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The role of motivation and knowledge in promoting green consumer behavior in Saudi Arabia and Pakistan

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Abstract: This research explores the factors influencing consumers' intentions and behaviors toward purchasing green products in two culturally and economically distinct countries, Saudi Arabia and Pakistan. Drawing on Ajzen's Theory of Planned Behavior (TPB), the study examines the roles of altruistic and egoistic motivations, alongside environmental knowledge, in shaping green consumer behavior. Altruistic motivation, driven by concern for societal well-being and environmental sustainability, is found to have a stronger impact on green purchase intention and behavior in both countries, particularly in Pakistan. Egoistic motivation, which focuses on personal benefits like health and cost savings, also contributes but with a lesser influence. The research employs a cross-sectional survey design, collecting data from 1000 respondents (500 from each country) using a stratified random sampling technique. The collected data were analyzed using structural equation modeling (SEM) to examine the relationships between variables and test the moderating effects of environmental knowledge. The results reveal that environmental knowledge significantly moderates the effect of both altruistic and egoistic motivations on green purchase intention, enhancing the likelihood of eco-friendly consumption. These findings underscore the importance of environmental education in promoting sustainable consumer behavior. The originality of this study lies in its comparative analysis of green consumerism in two distinct contexts and its exploration of motivational factors through the TPB framework. Practical implications suggest that policymakers and marketers can develop strategies that appeal to both altruistic and egoistic drivers while enhancing consumer knowledge of environmental issues. The study contributes to the literature by expanding TPB to include the moderating role of environmental knowledge in understanding green consumption behavior across diverse cultures.

Keywords: green consumerism; altruistic motivation; egoistic motivation; environmental knowledge; theory of planned behavior (TPB)

1. Introduction

Green consumerism provides environmental, economic and social values that are particularly important to the industrialized nations that are experiencing rapid urbanization (Hameed et al., 2022). In terms of its impact on the environment, green consumerism guarantees minimal waste and pollution; which are paramount causes of effect such as water and air pollution. As a result, it supports world's efforts towards fighting climate change (Tezer and Bodur, 2020). For social perspective, it promotes responsible and sustainable use of products and/or services especially amongst the youth, thus improves standards of living and social relations among the inhabitants of

the communities (Zaremohzzabieh et al., 2021). Given that the issues of social and environmental sustainability are acute in today's world (Alamsyah et al., 2020), solving these problems calls for a change of attitude among consumers especially in the selections they make.

Present research is aimed at identifying key motivational factors that might influence consumers to incline towards buying green and eco-friendly products. Knowing these factors is likely to enable organizations to develop efficient strategies for attracting more customers while achieving sustainability goals. Drawing from Ajzen's (2002) theory of planned behavior (TPB), this study proposes altruistic and egoistic motivation as drivers of consumers' green purchase intention which subsequently leads towards green behavior. TPB posits that an individual's action is a function of his/her attitude towards performing the behavior and the level of perceived control over the behavior (Boobalan and Nachimuthu, 2020). In the context of the sustainability and green consumerism, this study attempts to explain how both altruistic and egoistic perspectives foster the intention to engage in purchase of green products and ultimately actual purchase of green products/services. TPB contends that perceived attitude towards the behavior has a large effect on the behavioral intention (Ichsan et al., 2020). Altruistic motivation-individual's behaviors based on empathy and benefits for others-reckons green consumption as important mean of collective-wellbeing, gain for society, and moral and ethical value, hence, influences consumers and shapes attitudes inclined towards green purchases (Witek and Kuźniar, 2020). On the other hand, the egoistic motivation–individual's behaviors based on his/her personal gain and self-interest-recognizes green consumption as source of health benefits, social recognition, and other personal benefits (e.g. reduced cost by using energy-efficient appliances), thus also contributes in making positive attitudes towards green products/services (Thakkar, 2021).

Besides a positive influence of motivation factors on the intent and subsequent behavior of consumers towards green products, it is suitable to investigate contextual factors that might hinder or catalyze the effect of motivational factors. In this regard, this study posits that consumers' knowledge about principles and values of environmentalism increases the likelihood of their propensity towards green purchase intention and consumption behavior. Since perceived behavioral control is a very important component of the Ajzen's model and it is expected that knowledge of environment can significantly boost this parameter (Martínez et al., 2020). For example, through persuasive knowledge, consumers' green purchase intentions are more likely to be strengthened and the effect of both the egoistic and altruistic motivation will be enhanced (Rustam et al., 2020). Likewise, knowing about benefits that green products may bring is likely to convince consumers for green buying and consumption. For instance, having knowledge consumers can save cost in electricity bills by using eco-friendly appliances increases the propensity towards green consumer behavior. Similarly, the role green products play in preventing hazardous impacts on health and imparting positive impact on environment also catalyzes consumers' motivation towards green purchase intention and in turn towards green behavior. Thus, the level of consumers' knowledge about environmentalism is expected to moderate the effectiveness of altruistic and egoistic motivation in

determining green purchase intention which in turn leads towards green consumer behavior (Rafi et al., 2022).

This study contributes to the existing body of literature in following ways. First, understanding green purchase intention is important to close the gap between attitudes and behaviors of consumers regarding green products. Based on TPB, individuals with more positive attitude toward performing a particular behavior demonstrate better perceived control of several behavioral determinants, hence, are more likely to perform the behavior (Jaiswal et al., 2021). Therefore, it is crucial to uncover how motivational orientation on the part of the actors influences green purchase intention so as to infer about green consumer behavior. Second, this study proposes consumers' environmental knowledge as key moderator which imparts significant effect in strengthening the influence of altruistic and egoistic motivation in developing green purchase intentions. This will help researchers and managers to understand the role of contextual factors, especially to comprehend that when motivational factors are more effective in fostering consumers' attitudes and behaviors towards green consumption. Third, this study takes a comparative approach by identification of the motives that compel consumers in two culturally, demographically, and geographically diverse countries (i.e., Kingdom Saudi Arabia and Pakistan) in making environmentally friendly purchases. The cases of KSA and Pakistan provide an interesting background to analyze the green consumer behavior. The cradle of Islamic civilization and the largest producer of oil, Saudi Arabia, which has had a slow pace of sustainability integration as a part of its Vision 2030 strategy (Testa et al., 2021). It is, however, important to mention that Pakistan has its own unique set of environmental issues and socio-economic factors through which influences the green consumerism industry differently (Sun et al., 2020). Through the systematization of results this study aims to discover the differences and similarities of altruistic and egoistic factors, the role of environmental knowledge in the process and their relation to intents and behaviors towards green purchases in the two countries under comparison. The study aims to explore three key objectives: first, to examine how altruistic and egoistic motivations influence green purchase intention and consumer behavior in Saudi Arabia and Pakistan; second, to investigate the moderating role of environmental knowledge in shaping these relationships; and third, to compare green consumer behavior between these two culturally diverse countries, identifying key differences and similarities.

2. Literature review and hypotheses development

2.1. Green consumer behavior

The research on green consumer behavior has seen a marked progress in the past few decades, conclusively marking an increasing consciousness of people towards environmental problems and unsustainable consumption. Earlier studies on consumer behavior towards green products identified several factors (e.g., social influences, environmental concern, perceived risks, and green image of the company) that affect consumer behavior towards such products (Sharma, 2021). Moreover, studies also highlighted demographic (e.g., age and education level) and cognitive factors (e.g., self-reflect, environmental cognition) and argued their influence on consumers' awareness and buying behavior regarding green products (Gilal et al., 2020). However,

prior studies have also reported a fair amount of discrepancy between stated attitude and actual purchase intentions towards green products (Luo et al., 2020; Witek and Kuźniar, 2020). The reason being, for instance, the current global market share of green products is at about 7%–8%; customers find difficulty in distinguishing actual green products from the numerous fake products available in the market (Khan et al., 2020a). Han (2022) provided determinants of green purchasing behavior that fell under individual characteristics and product characteristics/basic environmental knowledge. These are relevant findings for marketers that want to understand the discrepancy between consumers' stated behaviors and actions (Sivapalan et al., 2021).

Nonetheless, this study draws from TPB and suggests that consumer intention and actual behavior towards green consumption can be better understood in the light of consumers' perception, understanding, and values towards environmentalism. Hence, using self-centered (egoistic) and other-centered (altruistic) motivational aspects through the lens of consumers' environmental knowledge offer comprehensive explanation of why and when consumers are proponents of green products. This approach is likely to provide a more accurate understanding of consumers' decision-making in this regard (Shabbir et al., 2020) because consumer behavior is complex in nature and people tend to be less receptive to change, thus, increased consciousness and motivation for green consumption is expected to involve in actual engagement of green consumption behavior.

Research on green consumer behavior in countries like Saudi Arabia and Pakistan has also shown increasing awareness and interest in sustainable products. However, these regions face unique challenges, such as varying levels of environmental knowledge and socio-cultural differences, which can impact the efficacy of green marketing strategies (Ahmad et al., 2023; Khan et al., 2022). By considering these contexts, the study aims to offer a nuanced understanding of green consumption in emerging markets.

2.2. Altruistic motivation and green consumer behavior

Altruism is generally used to describe a behavior which is based on the endeavor and coordination to seek the benefit for other people instead of giving importance to one's own benefits (Ahmad and Zhang, 2020). Individuals motivated by altruism focus on well-being of others without seeking personal benefits and engage in acts that may not provide direct personal rewards or might even come at a personal cost. In the context of green consumerism and sustainability, altruistic individuals may show empathy for those directly affected by environmental degradation. For instance, communities suffering from pollution or other detrimental impacts of climate change can motivate altruistic individuals to engage in environmental protection endeavors. Likewise, engaging in actions to reduce carbon footprints, support conservation efforts, and advocating for sustainable policies may lead altruistic individuals to ensure a healthier planet for future generations. These actions would warrant collective wellbeing over personal gain, hence, will contribute towards society by engaging in community-based environmental initiatives. Last but not least, altruistic individuals may feel a moral obligation to protect society and environment by believing that it is the right thing to do, regardless of personal benefits. Hence, altruistic motivation

generates positive propensity and attitude towards green consumption in sustainability and environmentalism context. Altruistic motivation, in this way, is likely to promote green purchase intentions and subsequent green consumer behavior.

H1: Altruistic motivation increases green purchase intention which in turn promotes green consumer behavior.

2.3. Egoistic motivation and green consumer behavior

Egoistic motivation concentrates on behaviors that protect self-interests and provide personal benefits. This is assumed to be the normal condition of individual's and is commonly used as the first-told reason for action (Fanggidae et al., 2023). The principle of psychological egoism is based on the idea that people's final goals in all that they do is to benefit oneself, whether in form of extrinsic reinforcement such as prize, or intrinsic such as self-generated feelings of pleasure (Tamborini et al., 2021). In sustainability context, individuals' actions are guided by considerations of how they will benefit personally, whether through tangible rewards, social recognition, or enhanced self-esteem. For example, if an individual perceives that eco-friendly actions will lead towards personal benefits such as cost savings (e.g., reduction in bills by using energy-efficient equipment), he/she is more likely to engage in such behaviors. Likewise, egoistic motivation can determine sustainable actions if individuals seek social approval or recognition (e.g., driving an electric car may heighten social status and/or reputation). Besides socio-economic benefits, egoistic motivation can drive an individual to consume green products when he/she seeks health and physical benefits. For instance, eating organic food can benefit health and compliance with environmental regulations may prevent from adverse consequences. Hence, egoistic motivation induces energy and inclines individuals towards consuming green products as long as perceived personal benefits outweigh the costs. Therefore, this study posits that egoistic motivation prompts green purchase intention which in turn fosters green consumer behavior.

H2: Egoistic motivation increases green purchase intention which in turn promotes green consumer behavior.

2.4. Role of environmental knowledge

Environmental knowledge plays important role in shaping individuals' attitudes and behaviors, especially in the context of sustainability and green consumption. Environmental knowledge in influences individuals' positive attitudes towards green products because individuals with higher environmental knowledge are more likely to develop positive attitude towards the eco-friendly products as they know what these products can offer to the environment. This positive attitude towards green products will form an intention and translate into consistent behavior, as individuals with strong environmental knowledge are more confident in their buying decisions, hence, are more likely to act in accordance with their attitude. Individuals with significant subjective environmental knowledge tend to have higher confidence in performing pro-environmental behaviors (Kalyar et al., 2013). This confidence is vital as it directly influences their willingness to engage in actions. Conversely, lack of

environmental knowledge can lead to hesitation and lower self–efficacy, thus hindering green behaviors.

Previous studies suggest that environmental knowledge is a strong determinant of environmental attitude and the latter determines the behavioral intention (Hao and Du, 2021). For instance, previous researches revealed that the subjects with better knowledge of the environment are more likely to possess positive attitude towards environmental protection and practice more pro-environmental behaviors (Dong and Bavik, 2023). Given this relationship, it is clear that efforts should be made to improve educational approaches meant to raise awareness on the environment in order to promote the defined sustainable practices (Cahyasita, 2021). In this study, we contend that environmental knowledge moderates the effects of altruistic motivation and egoistic motivation on green purchase intention. For altruistic motivation, environmental knowledge enhances the effectiveness of altruistic individuals for their attitudes and intension towards green products. By increasing awareness regarding impact of green behaviors, reinforcing moral standards, and empowering individuals with the information they need to make choices, environmental knowledge ensures that altruistic motivation is strong, consistent, and more likely to result in positive environmental actions. In this way, environmental knowledge is expected to moderate the relationship between altruistic motivation and green purchase intention such that the relationship is strong for individuals with higher level of environmental knowledge (Abrudan et al., 2022). Likewise, environmental knowledge helps individuals to recognize personal gains by enhancing awareness about tangible and socio-economic benefits. Environmental knowledge empowers individuals to increase perceived control and efficacy by reducing uncertainty and reckoning that they are capable of making green decisions. Similarly, environmental knowledge facilitates individual to align their actions with their self-concept (e.g. positive self-image), where such alignments reduce cognitive dissonance and enhance the satisfaction derived from green decisions (Shafique et al., 2021). Therefore, it is expected that the relationship between egoistic motivation and green purchase intention is strong under high environmental knowledge. Hence, we propose that;

H3: Environmental knowledge moderates the relationship of altruistic motivation and green purchase intention.

H4: Environmental knowledge moderates the relationship of egoistic motivation and green purchase intention.

H5: Green purchase intention mediates the interaction effect of altruistic motivation and environmental knowledge.

H6: Green purchase intention mediates the interaction effect of egoistic motivation and environmental knowledge.

Figure 1 given below provides conceptual framework for this study, where the framework has been developed on the basis of theory of planned behavior (TPB).
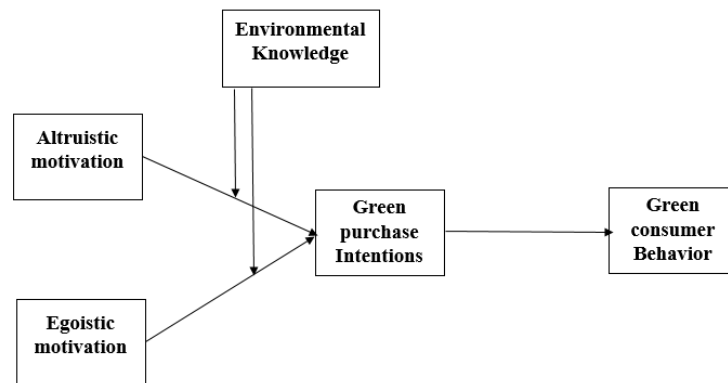
Figure 1. Conceptual framework based on TPB.

3. Methodology

The study carried cross-sectional data compiled from the consumers in KSA and Pakistan, applying the stratified simple random sampling method to include an adequately diverse demographic population sample from both countries. Consumers in each country comprised 500 as the total number of participants targeted was 1000.

In this research, the questionnaire developed for the study was divided into two parts. The first part of the study involved gathering basic demographic data including the country of origin, gender, age, educational level and occupation in order to validate the sample and background of the respondents. The second part of the questionnaire gauged the research's main factors through standardized indices that were slightly modified to fit the context of this investigation. All the items in the questionnaire were Likert type with the response measured on a scale from strongly disagree to strongly agree. The full questionnaire used for this study, including all items for each variable, is provided in Appendix to ensure clarity on the data collection process.

One of the independent variables, Altruistic motivation, was measured using a scale that was adopted from that designed by Tarkiainen and Sundqvist (2005) and comprised of four items. Egoistic motivation the other independent variable, was measured using three item scale adopted from Sánchez-Fernández (2009). Green purchase intention, the mediating variable, was measured by a four item scale created from Kamalanon (2022). Green consumer behavior, the dependent variable, was adopted from the study of Nguyen and Le (2020) with four items. Environmental knowledge, the moderating variable, was assessed through adapting the scale from Mohiuddin (2018) and it include of five items.

4. Results

4.1. Case-I data analysis for Saudi Arabian respondents

In case-I the data was collected from Saudi Arabia. Among the 500 respondents shows a predominance of males (70.6%), with females at 20.2% and 9.2% preferring not to disclose their gender. The largest age group is 26–39 years (49.2%), followed by 18–25 years (32.8%). Most participants have completed higher secondary education (55.2%), while fewer hold a bachelor's degree (16.8%) or higher

qualifications. In terms of occupation, the private sector employs the most respondents (32.0%), followed by students (19.0%) and business owners (15.4%). This demographic overview highlights the varied backgrounds of the respondents, which may influence their perspectives in the study.

Table 1. Correlation matrix Saudi Arabia data.

	Egoistic Motivation	Altruistic Motivation	Green Consumer Behavior	Green Purchase Intention
Egoistic Motivation				
Altruistic Motivation	0.246			
Green Consumer Behavior	0.541	0.52		
Green Purchase Intention	0.183	0.582	0.409	
Environmental Knowledge	0.017	0.186	0.151	0.536

Table 2. Factor loading of Saudi Arabia data.

Variables and factors	Factor loading
Altruistic motivation	rho_a = 0.803, α = 0.798, AVE = 0.51
alt1	0.76
alt2	0.747
alt3	0.673
alt4	0.662
Egoistic motivation	rho_a = 0.933, α = 0.783, AVE = 0.56
ego1	0.781
ego2	0.722
ego3	0.741
Environmental Knowledge	rho_a = 0.692, α = 0.883, AVE = 0.67
ek1	0.990
ek2	0.630
ek3	0.831
ek4	0.843
ek5	0.763
Green Consumer Behavior	rho_a = 0.894, α = 0.892, AVE = 0.67
gcb1	0.846
gcb2	0.87
gcb3	0.766
gcb4	0.795
Green Purchase Intentions	rho_a = 0.810, α = 0.807, AVE = 0.51
gpi1	0.587
gpi2	0.741
gpi3	0.725
gpi4	0.78

The correlation matrix of the data collected from Saudi Arabia (presented in **Table 1**) shows that altruistic motivation has stronger positive correlations with green consumer behavior (0.520) and green purchase intention (0.582) compared to egoistic

motivation, which correlates moderately with consumer behavior (0.541) but weakly with purchase intention (0.183). The original data were transformed into a correlation matrix by calculating Pearson correlation coefficients for all variable pairs. The values in the matrix represent the strength and direction of the linear relationships between the variables, with values ranging from −1 to 1. A higher positive value (closer to 1) indicates a stronger positive correlation, while a value closer to 0 indicates a weaker or no correlation. Negative values, though not observed in this study, would indicate an inverse relationship between the variables. Green consumer behavior is positively correlated with purchase intention (0.409), indicating that higher purchase intentions are associated with increased consumer behavior. Environmental knowledge has low correlations with egoistic motivation (0.017) and consumer behavior (0.151) but a moderate correlation with purchase intention (0.536), suggesting that greater environmental knowledge may enhance purchase intentions. The factor loadings demonstrate good validity for all variables, with each indicator having a loading above 0.5. In this **Table 2**, rho_a refers to composite reliability, which measures internal consistency, while α represents Cronbach's alpha, another indicator of reliability. AVE (Average Variance Extracted) shows the proportion of variance captured by the construct compared to measurement error. Factor loadings represent the strength of the relationship between each observed variable (indicator) and its underlying latent construct. These loadings were calculated using confirmatory factor analysis and reflect how well each item contributes to its respective factor. These findings align with previous studies, such as Kumar and Pandey (2023), which similarly utilized Pearson correlation coefficients and structural equation modeling (SEM) to explore green consumer behavior motivations.

Table 3. Path coefficients of Saudi Arabia data.

Relationship	path coefficient
Mediated effects	
H1: altruistic motivation → green purchase intention → green consumer behavior	0.069 *p*-value < 0.000
H2: egoistic motivation → green purchase intention → green consumer behavior	0.011 *p*-value < 0.000
Moderated effects	
H3: environmental knowledge × altruistic motivation → green purchase intention	0.185 *p*-value < 0.036
H4: environmental knowledge × egoistic motivation → green purchase intention	0.011 *p*-value < 0.000
Moderated mediation effects	
H5: environmental knowledge × altruistic motivation → green purchase intention → green consumer behavior	0.025 *p*-value < 0.000
H6: environmental knowledge × egoistic motivation → green purchase intention → green consumer behavior	0.002 *p*-value < 0.000

The analysis revealed significant insights of Saudi Arabian data into the hypothesized relationships in the model. **Table 3** and **Figure 2** display path coefficients for Saudi Arabia. Hypothesis 1 (H1) posited that altruistic motivation positively influenced green purchase intention, which in turn promoted green consumer behavior, with a path coefficient of 0.069 and a highly significant (*p*-value < 0.000), confirming this mediating effect. Similarly, Hypothesis 2 (H2) suggested that egoistic motivation positively affected green purchase intention, which promoted green consumer behavior, albeit with a smaller path coefficient (0.011) but still

significant (*p*-value < 0.000). For the moderated effects, Hypothesis 3 (H3) showed that environmental knowledge significantly moderated the relationship between altruistic motivation and green purchase intention, with a path coefficient of 0.185 and a p-value of 0.036, indicating a positive moderation. Hypothesis 4 (H4) presented a significant moderating effect of environmental knowledge on the relationship between egoistic motivation and green purchase intention (0.011, *p*-value < 0.000). For the moderated mediation effects, Hypothesis 5 (H5) confirmed that environmental knowledge moderated the mediation effect of altruistic motivation on green purchase intention and green consumer behavior (0.025, *p*-value < 0.000), while Hypothesis 6 (H6) demonstrated a small yet significant moderated mediation effect of egoistic motivation and environmental knowledge on green purchase intention and green consumer behavior (0.002, *p*-value < 0.000). These results suggested that both direct and interaction effects were essential in understanding how altruistic motivation, egoistic motivation, and environmental knowledge influenced green purchase intention and subsequently green consumer behavior in Saudi Arabia. The path coefficients were calculated using structural equation modeling (SEM), representing the strength and direction of relationships between variables, with values ranging from −1 to 1. The *p*-values indicate the statistical significance of these relationships, with values less than 0.05 suggesting significance. The structural model was built using confirmatory factor analysis (CFA) to validate the measurement model, followed by path analysis to test the hypothesized relationships.
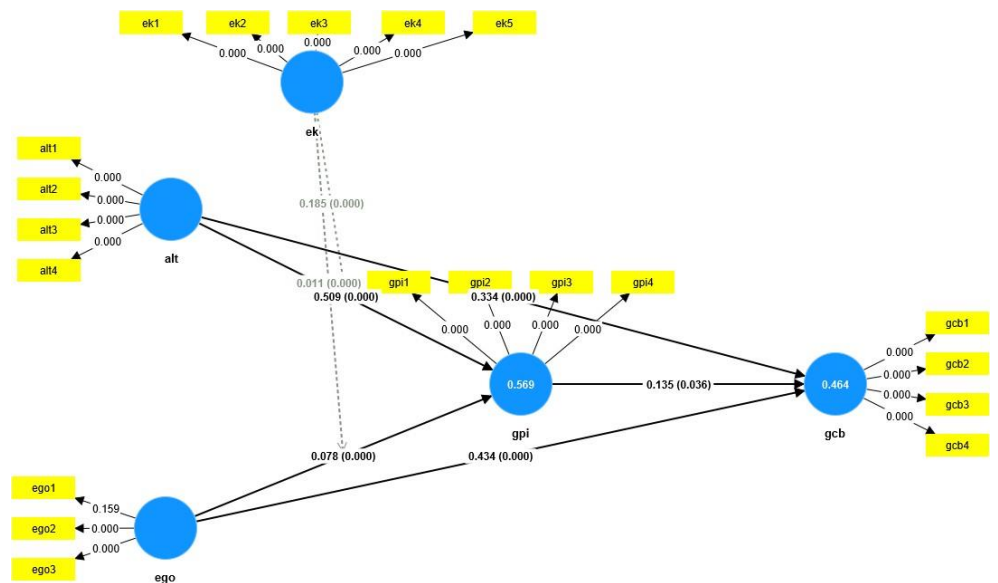

Figure 2. Structural model results Saudi Arabia data.

4.2. Case-II data analysis for Pakistan respondents

In case-II the demographics of respondents from Pakistan were 50.4% males, 43.4% females, and 6.2% preferring not to disclose. The largest age groups are 26–39 years (31.8%) and 18–25 years (30.2%). In education, 47.6% have completed higher secondary, 16.6% hold a postgraduate degree, and 15.8% have a bachelor's degree. Regarding occupation, 34.0% are business owners, 23.0% work in the private sector, and 15.6% are students.

Table 4. Correlation matrix Pakistan data.

	Egoistic Motivation	Altruistic Motivation	Green Consumer Behavior	Green Purchase Intention
Altruistic Motivation	0.234			
Green Consumer Behavior	0.488	0.513		
Green Purchase Intention	0.207	0.579	0.434	
Environmental Knowledge	0.010	0.185	0.154	0.528

The correlation matrix data collected from Pakistan (**Table 4**) shows that altruistic motivation has stronger positive correlations with green consumer behavior (0.513) and green purchase intention (0.579) compared to egoistic motivation, which correlates moderately with consumer behavior (0.488) but weakly with purchase intention (0.207). Green consumer behavior is positively correlated with purchase intention (0.434), indicating that higher purchase intentions are associated with increased consumer behavior. Environmental knowledge has low correlations with egoistic motivation (0.010) and consumer behavior (0.154) but a moderate correlation with purchase intention (0.528), suggesting that greater environmental knowledge may enhance purchase intentions. The factor loadings demonstrate good validity for all variables, with each indicator having a loading above 0.5. In the **Table 5**, rho_a refers to composite reliability, which measures internal consistency, while α represents Cronbach's alpha, another indicator of reliability. AVE (Average Variance Extracted) shows the proportion of variance captured by the construct compared to measurement error. Factor loadings represent the strength of the relationship between each observed variable (indicator) and its underlying latent construct. These loadings were calculated using confirmatory factor analysis and reflect how well each item contributes to its respective factor.

Table 5. Factor loading of Pakistan data.

Variables and factors	Factor loading
Altruistic motivation	rho_a = 0.809, α = 0.803, AVE = 0.51
alt1	0.782
alt2	0.744
alt3	0.666
alt4	0.651
Egoistic motivation	rho_a = 0.961, α = 0.604, AVE = 0.64
ego1	0.841
ego2	0.794
ego3	0.766
Environmental Knowledge	rho_a = 0.679, α = 0.488, AVE = 0.58
ek1	0.823
ek2	0.663
ek3	0.738
ek4	0.836
ek5	0.722

Table 5. (*Continued*).

Variables and factors	Factor loading
Green Consumer Behavior	rho_a = 0.902, α = 0.901, AVE = 0.69
gcb1	0.851
gcb2	0.888
gcb3	0.779
gcb4	0.807
Green Purchase Intentions	rho_a = 0.804, α= 0.801, AVE = 0.53
gpi1	0.688
gpi2	0.740
gpi3	0.753
gpi4	0.730

The analysis of data collected from Pakistan revealed strong support for the proposed hypotheses. Referring to **Table 6** and **Figure 3**, the results indicate that both altruistic motivation (H1) and egoistic motivation (H2) positively influence green purchase intentions, which in turn promote green consumer behavior. This is evidenced by significant direct effects (altruistic motivation → green consumer behavior: 0.329, $p < 0.001$; egoistic motivation → green consumer behavior: 0.377, $p < 0.001$). Moreover, environmental knowledge significantly moderated the relationships between altruistic motivation and green purchase intentions (H3), as well as egoistic motivation and green purchase intentions (H4), as shown by significant interaction effects (environmental knowledge $\times$ altruistic motivation → green purchase intentions: 0.217, $p < 0.001$; environmental knowledge $\times$ egoistic motivation → green purchase intentions: 0.004, $p < 0.001$). Additionally, green purchase intentions mediated the interaction effects of altruistic motivation and environmental knowledge (H5), as well as egoistic motivation and environmental knowledge (H6), with significant mediation paths (environmental knowledge $\times$ altruistic motivation → green purchase intentions → green consumer behavior: 0.036, $p < 0.001$; environmental knowledge $\times$ egoistic motivation → green purchase intentions → green consumer behavior: 0.001, $p < 0.001$). These findings confirm the mediating and moderating roles of green purchase intentions and environmental knowledge in promoting green consumer behavior, highlighting the complex interplay between these variables.
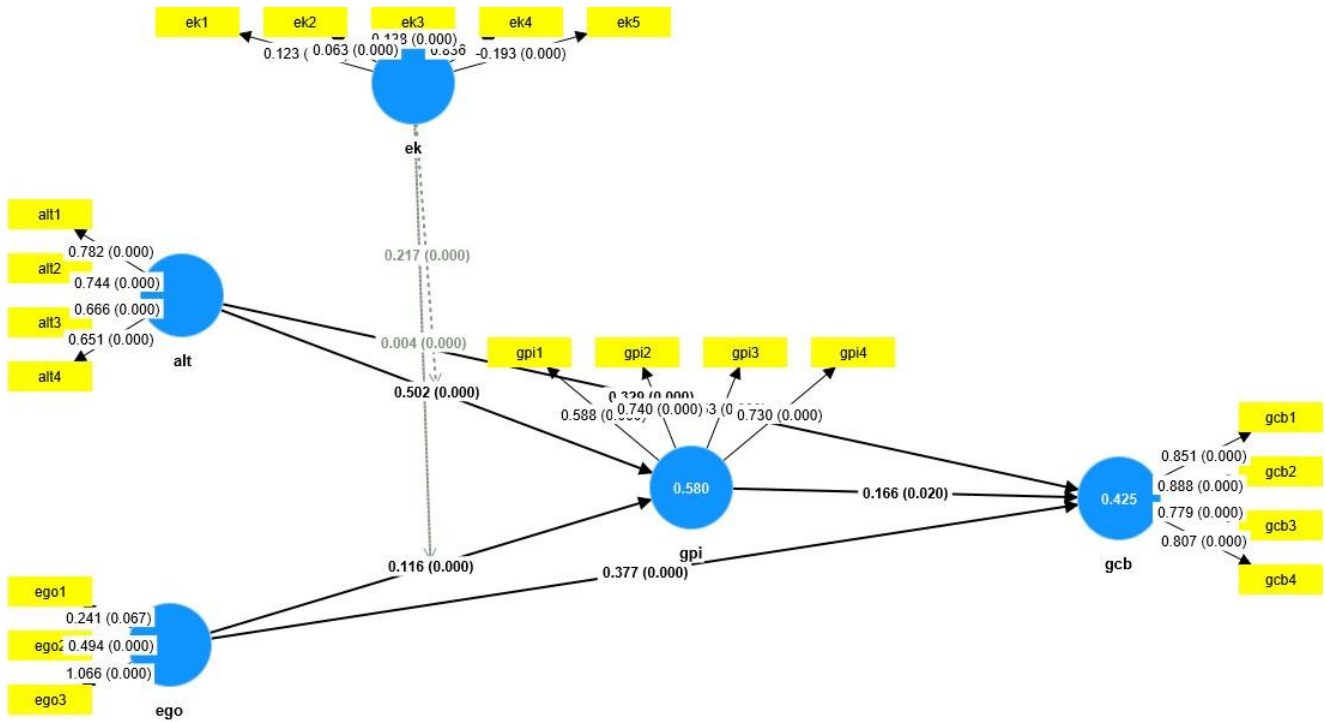
Figure 3. Structural model results Pakistan data.

Table 6. Path coefficients of Pakistan data.

Relationship	path coefficient
Mediated effects	
H1: altruistic motivation → green purchase intention → green consumer behavior	0.083 *p*-value < 0.000
H2: egoistic motivation → green purchase intention → green consumer behavior	0.019 *p*-value < 0.000
Moderated effects	
H3: environmental knowledge x altruistic motivation → green purchase intention	0.217 *p*-value < 0.036
H4: environmental knowledge x egoistic motivation → green purchase intention	0.004 *p*-value < 0.000
Moderated mediation effects	
H5: environmental knowledge x altruistic motivation → green purchase intention → green consumer behavior	0.036 *p*-value < 0.000
H6: environmental knowledge x egoistic motivation → green purchase intention → green consumer behavior	0.001 *p*-value < 0.000

5. Discussion

This comparative study of Saudi Arabian and Pakistan's green consumer behavior based on TPB underlines disparities of motivation due to the economic and environmental settings of these nations. Previous studies on green consumer behavior in emerging markets, such as those by Al-Swidi et al. (2014) and Ali et al. (2019), also found that altruistic motivations often have a more significant influence on green purchase intentions compared to egoistic motivations. This is particularly evident in contexts where cultural values emphasize collective well-being over individual gain. Our findings support this trend, demonstrating that both Saudi Arabia and Pakistan exhibit similar patterns in green consumer motivations. The altruistic motivation highly improves the green consumer behavior and purchase intention in both countries due to the willingness to support the environment and the next generations. In Saudi

Arabia, the values of the path coefficients relating to altruistic motivation are equal to 0.334 for green consumer behavior and 0. It seems that the β values are 509 for green purchase intention, while in Pakistan, they are 0.329 and 0.502, respectively. This seems to support TPB closely, especially in instance where self-interest is orchestrated to promote altruistic pursuits seen as moral and the right thing to do-buy greener products.

Another proximal factor is egoistic motivation that concerns self-oriented benefits such as health, financial profit, and social standing, which also influence inclined green consumer behavior with a lesser impact on the purchase plan in both nations. This indicates that although self-interest plays an important role in promoting green behavior it does not exert much influence on the purchase intentions of green products as the 'green concern' (Kumar and Pandey, 2023). This synergy between environmental knowledge and the desire to be altruistic has a profound impact on the green purchase intention as already indicated, pointing to the need for constant environmental education among citizens in the two countries.

While comparing the current situation in Saudi Arabia to its plan of sustainability integration as part of Vision 2030 and Pakistan, the latter has somewhat different environmental concerns and socio-economic conditions that affect green consumerism in the country (Zameer and Yasmeen, 2022). Thus, it can be stated that both countries have high reliability and satisfactory validity for motivational constructs, but environmental knowledge has average reliability and validity.

This paper provides essential information on these motivational factors in a bid to assist organizations in designing superior strategies on green consumerism promotion. These are the health promotion campaigns, governmental policies as well as the marketing appeals that are situated within Saudi Arabian and Pakistani cultural and socio-economic environment. Hence, building on the foundation from TPB, this study enhances understanding towards designing culturally appropriate and cost-effective strategies that may initiate the desired sustainable consumerism in both the countries. A comparison of key findings has been provided in **Table 7**.

Table 7. Comparisons of results between characteristics of Saudi Arabia and Pakistan.

Sr.	Characteristic	Saudi Arabia	Pakistan	Comparison
1	Consumer Motivation: Altruistic	Altruistic motivation (0.069 path coefficient) positively affects green purchase intention and consumer behavior, but with a moderate impact.	Altruistic motivation (0.083 path coefficient) has a stronger influence on green purchase intention and behavior than in Saudi Arabia.	Altruistic motivation plays a more significant role in driving green behavior in Pakistan compared to Saudi Arabia.
2	Consumer Motivation: Egoistic	Egoistic motivation (0.011 path coefficient) influences green purchase intention and behavior, though less strongly than altruistic motivation.	Egoistic motivation (0.019 path coefficient) also impacts green purchase intention but is still weaker compared to altruistic motivation.	Both countries show that egoistic motivation plays a smaller role in green behavior, but it is more influential in Pakistan than Saudi Arabia.
3	Role of Environmental Knowledge (Moderation Effect on Altruistic Motivation)	Environmental knowledge significantly moderates the relationship between altruistic motivation and green purchase intention (0.185 path coefficient).	Environmental knowledge has a stronger moderating effect on altruistic motivation and green purchase intention (0.217 path coefficient).	Environmental knowledge enhances the effect of altruistic motivation more in Pakistan than in Saudi Arabia, indicating higher knowledge-driven influence.

Table 7. (*Continued*).

Sr.	Characteristic	Saudi Arabia	Pakistan	Comparison
4	Role of Environmental Knowledge (Moderation Effect on Egoistic Motivation)	Environmental knowledge moderately affects egoistic motivation's impact on green purchase intention (0.011 path coefficient).	Environmental knowledge plays a weaker moderating role in the egoistic motivation to green purchase intention relationship (0.004 path coefficient).	Saudi Arabia shows a slightly stronger moderation of environmental knowledge in egoistic motivation than Pakistan, though the overall effect is small in both cases.
5	Mediated Moderation (Altruistic Motivation)	Environmental knowledge moderates the mediation effect of altruistic motivation on green purchase intention and consumer behavior (0.025 path coefficient).	Environmental knowledge shows a higher moderated mediation effect on altruistic motivation and green purchase intention (0.036 path coefficient).	Moderated mediation is more effective in Pakistan for altruistic motivation, suggesting stronger environmental knowledge-driven behavior in Pakistan.
6	Mediated Moderation (Egoistic Motivation)	Environmental knowledge moderates the mediation effect of egoistic motivation on green purchase intention and consumer behavior, but the effect is small (0.002 path coefficient).	Minimal moderated mediation effect of egoistic motivation and environmental knowledge on green purchase intention and consumer behavior (0.001 path coefficient).	Both countries have very small but significant effects, with Saudi Arabia showing slightly more moderated mediation for egoistic motivation.

5.1. Practical implications

The managerial implications of this study are significant for the policymakers, the marketers, and the educators of Saudi Arabia and Pakistan. From the policy-makers' perspective, the results clearly indicate that there is need for developing Legislation and policies that are in harmony with altruistically of green consumer behaviors like environmental concerns and community welfare in order to improve consumer buying inclinations in the green product markets. These insights can be used by marketers to design their campaigns alongside the message that green products have positive impacts to the environment and the society thus can be used to appeal to the consumers' selflessness. Moreover, promoting education on the environment in curricula can increase amounts of accumulated environmental knowledge, thus strengthening the impacts of green purchasing motivations. Thus, knowing the specific motivational differences that exist in those countries, stakeholders can ensure that appropriate interventions have been developed that would encourage sustainable consumption.

5.2. Theoretical implications

The theoretical contribution of this research is the expansion of TPB by including motives both altruistic and egoistical related to green consumers' behavior. The study supports TPB's postulation that attitude, subjective norm and perceived behavioral control have an impact on the behavioral intention. The study shows to some extent that there is a support in the altruistic motivation is more influential than the egoistic motivation and thus make the point that moral and ethical reasoning is needed when proving consumers' green purchasing intentions. Furthermore, the moderating action of environmental knowledge underlines a necessity to include educational components in the models based on TPB. Thus, this research adds to the existing body of knowledge on effective determinants of sustainable consumption behavior and how the combination of motivational factors and knowledge level contributes to this kind of behavior.

5.3. Limitations and future directions

There is a need to include a larger sample of demographic and socio-economic factors within the scope of further research in order to analyze their influence on the green consumer behavior in various cultures. Further, longitudinal data could add more knowledge on various pertinent aspects concerning reasons and actions in relation to environmental concerns as well as any changes through raised consciousness and education. An obvious methodological limitation of this study is that the findings are based on self-reports and may be influenced by the socially desirable effects. Furthermore, the study is conducted on a sample of two countries which restricts the generalization of the research. Broadening the scope of the given research to encompass the wider international sample including countries with middle and low standards of economic growth and eco problems would certainly contribute more to the increased understanding of the nature and tendencies of green consume behavior.

6. Conclusion

The study effectively demonstrates how altruistic and egoistic motivations, along with environmental knowledge, influence green consumer behavior in Saudi Arabia and Pakistan. Altruistic motivations, centered on collective well-being, have a more profound impact on green purchase intentions and behaviors in both countries, particularly in Pakistan, where they play a greater role in fostering eco-friendly consumption. Egoistic motivations, though less impactful, still contribute to green consumer behavior through personal benefits like health and cost savings. Environmental knowledge acts as a crucial moderator, enhancing the effects of both altruistic and egoistic motivations. It strengthens green purchase intentions by making consumers more aware of the benefits of green products, thus promoting sustainable consumption.

The findings highlight the importance of integrating environmental education and developing targeted marketing strategies that appeal to both altruistic values and self-interests. Policymakers are encouraged to foster environmental awareness through legislation and community-based initiatives. Overall, the study contributes to a deeper understanding of the motivational and contextual factors that shape green consumerism, offering valuable insights for organizations aiming to promote sustainable practices in diverse cultural contexts.

References

Abrudan, D. B., Rafi, N., Daianu, D. C., & Kalyar, M. N. (2022). Linking green intellectual capital with green innovation: Examining the roles of green dynamic capabilities and'motivation to achieve legitimacy'. Agricultural Economics/Zemědělská Ekonomika, 68(7).

Ahmad, W., Zhang, Q. (2020). Green purchase intention: Effects of electronic service quality and customer green psychology. Journal of Cleaner Production, 267, 122053.

Ajzen, I. (2002). Constructing a TPB questionnaire: Conceptual and methodological considerations. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=0574b20bd58130dd5a961f1a2db10fd1fcbae95d

Akhtar, R., Sultana, S., Masud, M. M., et al. (2021). Consumers' environmental ethics, willingness, and green consumerism between lower and higher income groups. Resources, Conservation and Recycling, 168, 105274.

Alam, M. N., Ogiemwonyi, O., Alshareef, R., et al. (2023). Do social media influence altruistic and egoistic motivation and green purchase intention towards green products? An experimental investigation. Cleaner Engineering and Technology, 15, 100669.

Alamsyah, D., Othman, N., Mohammed, H. (2020). The awareness of environmentally friendly products: The impact of green advertising and green brand image. Management Science Letters, 10(9), 1961−1968.

Aley, M., Hahn, L. (2023). Altruistic and egoistic motivations of male and female characters in common sense media television programming for children. Sex Roles, 89(7), 347−359.

Amin, S., Tarun, M. T. (2021). Effect of consumption values on customers' green purchase intention: A mediating role of green trust. Social Responsibility Journal, 17(8), 1320−1336.

Ansu-Mensah, P. (2021). Green product awareness effect on green purchase intentions of university students': An emerging market's perspective. Future Business Journal, 7(1), 48. https://doi.org/10.1186/s43093-021-00094-5

Baek, T. H., Yoon, S. (2022). Pride and gratitude: Egoistic versus altruistic appeals in social media advertising. Journal of Business Research, 142, 499−511.

Batson, C. D. (2022). Prosocial motivation: A Lewinian approach. Motivation Science, 8(1), 1.

Boobalan, K., Nachimuthu, G. S. (2020). Organic consumerism: A comparison between India and the USA. Journal of Retailing and Consumer Services, 53, 101988.

Cahyasita, D. (2021). Intention to re-consume organic food: Sensory attributes, egoistic motive, and warm glow in the extended TPB. AIMS Agriculture and Food, 6(4).

Dong, X., Bavik, A. (2023). Power, self-presentation and volunteer intention: Altruistic versus egoistic appeals in volunteer recruitment message. Journal of Hospitality and Tourism Management, 56, 94−105.

Fanggidae, J. P., Jin, H. S., Kim, H. J., Kelly, L. (2023). When altruistic decisions shape egoistic motives: Motivation shift in sequential charitable support. International Journal of Advertising, 42(6), 1110−1143.

Gandhi, A. V. (2020). Studying green consumer behavior through multiple lenses in a developing country. Smart and Sustainable Built Environment, 10(2), 274−292.

Gantt, E. E., Williams, R. N. (2021). Psychology and the Legacy of Hobbesianism: Egoism, Motivation, and the Death of Meaning. Journal of Mind and Behavior, 42(1).

Gilal, F. G., Chandani, K., Gilal, R. G., et al. (2020). Towards a new model for green consumer behaviour: A self-determination theory perspective. Sustainable Development, 28(4), 711−722. https://doi.org/10.1002/sd.2021

Hahn, L., Aley, M., Frank, A., et al. (2022). Examining the motivations of Walt Disney heroes and villains and their association with audience appeal and future film production. Journal of Broadcasting and Electronic Media, 66(5), 843−863.

Hameed, I., Hussain, H., Khan, K. (2022). The role of green practices toward the green word-of-mouth using stimulus-organism-response model. Journal of Hospitality and Tourism Insights, 5(5), 1046−1061.

Han, H. (2021). Consumer behavior and environmental sustainability in tourism and hospitality: A review of theories, concepts, and latest research. Sustainable Consumer Behaviour and the Environment, 1−22.

Han, M. S., Hampson, D. P., Wang, Y., Wang, H. (2022). Consumer confidence and green purchase intention: An application of the stimulus-organism-response model. Journal of Retailing and Consumer Services, 68, 103061.

Han, W., Wang, P., Dong, H. (2020). Influence of egoistic and altruistic bequest motives on the willingness to participate in reverse mortgages in China. Asian Economic Journal, 34(4), 430−463.

Hao, J., Du, X. (2021). Preschoolers' Helping Motivations: Altruistic, Egoistic or Diverse? Frontiers in Psychology, 12, 614868.

Ichsan, I. Z., Sigit, D. V., Miarsyah, M., et al. (2020). Implementation supplementary book of green consumerism: Improving students hots in environmental learning. European Journal of Educational Research, 9(1), 227–237.

Jaiswal, D., Kaushal, V., Singh, P. K., Biswas, A. (2021). Green market segmentation and consumer profiling: A cluster approach to an emerging consumer market. Benchmarking: An International Journal, 28(3), 792–812.

Joshi, Y., Uniyal, D. P., Sangroya, D. (2021). Investigating consumers' green purchase intention: Examining the role of economic value, emotional value and perceived marketplace influence. Journal of Cleaner Production, 328, 129638.

Kalyar, M. N., & Rafi, N. (2013). 'Organizational learning culture': an ingenious device for promoting firm's innovativeness. The Service Industries Journal, 33(12), 1135-1147.

Kamalanon, P., Chen, J.-S., Le, T.-T.-Y. (2022). "Why do we buy green products?" An extended theory of the planned behavior model for green product purchase behavior. Sustainability, 14(2), 689.

Khan, M. H. (2022). The Effectiveness of Training and Development on Positive Career Attitude and Job Outcome. Journal of Innovative Research in Management Sciences, 1–14.

Khan, M. S., Saengon, P., Alganad, A. M. N., et al. (2020). Consumer green behaviour: An approach towards environmental sustainability. Sustainable Development, 28(5), 1168–1180. https://doi.org/10.1002/sd.2066

Kifle Mekonen, Y., Adarkwah, M. A. (2022). Volunteers in the COVID-19 pandemic era: Intrinsic, extrinsic, or altruistic motivation? Postgraduate international students in China. Journal of Social Service Research, 48(2), 147–162.

Kumar, A., Pandey, M. (2023). Social media and impact of altruistic motivation, egoistic motivation, subjective norms, and ewom toward green consumption behavior: An empirical investigation. Sustainability, 15(5), 4222.

Li, Y., Zhang, Y. (2020). From motivation to organizational identity of members in non-profit organizations: The role of collectivism. Frontiers in Psychology, 11, 1881.

Luo, B., Sun, Y., Shen, J., Xia, L. (2020). How does green advertising skepticism on social media affect consumer intention to purchase green products? Journal of Consumer Behaviour, 19(4), 371–381. https://doi.org/10.1002/cb.1818

Majeed, M. U., Aslam, S., Murtaza, S. A., et al. (2022). Green marketing approaches and their impact on green purchase intentions: Mediating role of green brand image and consumer beliefs towards the environment. Sustainability, 14(18), 11703.

Martínez, M. P., Cremasco, C. P., Gabriel Filho, L. R. A., et al. (2020). Fuzzy inference system to study the behavior of the green consumer facing the perception of greenwashing. Journal of Cleaner Production, 242, 116064.

Masson, T., Otto, S. (2021). Explaining the difference between the predictive power of value orientations and self-determined motivation for proenvironmental behavior. Journal of Environmental Psychology, 73, 101555.

McLelland, M. A., Foster, J., Pollitte, W. (2022). Perceptual deterrents of the green consumer. Qualitative Market Research: An International Journal, 25(2), 293–318.

Messineo, L., Seta, L., Allegra, M. (2021). The relationship between empathy and altruistic motivations in nursing studies: A multi-method study. BMC Nursing, 20, 1–10.

Mohiuddin, M., Al Mamun, A., Syed, F. A., et al. (2018). Environmental knowledge, awareness, and business school students' intentions to purchase green vehicles in emerging countries. Sustainability, 10(5), 1534.

Moslehpour, M., Yin Chau, K., Du, L., et al. (2023). Predictors of green purchase intention toward eco-innovation and green products: Evidence from Taiwan. Economic Research-Ekonomska Istraživanja, 36(2). https://hrcak.srce.hr/file/442704

Mulyono, K. B., Murtini, W., Hindrayani, A., et al (2023). The Way to Save Environment from Green Consumer Behavior: The Role of Advertising, Media, and Lifestyle. IOP Conference Series: Earth and Environmental Science, 1248(1), 012020. https://iopscience.iop.org/article/10.1088/1755-1315/1248/1/012020/meta

Nguyen, H., Le, H. (2020). The effect of agricultural product eco-labelling on green purchase intention. Management Science Letters, 10(12), 2813–2820.

Olsen, L., DePalma, L., Evans, J. H. (2020). Self-interested and altruistic motivations in volunteering for clinical trials: A more complex relationship. Journal of Empirical Research on Human Research Ethics, 15(5), 443–451.

Otterbring, T., Festila, A., Folwarczny, M. (2021). Selfless or Selfish? The impact of message framing and egoistic motivation on narcissists' compliance with preventive health behaviors during COVID-19. Current Research in Ecological and Social Psychology, 2, 100023.

Parwati, A. A. P., Sagitarini, L. L., Aryana, I. (2022). The implementation of green practices to green consumer behavior in Food and Beverage Department at The ONE Legian. Journal of Applied Sciences in Travel and Hospitality, 5(2), 98–109.

Pfattheicher, S., Nielsen, Y. A., Thielmann, I. (2022). Prosocial behavior and altruism: A review of concepts and definitions. Current Opinion in Psychology, 44, 124–129.

Piatak, J. S., Holt, S. B. (2023). Disentangling altruism and public service motivation: Who exhibits organizational citizenship behaviour? In Public Service Motivation (pp. 1–25). Routledge.

Pittman, M. (2020). Accountability moderates the effects of egoistic and altruistic appeals in prosocial messages. Journal of Consumer Marketing, 37(7), 807–820.

Rafi, N., Ahmed, A., Shafique, I., & Kalyar, M. N. (2022). Knowledge management capabilities and organizational agility as liaisons of business performance. South Asian Journal of Business Studies, 11(4), 397-417.

Rahmat, T., Hurriyati, R., Dirgantari, P. D. (2022). SDG's and Zero Emission Vision in Indonesia: Implementation of Green Marketing and 'Green' Direct Marketing Campaign Opportunities based on Population Database. International Journal of Nusantara Islam, 10(1), 69–80.

Riar, M., Morschheuser, B., Zarnekow, R., Hamari, J. (2024). Altruism or egoism–how do game features motivate cooperation? An investigation into user we-intention and I-intention. Behaviour and Information Technology, 43(6), 1017–1041.

Rustam, A., Wang, Y., Zameer, H. (2020). Environmental awareness, firm sustainability exposure and green consumption behaviors. Journal of Cleaner Production, 268, 122016.

Ryu, S., Park, J., Kim, K., Kim, Y.-G. (2020). Reward versus altruistic motivations in reward-based crowdfunding. International Journal of Electronic Commerce, 24(2), 159–183.

Sánchez-Fernández, R., Iniesta-Bonillo, M. Á., Holbrook, M. B. (2009). The conceptualisation and measurement of consumer value in services. International Journal of Market Research, 51(1), 1–17.

Shabbir, M. S., Bait Ali Sulaiman, M. A., Hasan Al-Kumaim, N., et al. (2020). Green marketing approaches and their impact on consumer behavior towards the environment—A study from the UAE. Sustainability, 12(21), 8977.

Shafique, I., Rafi, N., & Kalyar, M. N. (2021). Managing intellectual capital through strategic leadership: a complementary approach. In The dynamics of intellectual capital in current era (pp. 257-274). Springer.

Sharma, A. P. (2021). Consumers' purchase behaviour and green marketing: A synthesis, review and agenda. International Journal of Consumer Studies, 45(6), 1217–1238. https://doi.org/10.1111/ijcs.12722

Shiel, C., do Paço, A., Alves, H. (2020). Generativity, sustainable development and green consumer behaviour. Journal of Cleaner Production, 245, 118865.

Sivapalan, A., von der Heidt, T., Scherrer, P., Sorwar, G. (2021). A consumer values-based approach to enhancing green consumption. Sustainable Production and Consumption, 28, 699–715.

Sparrow, E. P., Swirsky, L. T., Kudus, F., Spaniol, J. (2021). Aging and altruism: A meta-analysis. Psychology and Aging, 36(1), 49.

Sun, H., Rabbani, M. R., Ahmad, N., et al. (2020). CSR, co-creation and green consumer loyalty: Are green banking initiatives important? A moderated mediation approach from an emerging economy. Sustainability, 12(24), 10688.

Tamborini, R., Hahn, L., Klebig, B., et al. (2021). The representation of altruism and egoism in children's books. Communication Studies, 72(2), 163–177.

Tarabieh, S. (2021). The impact of greenwash practices over green purchase intention: The mediating effects of green confusion, Green perceived risk, and green trust. Management Science Letters, 11(2), 451–464.

Tarkiainen, A., Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. British Food Journal, 107(11), 808–822.

Testa, F., Pretner, G., Iovino, R., et al. (2021). Drivers to green consumption: A systematic review. Environment, Development and Sustainability, 23(4), 4826–4880. https://doi.org/10.1007/s10668-020-00844-5

Tezer, A., Bodur, H. O. (2020). The greenconsumption effect: How using green products improves consumption experience. Journal of Consumer Research, 47(1), 25–39.

Thakkar, R. (2021). Green marketing and sustainable development challenges and opportunities. International Journal of Management, Public Policy and Research, 1(1), 15–23.

Twyman, N. W., Stanley, S. M., Elrod, C. C., Masters, T. M. (2023). The impact of perceived manipulation, motives, and ethicality in cause-related marketing: A CRM+ model. Journal of Marketing Theory and Practice, 31(3), 334–351.

Witek, L., Kuźniar, W. (2020). Green purchase behavior: The effectiveness of sociodemographic variables for explaining green purchases in emerging market. Sustainability, 13(1), 209.

Zameer, H., Yasmeen, H. (2022). Green innovation and environmental awareness driven green purchase intentions. Marketing Intelligence and Planning, 40(5), 624–638.

Zaremohzzabieh, Z., Ismail, N., Ahrari, S., Samah, A. A. (2021). The effects of consumer attitude on green purchase intention: A meta-analytic path analysis. Journal of Business Research, 132, 732–743.

Zhang, G., Zhang, Y., Tian, W., et al. (2021). Bridging the intention−behavior gap: Effect of altruistic motives on developers' action towards green redevelopment of industrial brownfields. Sustainability, 13(2), 977.

Zhuang, W., Luo, X., Riaz, M. U. (2021). On the factors influencing green purchase intention: A meta-analysis approach. Frontiers in Psychology, 12, 644020.

Appendix

Table A1. Constructs with items.

Altruistic Motivation

Alt1   Buying this green brand has an ethical appeal for me because the goods are made in an environmentally friendly manner

Alt2   This eco brand's sustainable preservation is in line with my ethical values.

Alt3   In order to survive, humans must establish a healthy relationship with nature.

Alt4   When I shop for things, I look for some that are environmentally friendly.

Egoistic Motivation

Ego1   I think of myself as a health-conscious shopper

Ego2   To maintain my fitness, I carefully choose green items.

Ego3   When making a decision, I still think about the product's health benefits.

Environmental Knowledge

Ek1   I know more about recycling than the average person does

Ek2   I understand the environmental phrases and symbols on product packaging.

Ek3   I know how to select products and packages that reduce the amount of waste ending up in landfills

Ek4   I am very knowledgeable about environmental issues

Ek5   Using environmentally sustainable products is a primary means to reduce pollution.

Green Consumer Behavior

Gcb1   I try to buy green products.

Gcb2   I have switched to buy green products because of the environmental benefits.

Gcb3   When I choose between the same types of products, I purchase the ones that are less harmful to the environment.

Gcb4   I buy green products even if they are more expensive than nongreen ones.

Green Purchase Intentions

Gpi1   I will consider buying green product because they are less polluting.

Gpi2   I plan to switch to other brands/versions green agricultural products.

Gpi3   I intend to purchase this product in the future because of its environmental performance.

Gpi4   I will buy green product in my next purchase.