainable packaging and guaranteeing ethical sourcing and cruelty-free testing (Pop *et al.*, 2020). Researchers have observed that GC can effectively enhance environmental safety throughout its entire life cycle, contributing to the mitigation of harm to nature and the planet (Teixeira *et al.*, 2023). Consequently, understanding the factors that drive consumers to adopt environmentally sustainable cosmetic products has become an important area of research in marketing and consumer behaviour, particularly in emerging economies where environmental awareness and sustainable consumption are advancing (Khurana *et al.*, 2025).

Previous related works on green products have mainly concentrated on green food, green electronics, green energy and green fashion, while focussing on exploring consumers' views and intentions toward GC has obtained minimal consideration (Ahmad *et al.*, 2026; Rafiq *et al.*, 2023). In most previous investigations, within the context of emerging or developed nations, authors have focused on exploring the aspects of health, safety, moral norms, values and motivations that influence consumers' views and intentions toward GC, while paying less attention to other critical dimensions (Testa *et al.*, 2024; Bhutto *et al.*, 2023). At the same time, fewer studies have also opined that environmental awareness, ethical concerns and an understanding of the consequences have favourably shaped consumers' views toward grooming, skin and other care-related products (Suphasomboon and Vassanadumrongdee, 2022). While the available literature guides exploration of the views and intentions of different groups within the populace, it also provides a deeper understanding of user intentions based on their affiliations, cultures and identities (Zahan *et al.*, 2024). Despite these contributions, available studies have largely assessed GC purchase behaviour among general consumer populations and have mainly focused on traditional theory of planned behaviour (TPB) constituents or isolated antecedents (Pop *et al.*, 2020; Upadhyaya and Sijoria, 2026). Therefore, limited empirical evidence is available on the combined influence of health consciousness (HC), EC, awareness of consequences (AoC) and pro-environmental beliefs (PEB) on consumers' attitudes and purchase intentions (PI) towards GC, particularly in an advancing economy such as India. Addressing these gaps is important for advancing the understanding of GC purchase behaviour in emerging markets and for extending the TPB's application in this context.

India hosts one of the largest Muslim populations in the world, accounting for approximately 14% of the country's total population and representing a significant consumer segment within the national marketplace (World Population Review, 2025). Beyond demographic importance, religious values may influence consumption behaviour among Muslim consumers. Islamic consumption principles emphasise ethical responsibility,

personal cleanliness and the avoidance of harmful or impure substances (Shahid *et al.*, 2023). Concepts such as halal and tayyib encourage Muslims to prefer products that are not only permissible but also wholesome, safe and ethically produced (Bhutto *et al.*, 2023). These principles share conceptual similarities with the philosophy underlying GC, which promotes natural ingredients, cruelty-free testing, environmentally responsible production and sustainable sourcing of raw materials (Limbu and Ahamed, 2023). From this viewpoint, Muslim consumers may evaluate GC products not only on functional or aesthetic attributes but also on ethical and moral considerations aligned with religious values. Previous research on halal cosmetics suggests that Muslim consumers often consider ethical sourcing, product purity and production transparency when making purchasing decisions (Shahid *et al.*, 2023). However, the present investigation does not conceptualise religiosity or halal orientation as explanatory factors. Instead, Indian Muslims are considered a distinct consumer section whose ethical and environmental consumption decisions provide a meaningful context for examining GC's PI. Accordingly, the study investigates the role of psychological and behavioural constituents within this specific consumer context rather than assessing the direct influence of religious commitment. This contextual approach enables the examination of GC purchase behaviour without positioning religiosity as a direct predictor.

Although the purchase and utilisation of GC is expanding, prior investigations on Indian Muslims' choice-making have mainly concentrated on "cosmetics" and "halal cosmetics" (Shahid *et al.*, 2023). Hence, limited empirical evidence exists regarding the determinants of GC purchase decisions among Indian Muslim consumers. Furthermore, prior investigations have placed less emphasis on consumers' ethical concerns, AoC and PEB in shaping their attitudes and PI regarding GC in an emerging economy like India; hence, this research gap warrants examination. Consequently, exploring GC purchase behaviour among Muslim consumers offers a valuable context for understanding how select determinants intersect with environmentally responsible consumption practices. Moreover, by focussing on Indian Muslim consumers, this investigation contributes to the growing literature on sustainable consumption in emerging markets while providing insights into an important yet relatively underexplored consumer segment.

In addressing gaps in the literature discussed above, the current work utilised the TPB by integrating relatively underexplored yet theoretically relevant constructs, including EC, AoC, PEB and HC, aiming to explore the linkage between HC, AoC and EC and Muslim consumers' attitudes towards GC and how attitude, subjective norm (SN), perceived behavioural control (PBC) and PEB influence the PI of Muslim consumers towards GC in India. Accordingly, the present study seeks to extend the explanatory power of TPB by incorporating ethical, environmental and health-related determinants within a unified model to better understand GC purchase behaviour among Indian Muslim consumers.

In this way, the present study's outcomes are expected to contribute mainly in two ways. First, this study is among the limited empirical investigations examining the determinants of GC PI among Indian Muslim consumers in the context of a developing economy. It is expected to guide GC marketers in the developing economy of India and other similar economies in highlighting the GC aspects that are critical in attitude building and enhancing PI among consumers, especially Muslims, in the current context. The findings are also expected to provide valuable insights for organisations seeking to develop marketing strategies that address consumers' environmental concerns, ethical values and HC. Second, this work extends the prior literature on TPB by presenting new support for its applicability to consumer choice-making. Furthermore, the proposed model in the current investigation incorporates and validates additional relevant components, thereby demonstrating the flexibility and applicability of the TPB in explaining sustainable consumer behaviour. Unlike previous TPB-based studies focussing primarily on the traditional TPB constituents, the present investigation demonstrates how EC, AoC, PEB and HC complement TPB in explaining consumers' attitudes and PI towards GC. Thus, this study contributes to the growing literature on sustainable consumption by providing empirical evidence from the underexplored context of Indian Muslim consumers.

2. Related work and hypothesis formulation

2.1 Theory of planned behaviour (TPB) and conceptual model

The TPB has emerged as one of the most widely accepted frameworks among scholars and academics globally, across generations and contexts, for comprehending the constituents that influence users' or consumers' intentions and decisions regarding the purchase of given goods or services, presented by [Ajzen \(1991\)](#) to rectify the shortcomings of the earlier framework suggested by [Fishbein and Ajzen \(1975\)](#), recognised as the "Theory of Reasoned Action (TRA)". The central idea of the TPB postulates that three primary factors shape an individual's intentions and subsequent decisions to engage in specific behaviours. These factors are the individual's "attitude towards the behaviour", "subjective norm" and "perceived behavioural control" (PBC). TPB has been successfully employed in studies primarily focussing on exploring consumers' perceptions of cosmetics in emerging and advanced economies. For instance, a detailed review by [Limbu and Ahamed \(2023\)](#) in their exploration of consumers' PI of GC highlighted that TPB is one of the popular models employed by scholars. They further highlighted that TPB is one of the most flexible models because most investigations have extended it with marketing mix elements, consumers' concerns and values, experience, self-efficacy and barriers, yielding a substantial variance in the consumer's PI of GC. [Koay and Ahmed \(2025\)](#) employed the enhanced TPB model in their recent work and revealed that moral norms, attitude and PBC are critical in favourably shaping consumers' PI of GC in India. Similarly, [Singh et al. \(2025\)](#) concluded that knowledge of GC, SN and PBC shapes Indian consumers' views and PI of GC. Also, a prior investigation by [Upadhyaya and Sijoria \(2024\)](#) employing the modified TPB suggested that attitude, trust and social influence substantially impact the PI of GC among the consumers.

TPB explains behavioural intention through attitude, SN and PBC. It has been criticised for limited consideration of moral and environmental cognition ([Limbu and Ahamed, 2023](#)). To address this limitation, the present investigation integrates concepts from complementary theoretical perspectives. Specifically, AoC and pro-environmental belief (PEB) are grounded in Norm Activation Theory ([Gao et al., 2017](#)), which emphasises moral obligation in pro-environmental behaviour. EC reflects ethical consumption theory, capturing moral evaluation in purchase decisions. HC is incorporated as a self-regulatory driver that influences individual evaluations of product safety and well-being. Together, these extensions enhance TPB's explanatory power in the context of sustainable consumption. Thus, integrating these complementary constituents enables a more holistic understanding of sustainable consumer behaviour than the TPB alone.

Further, earlier scholars have argued that environmentally responsible consumption often involves moral and cognitive evaluations that extend beyond these traditional determinants ([Yadav and Pathak, 2017](#)). Sustainable consumption decisions frequently require individuals to assess the environmental consequences of their actions, evaluate the ethical implications of production processes and consider potential health effects associated with product use ([Limbu and Ahamed, 2023](#)). Consequently, constructs such as AoC, EC and HC serve as important motivational drivers that may shape consumers' evaluations of environmentally friendly products, such as GC. AoC reflects individuals' recognition of the environmental depletion associated with conventional consumption practices, while EC captures sensitivity to moral issues such as environmental harm, animal welfare and fair production practices. These evaluations may contribute to the formation of PEB, which represent broader environmental value orientations guiding sustainable consumption decisions. Integrating these constructs within the TPB framework, therefore, allows a more comprehensive explanation of GC PI by incorporating health-related motivations, moral considerations and environmental belief systems alongside traditional behavioural determinants.

Although research on sustainable consumption has expanded rapidly in recent years, several important limitations remain. First, most research investigating green purchasing behaviour has focused on general consumer populations without considering the potential influence of religious or cultural value systems on environmentally responsible consumption.

Religious beliefs may shape ethical evaluations of products, perceptions of environmental responsibility and preferences for natural or ethically produced goods. However, relatively little research has examined how such belief systems influence consumer behaviour toward GC (Suphasomboon and Vassanadumrongdee, 2022). Second, although the TPB has been widely applied to explain green purchase patterns, scholars increasingly argue that environmentally friendly consumption is often influenced by moral and environmental cognition factors that extend beyond the traditional TPB. Factors such as AoC and EC reflect individuals' understanding of the environmental and moral implications of their consumption patterns. At the same time, PEB represent an internalised environmental worldview that guides sustainable consumption choices. Despite their relevance, these constructs are rarely integrated simultaneously within TPB-based models examining GC consumption (Hoang et al., 2024). Third, research on Muslim consumers has primarily focused on halal cosmetics rather than environmentally friendly GC, leaving a limited understanding of how religiously influenced ethical values may interact with environmental concerns in shaping GC purchasing behaviour. Addressing these gaps, the present study investigates the determinants of GC purchase intention among Muslim consumers in India by extending the TPB framework (see Figure 1). Unlike previous TPB-based research that has largely assessed these constituents individually, the present investigation simultaneously integrates HC, AoC, EC and PEB within a unified model to provide a more comprehensive explanation of GC PI among Indian Muslim consumers.

2.2 Health consciousness (HC), attitude and purchase intention (PI)

HC captures consumers' mindfulness of and active engagement with their health and overall well-being in daily consumption patterns (Li and Shan, 2025). In GC, HC denotes consumers' acknowledgement of the potential risks linked with chemical-based beauty and care products and their preference for natural, safe and environmentally friendly replacements. Prior studies have indicated that users with greater levels of HC are inclined to engage in precautionary health behaviours and make mindful goods choices compatible with their needs and health goals (Liobikienė and Bernatoniė, 2017). In sustainable consumption, health-conscious consumers tend to evaluate cosmetic ingredients, production processes and long-term effects

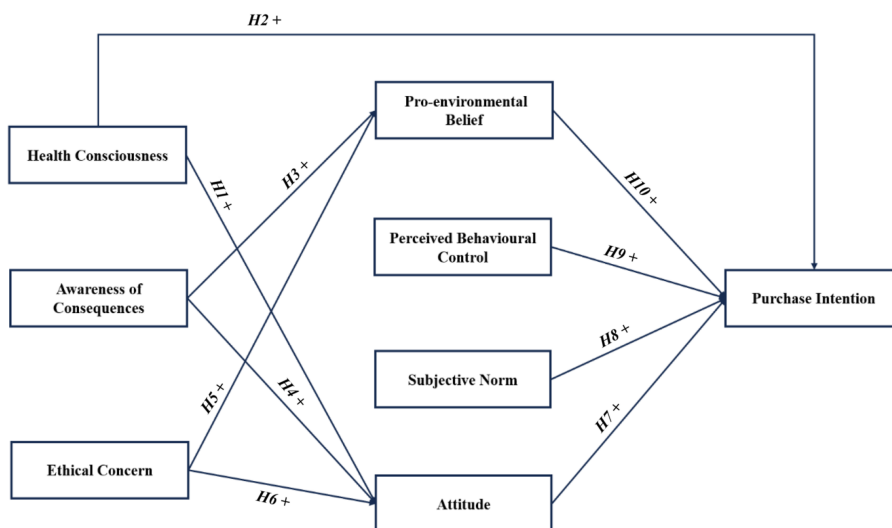


Figure 1. Proposed model of the study. Source: Authors' own work

before finalising a buy decision (Nguyen *et al.*, 2022). When consumers perceive that GCs are safer and contribute positively to their personal health, they are more likely to evaluate and become attached to these products favourably (Khurana *et al.*, 2025). Furthermore, health-conscious consumers view GC as an advantageous option for their beauty and body care, as it is free from harmful chemicals (Testa *et al.*, 2024). Previous research has supported that high HC noticeably increases consumers' inclination to purchase eco-friendly and green items, such as GC, for their beauty and skincare needs (Sonkar *et al.*, 2025). These outcomes suggest that HC extends the TPB by capturing health-related motivations that impact consumers' assessments of environmentally friendly products (Li and Shan, 2025). This perspective is consistently utilised in TPB-based investigations, demonstrating that health-oriented motivations favourably shape sustainable consumption choices (Koay and Ahmed, 2025). Therefore, it is anticipated that the HC of Muslim consumers will shape their view toward GC as a better option for their beauty and skin care, which will favourably shape their attitude and PI of GC in India. Hence, the following hypotheses are proposed;

H1. HC is positively linked with consumers' attitude toward GC.

H2. HC is positively linked with consumers' PI of GC.

2.3 Awareness of consequences (AoC), attitude and pro-environmental belief (PEB)

AoC represents consumers' awareness and acknowledgement of the environmental and societal effects of their consumption (Stern, 1999). In the context of GC, AoC encompasses consumers' understanding of the damaging effects associated with cosmetics, including environmental degradation and health threats to humans and other species resulting from the chemical components used in their manufacturing and ultimately in their consumption (Koay and Ahmed, 2025). Consumers demonstrating a high AoC are more inclined to participate in responsible consumption and endorse goods that support environmental sustainability and social welfare (Han and Stoel, 2017). Consumers aware of the ethical and ecological implications of their purchasing choices evaluate the sustainability of production procedures, packaging and ingredient sourcing before making a purchasing decision (Yadav and Pathak, 2017). Furthermore, users who are aware of the implications of their consuming patterns possess more robust PEB, revealing their ethical commitment to sustainable living and environmental safety (Joshi and Rahman, 2019). Previous research confirms that high AoC noticeably improves consumers' environmental consciousness, reinforces ecological values and promotes intentions for sustainable or green consumption (Jhawar *et al.*, 2024). These opinions indicate that consumers who recognise the environmental consequences of their actions are more likely to form favourable evaluations of green products. The available literature further indicates that AoC complements the TPB by incorporating consumers' environmental and moral assessments, which are critical in consumer decision-making toward green goods but not explicitly represented in the original framework (Badawi *et al.*, 2024). Thus, it is anticipated that Muslim consumers' AoC is favourably linked with their PEB, especially among consumers who link product choices with environmental and ethical responsibilities, and it will favourably shape their attitudes towards GC. Hence, the following hypotheses are proposed;

H3. AoC is positively linked with consumers' PEB.

H4. AoC is positively linked with consumers' attitude toward GC.

2.4 Ethical concern (EC), attitude and pro-environmental belief (PEB)

EC covers consumers' understanding and sensitivity to moral ideals and social responsibility in their buying decisions (Nie *et al.*, 2021). Within the domain of GC, EC captures consumers' awareness of the ethical implications connected with cosmetic manufacturing, including

animal testing, environmental harm and the use of non-sustainable ingredients, as well as their inclination towards ethically produced, cruelty-free and eco-conscious replacements (Suphasomboon and Vassanadumrongdee, 2022). Previous research suggests that consumers with sensitive EC are probable to make morally informed buying choices and to support products that are produced by following ethical and sustainable standards (Mohd Suki and Mohd Suki, 2015). Consumers with EC typically assess the sourcing, manufacturing and marketing of items before purchase, ensuring their decisions are in line with personal and societal ethical standards (Rezai et al., 2015). Consumers are more inclined to form positive sentiments towards goods when they believe they are produced through equitable, humane and environmentally sustainable practices. Moreover, ethically aware consumers associate their buying choices with broader ecological and social consequences, thereby improving their PEB and solidifying their commitment to sustainability (Joshi and Rahman, 2019). Prior studies indicate that environmentally conscious consumers significantly improve their ethical assessments and ecological beliefs, thereby supporting the adoption of green products, such as GC (Amberg and Fogarassy, 2019). Accordingly, EC may serve as an important psychological mechanism encouraging environmentally responsible purchasing choices. Consequently, it is expected that Muslim consumers' EC will favourably influence their attitudes towards GC and will favourably strengthen their PEB. Hence, the following hypotheses are proposed;

H5. EC is positively correlated with the PEB of consumers.

H6. EC is positively linked with consumers' attitudes toward GC.

2.5 Attitude, subjective norm (SN), perceived behavioural control (PBC) and purchase intention (PI)

Attitude signifies an individual's comprehensive favourable or unfavourable evaluation of engaging in a specific behaviour (Ajzen, 1991). In the current context of GC, attitude signifies consumers' favourable view of acquiring and utilising eco-friendly, natural and safe beauty and care products that improve personal well-being and promote environmental safety. Consumers who view GC as effective, non-toxic and ethically produced are more likely to advance a favourable attitude towards it (Lin et al., 2018). Prior studies utilising TPB have repeatedly confirmed that attitude is a vital factor shaping consumer intentions, since it translates favourable evaluation into purchase intent (Joshi and Rahman, 2019). Within the TPB framework, attitude is mostly recognised as the immediate psychological forecaster of behavioural intention because it reflects consumers' overall assessment of the behaviour (Ajzen, 1991). When consumers perceive GC as advantageous and in line with their subjective beliefs, they tend to exhibit an intent to purchase such products (Koay and Ahmed, 2025).

SN represents the social pressure consumers sense to participate in or abstain from a specific behaviour or action (Ajzen, 1991). Within the domain of GC, the SN refers to the influence of significant close ones, such as family members, friends and peers, on consumers' decisions to purchase eco-friendly and sustainable beauty and skincare products. When consumers understand that close ones in their lives support the use of GC, they are more probable to show their intent to purchase such items to attain social validation (Limbu and Ahamed, 2023). Previous studies have established that SN significantly affects consumers' environmentally conscious purchase behaviours by encouraging socially approved and responsible consumption practices (Jaini et al., 2020; Farooqui and Aqeel, 2025).

PBC represent a consumer's view of the ease or struggle in performing a specific behaviour in the presence of available resources and their confidence (Ajzen, 1991). In the context of GC, PBC captures consumers' perceived ability to purchase and use eco-friendly products, considering factors such as price, availability and accessibility (Limbu and Ahamed, 2023). When consumers view that GCs are affordable, easily accessible and convenient to use, they are more probable to form stronger PI (Koay and Ahmed, 2025). Prior related works have highlighted that higher PBC enhances consumers' likelihood of engaging in sustainable

buying by reducing perceived barriers and increasing self-efficacy (Yazdanpanah and Forouzani, 2015; Yadav and Pathak, 2017). Together, these outcomes support TPB's robustness in explaining PI while highlighting the value of integrating complementary psychological constituents to enhance its explanatory power in the context of sustainable consumption. Based on the discussions from earlier similar works and other reasons mentioned above, it is expected that Muslim consumers' Attitude, SN and PBC are favourably linked with their PI of GC. Hence, the following hypotheses are proposed;

H7. Attitude is positively linked with consumers' PI of GC.

H8. SN is positively linked with consumers' PI of GC.

H9. PBC is positively linked with consumers' PI of GC.

2.6 Pro-environmental belief (PEB) and purchase intention (PI)

PEB captures consumers' comprehension and belief that their green consumption choices have a positive influence on environmental sustainability (Stern, 1999). PEB in GC denotes consumers' perception that acquiring eco-friendly and natural items contributes to environmental safety, reduces pollution and supports ethical production practices (Bullock *et al.*, 2017). When consumers view green consumption as favourably aligning with environmental conservation, they are more inclined to show favourable PI toward it (Kim and Seock, 2009). Prior studies have highlighted that users with a high PEB are more likely to accept eco-friendly products, such as GC and participate in sustainable consumption behaviours (Ertz *et al.*, 2016; Joshi and Rahman, 2019). These findings indicate that PEB represents an important environmental value alignment that complements the TPB by strengthening the explanation of consumers' intentions towards green products. Hence, PEB is expected to shape Muslim consumers' perception of GC in a favourable manner. Therefore, the following hypothesis is proposed;

H10. PEB is positively linked with consumers' PI of GC.

3. Research method

3.1 Factors and measurements

This study examines the relationships among HC, AoC and EC regarding the Muslim consumer's PEB and attitudes towards GC in India. Furthermore, it evaluates the correlation among their Attitude, SN, PBC and PEB with their PI of GC in India. Given the potential for generalisation of the investigation outcomes, it is vital to establish the scale's content validity and ensure that the ideas presented in the selected items for the study are specific and accurate (Zaki *et al.*, 2025). Accordingly, all measurement items were taken from previously validated scales to safeguard the instrument's content validity, reliability and contextual applicability. A carefully designed two-part questionnaire was used in this investigation. The initial part of the questionnaire included statements aimed at gathering nominal data, such as education, age, gender and monthly income, of the participants.

The second section of the survey employed a five-point Likert scale, with extreme endpoints indicated "Strongly Disagree" (1) and "Strongly Agree" (5). This portion of the questionnaire encompasses twenty-four (24) items that evaluate the constituents of HC, AoC, EC, Attitude, SN, PBC, PEB and PI, which were derived from previous research on the acceptance and purchase of sustainable goods. Items for HC, PBC and SN were adapted from a work concluded by Shimul *et al.* (2022), while items for Attitude and PI were referenced from Pop *et al.* (2020) and Ahmad *et al.* (2026). AoC items were considered from Jhavar *et al.* (2024), items capturing EC were taken from Suphasomboon and Vassanadumrongdee's (2022) research and PEB items were considered from Sonkar *et al.* (2025). These items were employed in accordance with the context of the GC and the needs of the investigation (see Table 1).

Table 1. Study determinants, items, Cronbach's Alpha, CFA and SEM loadings

Study determinants and sources	Study items	Cronbach's alpha	CFA	SEM
HC Shimul et al. (2022)	HC1: I am usually aware of my health	0.90	0.90	0.89
	HC2: I take responsibility for the state of my health		0.85	0.85
Attitude Pop et al. (2020)	HC3: I am alert to changes in my health	0.94	0.85	0.84
	AT1: Using green cosmetics is a wise idea		0.92	0.92
	AT2: I like the idea of using green cosmetics		0.93	0.93
	AT3: Using green cosmetics is a smart idea		0.91	0.92
PBC Shimul et al. (2022)	PBC1: I have complete control over purchasing green cosmetics	0.91	0.88	0.89
	PBC2: I am confident that if I want green cosmetics, I can buy them		0.86	0.86
	PBC3: I have the resources and ability to buy green cosmetics		0.91	0.91
AoC Jhawar et al. (2024)	AoC1: Consumption or use of non-green products causes ecological damage	0.92	0.91	0.91
	AoC2: Non-green products generate pollution (air, water, or soil)		0.89	0.90
	AoC3: Non-green products contribute to global warming		0.89	0.89
SN Shimul et al. (2022)	SN1: People who influence my decisions would approve of me buying green cosmetics	0.90	0.83	0.83
	SN2: Most of the people who are important to me believe that I should buy green cosmetics		0.88	0.88
	SN3: People who are important in my life would support me buying green cosmetics		0.89	0.90
PI Ahmad et al. (2026)	PI1: I will buy green cosmetics soon	0.93	0.87	0.86
	PI2: If the opportunity arises, I intend to buy green cosmetics		0.92	0.91
	PI3: I am likely to buy green cosmetics		0.89	0.88
EC Suphasomboon and Vassanadumrongdee (2022)	EC1: Animal protection is necessary and animal welfare will improve if I do not buy animal-tested products	0.94	0.92	0.92
	EC2: I am interested in green cosmetics because of their organic and natural formulations, ethical sourcing and environmentally friendly packaging, which is not toxic to the environment		0.93	0.93
	EC3: Green cosmetics are considered a healthier choice for the environment and buying green products can fulfil my environmental responsibility		0.90	0.89
PEB Sonkar et al. (2025)	PEB1: I believe that the moral obligation to help the environment is important	0.89	0.85	0.84
	PEB2: I am willing to participate in preserving the environment		0.88	0.89
	PEB3: I believe that having a sense of responsibility for environmental problems is important		0.86	0.85

Note(s): PEB = Pro-environmental Beleif, EC = Ethical Concern, PI = Purchase Intention, SN = Subjective Norm, AoC = Awareness of Consequence, PBC = Perceived behavioural control, HC = Health consciousness

Source(s): Authors' own work

3.2 Study respondents

A preliminary investigation, involving 48 Muslim consumers, was completed to explore the clarity of the questionnaire items before data gathering. Based on the pilot investigation, minor modifications were made to the wording of a few questionnaires items to improve their clarity and contextual suitability. Furthermore, the preliminary investigation outcomes highlighted that the questionnaire items were reliable and valid, as evidenced by the values of Cronbach's alpha (all higher than 0.70) obtained at this stage, thereby fulfilling their intended purpose. The data gathered at this point were kept separate from the final data gathering process to lessen any possible bias.

A purposive sampling approach was employed in this study because no comprehensive sampling frame identifying Muslim consumers interested in GC was available. Similar sampling strategies have been widely used in consumer behaviour research when the target population cannot be easily identified through probability sampling techniques ([Ahmad et al., 2026](#)). Data collection was conducted in New Delhi and Mumbai because these metropolitan cities represent major retail markets for cosmetic products and host large and diverse Muslim populations ([Madan and Yadav, 2018](#)). Shopping malls, cosmetic stores and retail outlets were selected as survey locations because they provide access to consumers actively engaged in purchasing personal care products. However, it is acknowledged that consumers visiting such retail locations are likely to be relatively urban, educated and economically active. Consequently, the sample primarily reflects urban Muslim consumers rather than the broader Muslim population across India. This limitation is explicitly acknowledged when interpreting the study findings and their generalisability.

Several procedural measures were employed to enhance response quality and minimise the potential for response bias during data collection. Before administering the questionnaire, respondents were informed about the purpose and significance of the investigation, assured that their participation was fully voluntary and anonymous and encouraged to provide honest replies. Furthermore, only Muslim consumers who met the predefined screening criteria and demonstrated awareness of GC were invited to participate, thereby improving the relevance and quality of the data collected. Finally, a survey was conducted in these cities from July to August 2025, targeting Muslim consumers outside shopping malls, retail outlets and cosmetic stores. Of the filtered participants, 735 completed the survey. Out of the 498 completed replies from the respondents, twenty-nine (29) responses were identified as potential outliers during the data-screening stage because they showed an inconsistent response pattern and excessive use of identical or extreme response categories across the questionnaire items, indicating inadequate response quality. Hence, these responses were excluded from further analysis, and 469 valid responses were retained for further examination. The significant outcome of the descriptive analysis of Muslim consumers indicates that the majority are aged 31 to 40 (32.4%) and 19 to 30 (32%). Among the consumers, 44.8% identified as male and 55.2% as female. The consumers' educational backgrounds comprised graduate (46.7%), postgraduate (37.1%), up to intermediate (14.1%) and other levels. 35.1% of consumers reported a monthly income between 35,001 and 55,000 Indian rupees. Participants' complete details are summarised in [Appendix 1](#).

3.3 Data analysis

Due to the critical significance of the investigation, previous scholars have employed various analytical tools. This research utilised "IBM SPSS Statistics 20.0" and "AMOS 23.0" for data evaluation and hypothesis examination. Data analysis was conducted in a two-step approach following the suggestion of [Anderson and Gerbing \(1988\)](#). First, the measurement model was assessed using confirmatory factor analysis (CFA) to evaluate reliability and validity. Second, the hypothesised relationships were tested using covariance-based structural equation modelling (SEM) implemented in AMOS. Prior to SEM analysis, preliminary data screening, descriptive statistics and common-method bias assessment were conducted in SPSS.

4. Results

4.1 Common method bias (CMB) and measurement model evaluation

The likelihood of Common method bias (CMB) was minimised through several procedural measures implemented during questionnaire design and data collection, including participant anonymity, voluntary participation, clear questionnaire wording and the use of validated measurement scales, as discussed in [Section 3](#). Furthermore, previous studies have suggested Harman's single-factor assessment as a method for evaluating CMB. An analysis was conducted in "IBM SPSS" following the simultaneous entry of all variables. The outcomes highlighted that one factor explained 32.76% of the variance, which is well below the 50% suggested limit ([Hair et al., 2013](#)), highlighting the absence of CMB in the study's data. To further verify the absence of CMB, a "Common Latent Factor" (CLF) approach was employed in AMOS by incorporating a latent factor that loaded on all observed indicators. The standardised regression weights obtained before and after introducing the CLF were compared, and the differences for all indicators were under the suggested threshold of 0.20, demonstrating that CMB did not materially influence the measurement model or the study findings ([Podsakoff et al., 2003](#)).

An effective model fit assesses the correspondence between a theoretical model and empirical data. Earlier investigations suggested that a model is believed to be well-fitting if it attains an "Adjusted Goodness-of-Fit Index (AGFI)" ≥ 0.80 , "chi-square/degree of freedom (CMIN/DF)" ≤ 3 , "Normed Fit Index (NFI)" ≥ 0.90 , "GFI" ≥ 0.90 , "Comparative Fit Index (CFI)" ≥ 0.90 and a "root mean square error of approximation (RMSEA)" ≤ 0.08 ([Hair et al., 2013](#)). The fit indices of the measurement model for this study, as shown in [Table 2](#), were revealed to be within the acceptable range.

4.2 Content, convergent and discriminant validity

In maintaining content validity, items summarised in [Table 1](#) from previous investigations within the relevant domain of sustainable consumption were adapted for this study. Moreover, prior research suggested the necessary thresholds for confirming the reliability and validity of the investigation's data. For example, to confirm convergent validity (CV), factor loadings for measurement items should be above 0.50, "composite reliability" (CR) must be higher than 0.70 and "average variance extracted" (AVE) should surpass 0.50 ([Hair et al., 2013](#)). [Table 3](#) demonstrates that the data from this investigation fulfil these requirements, thereby proving the CV. Prior research has supported the evaluation of DV based on the succeeding two criteria. Firstly, the correlation coefficient between any two determinants should be less than the square root of their respective AVEs, which are italic summarised in [Table 3](#). Secondly, the maximum shared variances must be less than the AVEs of the study constituents. The square root of the AVE should exceed the correlation coefficients among the constituents ([Sarstedt et al., 2020](#)), as summarised in [Table 3](#). The study's outcomes meet these criteria, thereby confirming the DV.

4.3 Structural model examination

The structural model is validated in the second step to test the proposed associations between the constituents and the conceptual model. Similar to the measurement model, the fit indices at

Table 2. Fit indices and limits

Fit indices	Limits	Measurement model	Structural model
CMIN/DF	≤ 3.0	1.110	1.753
NFI	≥ 0.9	0.975	0.959
RMSEA	≤ 0.08	0.015	0.040
AGFI	≥ 0.8	0.946	0.912
GFI	≥ 0.9	0.960	0.932
CFI	≥ 0.9	0.997	0.982

Source(s): Authors' own work

Table 3. Validity and reliability of data

	CR	AVE	MSV	PEB	HC	AoC	EC	SN	PBC	Attitude	PI
PEB	0.91	0.75	0.26	0.87							
HC	0.90	0.76	0.26	0.43	0.87						
AoC	0.93	0.81	0.29	0.44	0.51	0.90					
EC	0.94	0.84	0.27	0.41	0.48	0.45	0.92				
SN	0.90	0.76	0.27	0.32	0.29	0.34	0.36	0.87			
PBC	0.92	0.79	0.35	0.43	0.42	0.47	0.39	0.40	0.89		
Attitude	0.94	0.85	0.34	0.51	0.50	0.50	0.52	0.52	0.59	0.92	
PI	0.92	0.80	0.32	0.51	0.51	0.53	0.43	0.34	0.48	0.57	0.89

Note(s): AVE = Average variance extracted, CR = Composite reliability, PI = Purchase intention, SN = Subjective norm, PEB = Pro-environmental belief, HC = Health consciousness, AoC = Awareness of consequences, EC = Ethical concern, PBC = Perceived behavioural control, MSV = Maximum shared variance

Source(s): Authors' own work

this point were found to be within the permitted range (summarised in Table 2). Path coefficient determination was employed to evaluate the primary causal pathways. Results revealed that HC ($\beta = 0.21$), AoC ($\beta = 0.27$) and EC ($\beta = 0.30$) have a favourable linkage with Muslim consumers' attitudes toward GC (see Table 4). Additionally, it was revealed that HC ($\beta = 0.24$), attitude ($\beta = 0.25$), PBC ($\beta = 0.14$) and PEB ($\beta = 0.24$) had a noteworthy, favourable association with consumers' PI of GC. Furthermore, AoC ($\beta = 0.34$) and EC ($\beta = 0.26$) are positively linked with the PEB of consumers, whereas SN ($\beta = 0.02$) is found to have no substantial linkage with the consumer's PI of GC.

SEM evaluation suggested that the conceptual model forecasted significant variation in consumers' Attitudes, PEB and PI, as evidenced by R^2 (multiple squared correlation) values of 68.9% for attitude, 27% for PEB and 60.7% for PI (presented in Figure 2). The R^2 values demonstrated that the study's proposed model in the current investigation has sufficient and satisfactory predictive capability in explaining the attitude, PEB and PI of Muslim consumers in India (Hair *et al.*, 2013). The aforementioned R^2 values exceeded 25%, which is deemed adequate according to prior studies on user behaviour (Kaur *et al.*, 2020; Zaki *et al.*, 2025). Ultimately, the structural model supported nine of the ten proposed hypotheses, thereby

Table 4. Results of the structural model

Hypothesis	Path	β	C.R	P	Result
H1	HC $\rightarrow$ Attitude	0.21	4.64	<0.001	Supported
H2	HC $\rightarrow$ PI	0.24	4.14	<0.001	Supported
H3	AoC $\rightarrow$ PEB	0.34	5.61	<0.001	Supported
H4	AoC $\rightarrow$ Attitude	0.27	6.68	<0.001	Supported
H5	EC $\rightarrow$ PEB	0.26	6.29	<0.001	Supported
H6	EC $\rightarrow$ Attitude	0.30	5.23	<0.001	Supported
H7	Attitude $\rightarrow$ PI	0.25	5.31	<0.001	Supported
H8	SN $\rightarrow$ PI	0.02	0.49	0.624	Not Supported
H9	PBC $\rightarrow$ PI	0.14	2.92	<0.01	Supported
H10	PEB $\rightarrow$ PI	0.24	5.37	<0.001	Supported

Note(s): SN = Subjective norm, PEB = Pro-environmental belief, HC = Health consciousness, AoC = Awareness of consequence, EC = Ethical concern, PBC = Perceived behavioural control, β = Standardised regression weights, P = Probability, C.R = Critical ratio, PI = Purchase intention

Source(s): Authors' own work

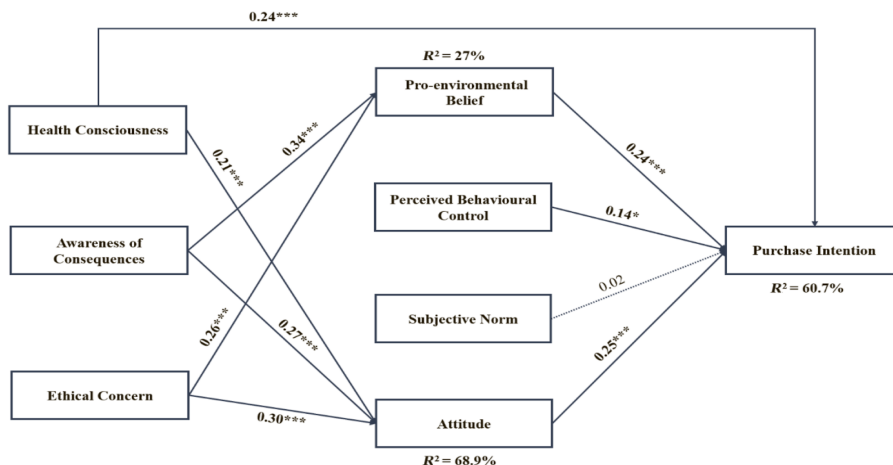


Figure 2. Result of the structural model. Source: Authors' own work

providing strong empirical support for the proposed model and demonstrating its usefulness in explaining GC PI among Indian Muslim consumers.

5. Discussion

This investigation explored the factors influencing Muslim consumers' attitudes and PI towards GC by extending the TPB with HC, AoC, EC and PEB. As presented in Table 4, HC with “ β ” of 0.21 and $p < 0.001$ is revealed to favourably influence Muslim consumers' attitudes towards GC, providing robust empirical evidence for the assumed link and the acceptance of H1. This outcome aligns with previous findings in the related area, suggesting that health-conscious consumers are more inclined to view green and sustainable products as natural, safe and free of hazardous chemicals, which fosters a positive attitude toward these products (Nguyen *et al.*, 2022; Liobikienė and Bernatoniene, 2017). Additionally, it suggests that health-conscious Muslim consumers view GC as aligning with their health and skin-related goals, thereby positively enhancing their attitude toward GC. Furthermore, the SEM results necessitated the acceptance of H2, indicating that HC has a substantial positive effect, with a “ β ” of 0.24 and $p < 0.001$, on the PI of consumers, providing considerable empirical support for the proposed association between consumers' HC and the PI of GC. This finding also reinforces previous investigations that highlight that individuals with increased HC are more inclined to choose sustainable products, such as GC, which are regarded as safer, natural and less chemically concentrated (Kim and Seock, 2009). These outcomes underscore the broader insight that consumers who emphasise personal well-being show a favourable attitude and intense intent to acquire sustainable and health-focused products, such as GC for beauty and skincare. These outcomes extend the growing literature on sustainable consumption by demonstrating that HC not only shapes favourable attitudes but also directly improves PI towards GC among Muslim consumers in an emerging economy, thereby reinforcing the applicability of TPB extensions in this context (Li and Shan, 2025).

As summarised in Table 4 and Figure 2, the SEM results supported the acceptance of H3, indicating that AoC has a substantial positive relationship with PEB, with a “ β ” of 0.34 and $p < 0.001$, providing strong empirical support for the proposed hypothesis. This result strengthens previous investigations, which highlight that consumers who recognise the negative environmental consequences of conventional or non-green consumption tend to exhibit favourable environmental beliefs and a higher sense of ecological responsibility

(Hansla *et al.*, 2008). This highlights that Muslim consumers with a high level of mindfulness regarding the impact of their consumption on health and the environment form favourable PEB. Additionally, AoC, with a strong “ β ” of 0.27 and $p < 0.001$, offers robust support for its positive influence on Muslim consumers’ attitudes toward GC, thereby supporting the proposed linkage and acceptance of H4. This outcome is consistent with previous findings, suggesting that consumers who are mindful of the environmental implications of conventional product consumption tend to view green alternatives as safer, more eco-friendly and having minimal harmful effects on the environment (Kim and Seock, 2009; Nguyen *et al.*, 2022). It also confirms that Muslim consumers with an AoC of their consumption view GC more favourably, as these products align with their concerns toward environmental protection and responsible consumption, ultimately enhancing their attitude toward GC. This finding contributes to previous research on sustainable consumption by signifying that AoC simultaneously promotes both PEB and favourable attitudes, highlighting its dual role within an extended TPB framework (Ma *et al.*, 2026).

H5 was summarised to explore the association of consumers’ EC with their PEB. The SEM results suggested the acceptance of H5, implying that EC has a considerable favourable effect on PEB on the consumers, with a “ β ” of 0.26 and $p < 0.001$. This result supports previous research, which highlights that consumers who are sensitive to ethical issues, such as animal welfare, sustainable sourcing, fair production and environmental protection, tend to form stronger environmental beliefs and a heightened sense of environmental responsibility (Ertz *et al.*, 2016; Joshi and Rahman, 2019). It further indicates that Muslim consumers with high EC, who are aware of the moral and ecological consequences of their consumption, are more likely to form favourable PEB. Additionally, EC, with a robust “ β ” of 0.30 and $p < 0.001$, provides robust support for its favourable influence on Muslim consumers’ attitudes toward GC, thereby forcing the acceptance of H6. This suggests that ethically conscious consumers tend to evaluate green and sustainable products more favourably, as these products align with their moral values and expectations of cruelty-free and environmentally responsible production (Amberg and Fogarassy, 2019). Hence, confirming prior research, it highlights that Muslim consumers with higher EC form more positive attitudes toward GC because they view the production of these products as fair and follow ethical sourcing practices, which align with their ethical and sustainability-related concerns. These results further strengthen prior research outcomes, emphasising the importance of ethical consumption while extending the evidence to GC among Indian Muslim consumers, an underexplored consumer segment in the sustainable marketing literature (Raubert *et al.*, 2026).

The current investigation proposed H7, H8 and H9 to evaluate the impact of TPB’s factors on the consumer’s PI of GC among Muslim consumers in India. In which H7 was summarised to investigate the association between consumers’ Attitude and their PI of GC. The SEM findings supported the acceptance of H7, showing that Attitude has a strong positive effect on the PI of the consumers, with a “ β ” of 0.25 and $p < 0.001$. Aligning with the opinion of TPB, similar to those in related investigations on sustainable and green consumption, these outcomes emphasise that favourable evaluations of green and sustainable products significantly improve consumers’ PI of the products (Yadav and Pathak, 2017; Kim and Seock, 2009). Additionally, it suggests that Muslim consumers, who view GC as beneficial and safe and perceive these products as being ethically produced with minimal environmental impact from production to consumption, tend to align GC with their personal evaluation and form stronger PI of these products. The results further reinforce the central proposition of TPB by confirming attitude as one of the strongest predictors of GC purchase intention in the present context (Upadhyaya and Sijoria, 2026).

Focussing on the second component of the TPB model, H8 examined the association between SN and consumers’ PI of GC. Based on the results obtained in the SEM evaluation, SN is found to have no noteworthy effect on PI, with a non-significant “ β ” of 0.02 and $p = 0.624$, leading to the non-acceptance of H8. Interestingly, this finding contrasts with the traditional TPB assumption that social pressure plays an important role in shaping behavioural

intentions (Limbu and Ahamed, 2023; Jaini *et al.*, 2020). One possible explanation relates to the nature of cosmetic consumption. Unlike highly visible consumption behaviours, GC purchases are often personal and privately experienced, which may reduce the influence of social expectations. Consumers may therefore rely more on their own health concerns, ethical values and environmental beliefs than on others' opinions when evaluating cosmetic products (Liobikienė and Bernatoniene, 2017). Another possible explanation is that environmentally responsible consumption decisions may increasingly reflect internalised personal values rather than conformity to SN. In the present context, HC, EC and PEB may represent stronger motivational drivers than perceived social expectations. This outcome suggests that individual value orientations may play a more important role than social influence in shaping environmentally friendly GC consumption decisions (Testa *et al.*, 2024). Additionally, as GC consumption is still emerging in India, purchase decisions may be driven more by personal convictions than by social expectations. This finding suggests that TPB may require context-specific extensions when explaining sustainable consumption behaviour in emerging markets.

H9 explored the linkage between PBC on consumers' PI of GC among Muslim consumers in India. The SEM outcomes confirmed the acceptance of H9, suggesting that PBC has a noteworthy positive effect on PI, with an acceptable " β " of 0.14 and $p < 0.01$. This result aligns with the TPB model and the opinion of the previous investigations' findings, signifying that when consumers feel confident in their capacity to access, afford and use green products, their PI for these products increases substantially (Koay and Ahmed, 2025; Yazdanpanah and Forouzani, 2015). This outcome suggests that when Muslim consumers perceive GC as readily available, affordable and easy to integrate into their daily routines for beauty and skincare, they are more motivated to purchase these products. This finding further confirms the continued relevance of PBC within TPB for explaining sustainable consumption behaviour.

H10 investigated the impact of consumers' PEB on their PI of GC. The SEM findings supported the acceptance of H10, indicating a substantial and favourable linkage between PEB and PI, with a " β " of 0.24 and $p < 0.001$. This novel finding highlights that customers with advanced PEB are more willing to support sustainable, eco-friendly and green products. Additionally, it highlights that consumers' AoC and EC favourably shape their PEB, resulting in their inclinations toward purchasing green products, such as GC, in the current context. Hence, Muslim consumers with a higher AoC of their consumption and stronger EC develop a favourable PEB, which ultimately increases their intention to purchase GC. This outcome extends previous research by demonstrating the important role of PEB as an additional explanatory factor beyond the traditional TPB variables (Khan *et al.*, 2026; Soliman *et al.*, 2026).

6. Implications

6.1 Theoretical implications

The current investigation examined the dimensions that affect the Attitude and PI of Muslim consumers toward GC in India. This investigation's outcomes present several theoretical contributions by extending the TPB and enriching the expanding literature on sustainable consumption and GC. Building on previous TPB and green consumption studies (Pop *et al.*, 2020; Hoang *et al.*, 2024; Sonkar *et al.*, 2025), the current findings provide new empirical support from the underexplored context of Indian Muslim consumers. First, the investigation addresses a research gap in prior literature by integrating critical antecedents directly linked to consumer attitudes, such as HC, AoC and EC, into the TPB framework. While TPB conventionally focuses on Attitude, SN and PBC, limited studies have examined how these personal and moral factors of Muslim consumers shape their PI in the GC. The findings highlighted that HC, AoC and EC substantially shape Attitude and PEB, thereby enriching the predictive ability of TPB for sustainable consumption, such as GC, in the current context. These findings complement earlier TPB extension studies by demonstrating that health and ethics-related motivations substantially improve TPB's explanatory power for sustainable

consumption behaviour (Upadhyaya and Sijoria, 2026). Second, prior literature has focused on less attention on examining the linkage between AoC and the shopper's PEB and attitude related to green products, such as GC. The current investigation successfully adds value to the literature on green product consumption and the TPB model by validating a favourable linkage of AoC with the consumer's PEB and attitudes toward green consumption. This result extends previous research on sustainable consumption by demonstrating that AoC simultaneously strengthens consumers' PEB and favourable attitudes towards GC, thereby reinforcing the importance of awareness as a psychological driver of environmentally responsible behaviour (Testa *et al.*, 2024). Third, previous related works on green consumption have not fully explored the effect of EC on the customer's PEB and their attitudes. The current investigation uniquely proposed and validated favourable linkages between EC and consumers' PEB and attitude toward green consumption, like GC for beauty and skincare, adding value to the TPB and green consumption literature. Accordingly, the investigation broadens the theoretical understanding of ethical consumption by demonstrating that EC simultaneously strengthens both PEB and attitudes towards GC, thereby extending previous sustainable consumption research (Dwivedi *et al.*, 2025). Finally, the non-significant effect of SN provides additional theoretical insight into the boundary conditions of TPB. The outcome revealed that, for Muslim consumers in India, personal values and internal motivations outweigh social pressure in shaping the PI of GC. This finding suggests that the explanatory power of TPB may vary across sustainable consumption contexts and can be enhanced by incorporating context-specific determinants. Hence, the present investigation contributes to the ongoing refinement of TPB by identifying circumstances in which individual ethical, health-related and pro-environmental considerations are more influential than perceived social expectations (Zhao *et al.*, 2025).

6.2 Managerial implications

The findings of this study offer several implications for practitioners seeking to enhance GC adoption in India's emerging market context, particularly among Muslim consumers. First, the positive influence of HC on both attitude and PI suggests that GC manufacturers and marketers should position GC around its natural composition, chemical-free ingredients and dermatological safety, thereby strengthening consumer appeal. Emphasising long-term health and skin benefits can be effective in attracting health-conscious segments. Second, AoC emerges as a key driver of both attitude and PEB. This suggests that increasing consumer awareness regarding the environmental and health risks associated with conventional cosmetics through transparent ingredient information, expert endorsements and educational content may foster more favourable evaluations of GC. Third, the significant role of PEB highlights the importance of communicating sustainability-oriented practices. Messaging about eco-friendly packaging, ethical sourcing and cruelty-free production can enhance consumer trust and strengthen purchase intent. Hence, GC marketers should also emphasise environmentally responsible manufacturing practices to reinforce brand credibility. Fourth, EC significantly shapes both attitude and PEB, indicating that consumers are responsive to moral and ethical dimensions of production. Accordingly, highlighting fair-trade practices, ethical sourcing and socially responsible production processes may improve consumer perceptions and engagement and greater transparency regarding sourcing and production practices may further strengthen consumer trust. Fifth, investment in consumer education initiatives such as workshops, digital campaigns and collaborations with credible influencers may further strengthen AoC and EC, thereby indirectly enhancing PEB and purchase intention. Sixth, PBC significantly influences purchase intention, suggesting that improving product accessibility and availability across both offline and online channels is critical. Ensuring affordability through appropriate pricing strategies may further enhance consumers' perceived ability to purchase GC. Finally, the non-significant effect of SN indicates that purchase decisions in this context are largely driven by individual motivations rather than

social influence. This implies that personalised digital marketing strategies and targeted communication may be more effective than reliance on social or peer-based persuasion. Additionally, partnerships with dermatologists, environmental organisations and halal certification bodies may enhance credibility and reinforce Muslim consumers' trust in GC products. Marketing messages by GC marketers should therefore place greater emphasis on consumers' personal health benefits, ethical values and environmental responsibility rather than relying primarily on social influence.

7. Limitations and future research directions

Despite its contributions, this study has several limitations that should be considered when interpreting the findings. First, the cross-sectional research design limits the ability to establish causal relationships among the examined factors. Although the analysis identified significant associations among constructs, longitudinal research designs would provide stronger evidence of the causal mechanisms underlying GC purchasing behaviour. Second, the study employed purposive sampling and collected data from consumers visiting shopping malls and cosmetic stores in two metropolitan cities, New Delhi and Mumbai. As a result, the sample largely represents urban, educated Muslim consumers. It may not fully reflect the broader Muslim population across India, particularly those residing in rural areas or smaller cities where socio-economic conditions and environmental awareness may differ. Third, the study relied on self-reported survey responses, which may introduce potential CMB despite statistical checks suggesting no serious concern. Although several procedural remedies and Harman's single-factor test indicated that CMB was unlikely to substantially influence the findings, future studies may employ additional statistical techniques, such as marker variables or latent common method factor approaches, to provide more rigorous assessments. Fourth, the non-significant association between SN and PI suggests that SN's effects may vary across product categories, consumer groups and cultural contexts. Hence, the outcomes regarding the role of social influence should be interpreted with caution and validated in other settings or contexts before making broader generalisations. Finally, although the model explains substantial variance in attitude and PI, the explanatory power for PEB remains moderate, indicating that additional psychological or contextual factors may influence the development of environmental belief systems. Accordingly, the findings should be interpreted within the specific socio-cultural context of Indian Muslim consumers and should not be generalised beyond similar consumer settings without further empirical validation.

Given the limitations of the current investigation, future work may consider a longitudinal design, which could yield robust findings on the factors that substantially shape Muslim consumers' attitudes and PI toward GC. Future enquiries may also employ other appropriate procedures, such as multi-stage or systematic sampling, to tap into Muslim consumers across a broader population, allowing findings to be generalised. Further, future work may extend the current investigation's conceptual model to include halal certification, perceived quality, trust and perceived cost, thereby providing a broader understanding of the antecedents shaping Muslim consumers' attitude and PI toward GC. Future research may also explicitly incorporate religiosity or halal orientation as an explanatory factor to assess how religious commitment interacts with ethical and environmental considerations in shaping GC purchase behaviour. Future investigations should also examine the conditions under which SN becomes a significant predictor of purchase intention by comparing across product categories, consumer segments and cultural contexts, thereby offering a deeper comprehension of the TPB's contextual applicability. Furthermore, future studies may investigate the purchase patterns of GC among Muslim consumers across different groups within the country or across national borders. Lastly, future works may consider potential moderating factors, such as gender, income, or religiosity. Comparative studies involving Muslim and non-Muslim consumers or consumers from different cultural settings may also provide deeper insights into the generalisability of the proposed model and the contextual applicability of the extended TPB framework.

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Corresponding author

Mehfooz Zaki can be contacted at: mehfooz5065@gmail.com