



Influence of Millennials' eco-literacy and biospheric values on green purchases: the mediating effect of attitude

Pankaj Tiwari¹

Accepted: 19 June 2022 / Published online: 6 August 2022

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

Abstract

The objective of this study is to find out the effect of eco-literacy and biospheric values on attitudes and intention to purchase green products. To observe this, we developed a study design that includes variables from green consumer behavior literature. We collected data from 447 respondent of public sector banks using a questionnaire survey. Finally, a model including biospheric values, eco-literacy, attitude and purchase intention was validated with a path analysis. The results of this study disclosed a positive effect of green predictors such as eco-literacy and biospheric values of millennial customers on their purchasing attitudes and intentions.

Keywords Biospheric values · Eco-literacy · Attitude · Purchase intention

Introduction

Due to global warming, our world is going through a profound change. Companies now have a moral obligation to provide environmentally friendly products and services due to environmental and biosphere concerns (Ricci et al., 2018). Businesses are increasingly aware of this social obligations and the crucial role that they can play in solving customers' environmental problems (Chuang & Huang, 2018). Environmentally friendly products are not considered a necessity but a market opportunity. Understanding how customers make informed choices about green products is important to companies. Further, in companies, "green purchasing" is described as consumption-driven purchasing by personals, (Zhuang et al., 2021). Previous studies have proven that human activities contribute significantly to environmental degrada-

✉ Pankaj Tiwari
dpt.ac.in@protonmail.com; researchpankajtiwari@gmail.com

¹ GLA University, 17km Stone, NH-2, Mathura-Delhi Road P.O. Chaumuhan, 281 406 Mathura, U.P, India

tion (Loneragan, 1998; Oldfield & Dearing, 2003). In recent years, society has become more aware of environmental challenges than ever before. Green purchasing is gaining popularity as more and more people recognize crucial role of the nature in the human survival (Wang & Lu, 2021).

Green finance is gradually becoming a popular public policy issue in the Indian banking market (Sahoo & Nayak, 2007). For this reason, the researcher is motivated to conduct this study. Further, COVID-19 and its impact on global economic growth are currently being studied around the world. Revitalizing the global economy is an urgent political task for all countries. Due to the outbreak, companies now have the opportunity to reconsider their current green product policies, budgets, and activities to better connect with people. Green finance could be the key to a more sustainable economy. All governments worldwide are now adopting green financing (Breitenfellner et al., 2019) action plans. For this reason, we want to explore the importance of green products for banking customers in India and also want to find out how green literacy and values affect customer banking behavior. Sahoo & Nayak (2007) found that better collaboration between management information systems and stakeholders can lead to long-term, sustainable economic growth. It eliminates the knowledge gap that is common with green projects (2007).

Environmental knowledge and biospheric values are essential elements of customer decision-making. Biosphere is the branch of environmental science that deals with the protection of the earth biosphere (Rolston, 2015) and prioritizes the protection of the beauty and quality of nature, regardless of its societal value (Sowińska-Świerkosz & Chmielewski, 2014). Individuals who appreciate the values of the biosphere intrinsically value the ecosystem and view environmental action as a moral obligation. However, there is little research done on evaluating the role of eco-literacy and biospheric values in the green purchasing behavior of bank customers (Nguyen et al., 2016; Cheah & Phau, 2011). There is a need for ecocentrism research in this area. For this reason, this study examines the effect of constructing eco-literacy and biospheric values on millennial customers. Millennials are widely recognized as pioneers in the green movement (Hayes, 1995), and our research analyses whether they are inclined toward green products. Crawford & Jackson (2019) opined that the millennial generation was born between 1981 and 1996. Despite millennials' green reputation, few studies have been conducted on examining the attitude of millennials towards the acceptance of green products (Bedard & Tolmie, 2018). Further, organizations must understand the mechanisms underlying millennial customer preferences for green products (Chaudhary & Bisai, 2018). However, a few studies have been conducted separately in the non-banking sector to examine the ecological and biospheric values associated with green consumption or green purchase intention (Al Mamun et al., 2018; Kim et al., 2012). To fill this gap, this article examines millennials' green behavior in the Indian banking sector. Therefore, this study will evaluate the effect of eco-literacy and biospheric values on millennials' attitudes towards green banking products. The other objectives of this study are to understand "the mediating effect of attitude between eco-literacy and green product purchasing intention" and "the mediating effect of attitude between biospheric values and green product purchasing intention". In the following parts, a discussion on green banking in India will be followed by a review of the literature.

Green bank Initiatives

Indian banks are taking many steps to shift from traditional banking to green banking. For instance, in the Indian banking sector, customers who upgrade to a green account receive a reward. They can avail themselves, a free access to online banking, phone banking, and ATM banking services. In green banking, customers can easily send money back to their home country via e-remit (electronic transfer). “Go Green” customers, often receive their bank statements by email. In addition, customers now have the option of opening an account online by filling out an online form (Biswas, 2011). Tara et al., (2015) found that e-services such as ATMs, unified payment interfaces, and mobile and digital banking all contribute to paperless banking. Less paperwork means less woodcutting. Banks are now offering green business loans to their customers to improve their legal and social compliance. The State Bank of India (SBI) is the main public bank in India. In 2010, it established a joint venture with Suzlon Energy Limited to harness wind energy in three states (Economic Times, 2010). It also launched the Green Channel Counter in 2010 and expanded its reach to over 5,000 locations nationwide in 2011. This strategy is a step towards paperless banking. Since no paper is required for public work, it is environmentally friendly. SBI supports green housing developments by offering credit incentives to those projects that are accredited. This public-sector bank also provides low-interest loans for green initiatives aimed at minimizing greenhouse gas emissions through new technologies. Further, the buyer of an energy-efficient home can negotiate a cheaper green mortgage with a bank. Some green mortgages allow discounts of up to 15% for installments of insulation, solar panels, geothermal energy, or water heaters. Monthly energy savings offset increased monthly mortgage payments and are resulting in long-term savings (Annadurai, 2014). According to (Jatana & Jain 2016), green technologies and pollution reduction methods are favored by Indian banks. Banks also promote low-carbon industries. Priority is given to green economic activities and initiatives in sewage treatment plants, hydropower, landfills, wood waste, biogas plants, biodiesel, and renewable energies. The bank encourages its customers to buy green energy-driven vehicles such as hybrids, electrics, compressed natural gas (CNG), ethanol, compressed propane, fuel cells, hydrogen, etc. Subsidies are given to these eco-friendly vehicles. Further, banks have reduced processing costs for borrowers buying homes in green-certified buildings.

Review of literature

The conceptual foundations of socio-cognitive theory (SCT) can be traced back to the study of Holt (1933), who asserted that all human behavior is governed by psychological demands such as “feelings, emotions, and desire.” It is a theory of learning based on social cognition. According to this theory, an individual’s environment behavior, and cognitive abilities have a significant impact on their development. Also, all cognitive abilities affect a person’s thinking. Individuals choose whom to interact with and what activities to engage in based on their preferences and advanced human knowledge. People’s preferences and advanced human skills are affected by

literacy (Clark & Dugdale, 2008). A person's knowledge or literacy can alter their perception of the environment. People's environmental literacy can affect their behavior toward the environment (Goulgouti et al., 2019). Further, environmental perspectives are shaped by one's relationship with nature (Geng et al., 2015). Environmental knowledge has been shown to promote pro-environmental behavior, but some researchers have reported conflicting results. The link between environmental awareness and action has sometimes been found to be weak. Some studies indicate that there is no connection between environmental knowledge and environmentally friendly behavior. Environmentally friendly actions do not always require an understanding of the environment (Liobikiene & Poškus, 2019). Therefore, there is a need for further research into the pro-environmental behavior of customers to understand whether they are pro-environmentalist or not.

Before reviewing the literature on eco-literacy, biospheric values, and attitude towards green products, the researcher wants to define the terms "eco-literacy" and "biospheric values." The term "biospheric value" refers to the assessment of biospheric costs and benefits (Stern & Dietz, 1994). Through the lens of nature, Martin & Czellar (2017) argued that people with biospheric values can see positive and negative consequences of their actions and the actions of others. This conceptual idea has led to a considerable number of environmental psychology studies that deal with biospheric values. Biospheric values are the best-studied construct in environmental science. The common notion that preserving the environment is a central goal in life is reflected in biospheric values. According to recent studies, biosphere values can be used to predict preferences for environmentally friendly products, intentions, and attitudes towards sustainable behaviors. Individual values, group values, and values based on culture all contribute to biospheric values. Our biosphere is the region of the earth that supports life. Its atmosphere can support a life in which we can breathe, without technological assistance (Nelson, 2021). However, eco-literacy can interpret the eco-environment that sustains humans in that biosphere (Capra, 2007). Eco-literacy was included in the conceptual framework of this study because our study supports green products. Therefore, it is important to understand ecological problems rationally so as to understand their societal implications (Stokols, 2000). Lopez-Odar et al. 2020 observed that customers' environmental and ecological knowledge have connections with their behavior. Nevertheless, to obtain a better understanding of ecological literacy and biospheric values, Each construct must be understood independently and in conjunction with others.

The respondents of our study are Millennials. Since millennials place a high value on participation and engagement in the green movement. They actively seek out eco-friendly products (Naderi & Steenburg, 2018). Additionally, millennials are constantly active in the internet world, sharing, collaborating, reading, comparing, evaluating, and analyzing information to improve their daily lives. Market-oriented companies are therefore adapting themselves; to the needs of the millennial generation; by aligning their operations with the concept of collaborative value creation for all stakeholders in their business model. According to Bonera et al. (2020) argument, millennials are more environmentally conscious than previous generations, have higher disposable incomes, and are therefore one of the strongest buyer groups. They

also have the potential to purchase green products. Our study is one of the few studies conducted in India to examine the drivers of green product purchases for millennials.

Eco-literacy

Eco-literacy involves understanding and applying the principles of ecosystem to humans so as to create a sustainable human society (McBride et al., 2013). Orr 1991 was the pioneer in coining the word “eco-literacy,” which meaning knowledge on the general health of nature. An ecologically competent society is generally self-sufficient and does not interfere with the natural environment on which it depends (Hägglström & Schmidt 2020). Proponents of eco-literacy see it as a paradigm shift which is focused on a holistic, systemic, complex, and sustainable environmental solution (Simon, 2006). In addition, eco-literacy means that customers should know the impact of sustainable products on the ecosystem (Bhutto et al., 2020; Stern, 2000) says that customers' behaviors, beliefs, attitudes, and intentions change when they know about environmental issues.

Customers who are aware of the environmental attributes of products are more likely to make eco-friendly purchases than those who are not. Therefore, eco-conscious customers are more likely to buy products that carry eco-labels (Grankvist et al., 2004). However, when customers are expected to make purchasing decisions based on their emotions or feelings rather than their environmental literacy, the explanatory power of their attitude may decrease (Babin & Babin, 1996).

Based on the above literature discussions, we have developed the following hypotheses:

H1. Eco-literacy strongly influences Millennials' attitudes.

H2. Eco-literacy strongly influences Millennials' intention to purchase green products.

H3 Millennials' attitude mediates the relationship between eco-literacy and the intention to purchase green products.

Biospheric Value

Biospheric values are defined as the flow of energy and resources needed to sustain life on Earth, including human economic activities (Costanza et al., 1997). It often conjures up sentimental images of people living in harmony with nature. The value of the biosphere reflects the individual's ethical standards towards non-human objects (Wu & Zhu, 2021). The importance of the biosphere stems from its ability to accommodate environmental attitudes and aspirations. The value of the biosphere has a significant impact on how people perceive, plan, and act in their environment. Therefore, this study focuses on understanding the impact of millennials' biospheric inclination on their green product purchases. Subiza-Pérez et al. 2020 noted that environmental awareness increases in direct proportion to environmental concerns. Due to this, eco-conscious customers may shop deliberately, and therefore often forgo traditional product benefits (Lestari et al. 2020).

Individual biospheric values could be associated with green product purchases, as customers often buy green products to protect the environment. Choosing eco-friendly products over non-green products demonstrates a commitment to social responsibility. Nordlund & Garvill (2003) show that “customers are aware of environmental problems and are willing to be directly involved in solving them”. Nordlund & Garvill, 2003; Kautish et al., 2019 argued that environmental awareness is key to influence the intention of people to buy green products, buying green products is seen as an environmentally friendly activity. Werff et al., (2014) found that customers’ perceptions of environmentally friendly products are strongly influenced by their perceptions of biospheric values. Green values often influence pro-environmental behaviour (Xie et al., 2020). It is also found that customers participate in ecological activities when their environmental feelings are strong (Meijers et al., 2019). Customers who are truly environmentally conscious and believe in the principles of the biosphere are more likely to be environmentally conscious. The more environmentally conscious customers feel about themselves, the more likely they act responsibly. Unruh (2008) argued that the growing importance of the biosphere in society is driving the demand for green product purchases. Therefore, we propose that millennials’ perceived values for the biosphere, analogous to personal values, can be linked to pro-environmental behavior.

Therefore, we propose the following hypotheses based on our review of the literature:

H4. Biospheric values strongly influence Millennials’ attitudes.

H5. Biospheric values strongly influence Millennials’ intention to purchase green products.

H6 Millennial Attitude mediates the relationship between biospheric values and the intention to purchase green products.

Attitude and the intention to purchase green products.

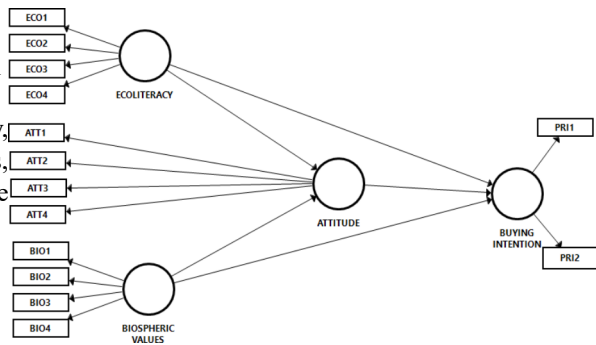
An attitude is an opinion or thought about an object, person, or thing (Cialdini et al., 1981; Cheah & Phau, 2011). According to Fazio (1989), an attitude is a judgment about a specific object, with varying degrees of likeness or dislike. Customers’ attitude can be captured by examining their beliefs, which are formed as a result of their product evaluations based on their past experiences (Ajzen, 1985). Therefore we may assume that customers’ interest in a product may rise or fall based on how they feel about its green features.

Ramayah et al., (2010) noted that people’s attitudes toward eco-friendly products are associated with the possibility of purchase. However, customers are cautious when buying green products (Lim et al., 2013). Some literature supports that a high level of eco-literacy or bio-spheric value can increase customers’ intention to buy green products. Vazifehdoust et al. (2013) noted the positive impact of ecological awareness on customers’ purchasing decisions. Customers use of green products also have a positive impact on the environment (Yang, 2017).

A previous study on green marketing found that customers’ eco-attitude influence their understanding about the environment (Martinez et al., 2015). (Jaiswal & Singh 2018) argued that customers green buying habit can inspire companies and society as a whole to work towards long-term sustainability. In the previous studies, the per-

Figure 1 Conceptual framework based on a review of the literature. Source: the researcher's conceptual framework

Note ECO: Eco-literacy, BIO: Biospheric Values, ATT: Attitude, PRI: Purchase Intention.



ceived environmental knowledge of customers is found to have a positive influence on their attitudes (Lim et al., 2013; Martinez et al., 2015).

Many studies on customer behavior and purchase intention have been conducted so as to understand; how individuals make decisions (Jisana, 2014). Fishbein and Ajzen (1975) were the first scholars who examine the purchase intention in their research. They argued that people's actions are influenced by their intentions and they behave differently when confronted with different purchasing scenarios. Therefore, customers' beliefs influence their perceptions, which in turn influence their intentions during the buying process (Lee & Yun, 2015). This indicates the pattern of buying behavior of customers. Figure 1 indicates the conceptual framework of this study.

Research methods

Measurement scales from previous studies were used to design the questionnaire for this article. Each construct of the questionnaire is measured on a five-point Likert scale. Five represent strong agreement and one represents strong disagreement. The construct of "eco-literacy" is measured using Rejikumar 2016 eco-literacy scale. "Biospheric values" were determined using four indicators from Groot & Steg (2008). The "attitude" construct was measured with four items taken from Yadav 2016 study. Similarly, the "purchase intention" scale was also developed from Yadav 2016 study on green products. Appendix A contains brief information on the questionnaire design.

Data collection procedure and response

Customer information was collected through a field survey. Pilot research was carried out to determine the validity and reliability of the questionnaire (Wong, 2021). After the pilot study, no changes were made to the questionnaire due to the high educational level of the vast majority of millennial respondents. The survey was then distributed to millennial banking customers. Commercial banks are chosen due to their vast dominance in India. Hence, all the banks follow the policy of the Indian Reserve Bank, so all the green products in the banking sector have comparable characteristics

Table 1 Demographic Characteristics of the Respondents

Demographic Variables	Category	Frequency	Percentage (%)
Age (Years)	25–40	447	100
Gender	Male	230	51.4
	Female	212	47.4
Education	Intermediate and below	140	31.3
	Graduation (GRD)	210	46.9
	Post-graduation	97	21.7
	PhD	00	00

Source: Information obtained from a field survey.

(Kumar & Prakash, 2020). Consistent with previous research, convenient sampling may be appropriate for this study, since the respondents of this study are specific millennial customers (Boas et al., 2020). Before filling out the questionnaire, millennial respondents received information about the objectives of this survey and instructions on how to complete it. Millennial respondents who agreed to participate in the survey, received the questionnaires. Finally, out of 500 questionnaires distributed, 460 were received. This gives a response rate of 92%. After removing the outliers and incomplete responses, a total of 447 responses remained. Females participants were found to be half of the population. All educated volunteers were selected for this study based on study objectives. Table 1 shows the demographics of the respondents.

Data analysis

Before starting the study, the researcher examined the outliers and normality. The Cook's distance method was used to detect the outliers. Xi et al. (2020) argued that if the value of Cook's distance is greater than one, the response should be rejected for analysis. This method indicates how each observed value affects the projected response value. When Cook's distance exceeds three times the standard mean, responses are considered outliers. Therefore, three responses were excluded from the study. Furthermore, our study uses the SmartPLS3 version to determine the association between the constructs.

Measurement model

Reliability and validity of the responses were examined using Confirmatory Factor Analysis (CFA). The CFA Fit indices in Table 2 indicate that they were acceptable. The internal reliability of each construct was analyzed by applying Cronbach's Alpha. The value ranged from 0.707 to 0.950 in our study, which is far beyond the permissible limit of 0.7 for behavioral studies (Vaske et al., 2017) (Table 2). The validity of this study was proved using factor loading and average variance extracted (AVE). Each item of the construct met the minimum requirement (factor loading greater than 0.6). Our AVE values are above 0.5. The AVE value ranges between 0.687 and 0.716, which is considered acceptable (Santos & Cirillo, 2021) in research (Table 2). The

Table 2 Reliability and Validity

Indicators	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE	VIF
ATT1	0.864	0.845	0.897	0.687	4.031
ATT2	0.868				4.057
ATT3	0.864				2.251
ATT4	0.707				1.658
BIO1	0.798	0.867	0.910	0.716	2.287
BIO2	0.870				2.846
BIO3	0.866				2.506
BIO4	0.849				2.294
ECO1	0.879	0.865	0.910	0.718	3.029
ECO2	0.910				3.565
ECO3	0.875				3.122
ECO4	0.711				1.332
PRI1	0.948	0.891	0.918	0.901	2.811
PRI2	0.950				2.811

Source: Processed Data from Smart PLS3.

Table 3 Latent Variable Correlation

	Attitude	Bio-spheric Values	Buying Intention	Eco-literacy
Attitude	1.000	0.471	0.541	0.632
Biospheric Values	0.471	1.000	0.459	0.543
Buying Intention	0.541	0.459	1.000	0.521
Eco-literacy	0.632	0.543	0.521	1.000

Source: Processed Data from Smart PLS3

Table 4 Fornell-Larcker discriminant validity criterion

	Attitude	Bio-spheric Values	Buying Intention	Eco-literacy
Attitude	0.829			
Biospheric Values	0.471	0.846		
Buying Intention	0.541	0.459	0.949	
Eco-literacy	0.632	0.543	0.521	0.847

Source: Processed Data from Smart PLS3

variance inflation factor (VIF) is a metric used for measuring multicollinearity. A VIF score greater than 5 implies a high degree of collinearity. Our study indicates that it is less than five (Tamura et al., 2019) (See Table 2).

Table 3 shows a 63.20% correlation between ECO and ATT (strong correlation) and 47.10% correlation between BIO and ATT (moderate correlation). There is 54.10% correlation between ATT and PUI (Moderate Correlation) (Akoglu, 2018).

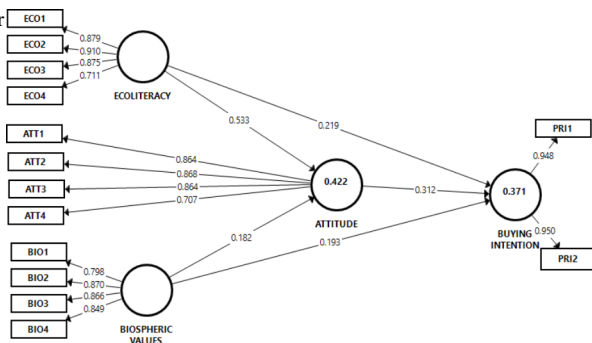
To ensure discriminant validity, the square root of each construct's AVE must be greater than its correlation value (Rönkkö & Cho 2022). The study proved to be valid and paved the way for the path analysis between the different constructs (Table 4).

Table 5 Structural model: goodness of fit indices

Indicators	Saturated Model
SRMR	0.083
d_ ULS	0.718
d_ G	0.338
Chi-Square	987.315
NFI	0.775
Q² (=1-SSE/SSO)	0.327
R2 (Attitude)	0.420
R2 (Purchase Intention)	0.367

Source: Processed data from Smart PLS3

Figure 2 Structured Path Model for ECO, BIO, ATT, and PRI. Source: Path Analysis figure from the processed data (Smart PLS3).



The structural model was examined using the bootstrap technique on 447 responses. Hesterberg (2011) found that the confidence intervals generated by the bootstrap method are often more precise than those generated by other methods. According to Sleimi & Emeagwali (2017), the standardized root mean square residual (SRMR) should be less than 0.08 and the normal fit index (NFI) should be close to 1 (Gerbing & Anderson, 1992). Our model met the criteria for an excellent fit with an SRMR of 0.083 and an NFI of 0.775, respectively (Table 5). The coefficient of determination is R2. The R2 value represents the magnitude of the variance in the endogenous constructs. For behavioral studies, the rule of thumb for the R2 value is 0.75, 0.50, and 0.25, which are considered strong, moderate, and weak, respectively. The adjusted R2 for attitude and purchase intention in our study is 0.420 (small effect size) and 0.367 (small effect size). Therefore, we can say that our model can explain 36.70% of the variance in the dependent variable due to independent variables. Low R-squared values are commonly seen in social science research (Parker & Vannest, 2009). By using Stone-Geisser’s predictive relevance, our model can also predict parameter estimators (Wong, 2016). Our Q2 value is 0.327 (Table 5)

Hypotheses testing

Table 6, and Figure 2, illustrate the results of the hypothesis test. This relationship between constructs is shown in Table 6. The study confirms that the eco-literacy of Millennial customers has a significant effect on their attitude towards purchasing green products (H1: $\beta=0.533$, $t=11.030$, $p<0.05$) and their intention to purchase

Table 6 Path Coefficient

Direct Affect	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Result
Attitude -> Buying Intention	0.312	0.315	0.055	5.648	0.000	Supported
Biospheric Values -> Attitude	0.182	0.188	0.054	3.369	0.001	Supported
Biospheric Values -> Buying Intention	0.193	0.191	0.054	3.586	0.000	Supported
Eco-literacy -> Attitude	0.533	0.531	0.048	11.030	0.000	Supported
Eco-literacy -> Buying Intention	0.219	0.219	0.059	3.691	0.000	Supported
Indirect Effect	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Result
Biospheric Values -> Attitude -> Buying Intention	0.057	0.059	0.019	2.968	0.003	Supported
Eco-literacy -> Attitude -> Buying Intention	0.166	0.167	0.035	4.768	0.000	Supported

Source: Processed Data from Smart PLS3

green products (H2: $\beta=0.219$, $t=3.691$, $p<0.05$). Previous research by Cheah & Phau (2011) and Matin et al. 2021 also supports our findings. Similarly, biospheric values of millennial customers have a significant impact on their attitude towards the purchase of green products (H4: $\beta=0.182$, $t=3.369$, $p<0.05$) and their intention to purchase green products (H5: $\beta=0.193$, $t=3.586$, $p<0.05$). This result confirms previous studies by Lee (2011) and Schuitema & Groo (2015). Further, H3 was tested to confirm attitude as a mediator between eco-literacy and green purchase intention, and H6 biospheric values and purchase intention. We observed that H3 and H6 show a partial mediating effect between eco-literacy and purchase intention ($p<0.05$); and biospheric values and purchase intention ($p<0.05$). Since the direct and indirect effects of the hypotheses H3 and H6 are found to be significant. We can say that the attitude of millennials influence their purchases of green products. This corroborates with previous studies where attitude acted as a mediator (Mitchell & Olson, 1981; Byrka et al., 2010).

Discussion

This is one of the few studies aimed at understanding the determinants of environmentally conscious millennial customers' purchase behavior for green products in the banking sector. The conceptual underpinnings of this study have important implications for the development of future literature on the changing attitudes and behaviors of millennial customers towards green purchasing. These are important concepts for understanding the dynamics of green marketing for a specific generation.

The purpose of this study was to examine millennial attitudes towards the association between eco-literacy and green purchase intent, as well as between biospheric values and green purchase intent. No matter how we look at it, the green determinant of millennials' attitude is influencing their green product purchase intention. It is also revealed from this study that the biospheric values, ecological literacy, attitudes, and purchase intent of millennials go hand in hand. These results corroborate those of Li et al., (2021) and Bhutto et al., (2020). Similarly, millennials' green purchase intentions are shaped by their environmental values, which originates from environmental literacy (Lee, 2011; Cheah & Phau, 2011). From this argument, we can conclude that the impact of millennials purchases on the environment is positive, which is consistent with (Heo & Muralidharan 2019). assessment. Based on our findings, we can also conclude that millennials have the great potential to be called as the "green generation" in the Indian banking sector.

Levine & Strube (2012) noted that environmental knowledge and explicit attitudes influence behavior in a variety of ways, which is aimed at increasing product-friendly behaviors. Our study supports this viewpoint and also the social cognition theory that defines sustainable consumption by examining the interconnected nature of personal, environmental, and behavioral variables of consumption. According to Phipps et al., (2013), sustainable consumption generates a feedback loop that influences behavior. Similarly, in our model, the constructs of eco-literacy, biosphere values, and millennial attitude form a path or loop in their green product purchasing decisions. Studies by Kaiser et al., (1999) and Zheng et al., (2020) show that environmental responsibility can have a strong impact on attitudes. To some extent, this evidence indicates that new emerging generations are becoming sensitive to environmental protection and are willing to spend money to protect it. According to the results of this study, there is a connection between ecological literacy and people's intent to invest money in green products. Stern (2000) argued that environmentally friendly behavior is linked to values, beliefs, and norms. To some extent, we also observed an association between biosphere values and millennial intentions.

This study confirms that millennials care more about environmental protection than previous generations (Heo & Muralidharan, 2019) and therefore they have a positive connotation with the consumption of green products. As a result, millennial customers who value biospheric values (Schuitema & Groot, 2015) and are knowledgeable about environmental issues (Ansar, 2013) are more likely to favor a clean, sustainable world. Additionally, millennials take responsibility for preserving and improving the environment (Shukla, 2019). By buying green items, they are sending a signal to businesses that they care about the environment and the biosphere. However, on eco-literacy, Cheah & Phau (2011) argue that a customer's greater eco-literacy on environmental issues does not necessarily guarantee they are making a green purchase. It depends on altruism and the way they are attracted to green products (Cheah & Phau, 2011). Contrary to this argument, we confirm based on our research findings that eco-literacy is an important factor for green purchasing. Our results are also consistent with a previous study (Bhutto et al., 2020) that demonstrates the differential nature of environmental literacy, leading to green purchasing. Millennials value the biosphere highly. This shows that millennials know the rational connection

between ecology and the biosphere. The results of our study has shed lights on a hitherto unknown facet of the age-old concept of ecology and the biosphere.

This research contains a modest number of contributions. To begin with, our study integrates the relationship marketing and green marketing principles to examine green purchase intent. This article reaffirms methodology to address the marketing issues related to eco-literacy and biospheric values of millennial customers. This article reaffirms that the drivers of green purchasing intentions are mediated by millennials' attitudes.

Managerial implication

The results confirm that positive customer attitudes towards the environment and bio-environment also improve customer intentions towards green products (Kahn & Kahn, 2010). Environmental campaigns and educational programs about the biosphere and ecology should be used by marketers to teach people about environmental protection (Patterson, 2002). The concept of "green products" is relatively new in the Indian banking sector. Policymakers need to understand the positive environmental impact of green products on good air quality, good water quality, and low diseases as well as on the customers' attitude. By launching the bank's certification on eco-friendly banking products can help banks in improving product sales. In addition, policymakers should use green product labels or green service information in product brochures to differentiate green products from traditional ones (Li et al., 2016).

The limitations of this study

The limitations of this study include distinguishing between specific demographic variables such as millennial males and females when analyzing green product purchases in our model. Additionally, this study focuses on millennial banking customers. However, future research could shed light through comparative analysis on the green product purchase intention of Gen Z and Millennial customers. Future studies can be conducted to evaluate a new model with the integration of other environmental sustainability concepts such as millennial organic interest and biodegradable products. Researchers could also examine customer attitudes towards green products in different geographic regions to confirm the generalization. This study addressed the concept of green product purchase intention in general, but other studies could examine customer behaviors using electronic banking concerns of customers. This study was done in an Indian setting, it still holds a lot of value to policymakers, marketers, banking organisations and academicians.

Declaration of conflicting interests

"The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article".

Funding “The author(s) received no financial support for the research, authorship, and/or publication of this article”.

Declaration

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical approval None.

Informed consent None.

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. *Action control* (pp. 11–39). Berlin, Heidelberg: Springer
- Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological bulletin*, *82*(2), 261
- Akoglu, H. (2018). User’s guide to correlation coefficients. *Turkish journal of emergency medicine*, *18*(3), 91–93
- Al Mamun, A., Mohamad, M. R., Yaacob, M. R. B., & Mohiuddin, M. (2018). Intention and behavior towards green consumption among low-income households. *Journal of environmental management*, *227*, 73–86
- Annadurai (2014). Effectiveness of green banking technology of the commercial banks in india. *Clear International Journal of Research in Commerce & Management*, *5*(12)
- Ansar, N. (2013). Impact of green marketing on customer purchase intention. *Mediterranean Journal of Social Sciences*, *4*(11), 650–650
- Babin, B. J., & Babin, L. A. (1996). Effects of moral cognitions and customer emotions on shoplifting intentions. *Psychology & Marketing*, *13*(8), 785–802
- Bedard, S. A. N., & Tolmie, C. R. (2018). Millennials’ green consumption behaviour: Exploring the role of social media. *Corporate Social Responsibility and Environmental Management*, *25*(6), 1388–1396
- Bhutto, M. Y., Liu, X., Soomro, Y. A., Ertz, M., & Baeshen, Y. (2020). Adoption of energy-efficient home appliances: Extending the theory of planned behavior. *Sustainability*, *13*(1), 250
- Biswas, N. (2011). Sustainable green banking approach: The need of the hour. *Business Spectrum*, *1*(1), 32–38
- Boas, T. C., Christenson, D. P., & Glick, D. M. (2020). Recruiting large online samples in the United States and India: Facebook, mechanical turk, and qualtrics. *Political Science Research and Methods*, *8*(2), 232–250
- Bonera, M., Codini, A. P., & Miniero, G. (2020). The great Millennials? trouble: leading or confused green generation? An Italian insight. *Italian Journal of Marketing*, *2020*(4), 289–308.
- Byrka, K., Hartig, T., & Kaiser, F. G. (2010). Environmental attitude as a mediator of the relationship between psychological restoration in nature and self-reported ecological behavior. *Psychological Reports*, *107*(3), 847–859
- Capra, F. (2007). Sustainable living, ecological literacy, and the breath of life. *Canadian Journal of Environmental Education (CJEE)*, *12*(1), 9–18
- Chaudhary, R., & Bisai, S. (2018). “Factors influencing green purchase behavior of millennials in India”. *Management of Environmental Quality*, *29* No(5), 798–812. <https://doi.org/10.1108/MEQ-02-2018-0023>
- Cheah, I., & Phau, I. (2011). “Attitudes towards environmentally friendly products: The influence of eco-literacy, interpersonal influence and value orientation”. *Marketing Intelligence & Planning*, *29* No(5), 452–472. <https://doi.org/10.1108/02634501111153674>
- Chuang, S. P., & Huang, S. J. (2018). The effect of environmental corporate social responsibility on environmental performance and business competitiveness: The mediation of green information technology capital. *Journal of business ethics*, *150*(4), 991–1009

- Cialdini, R. B., Petty, R. E., & Cacioppo, J. T. (1981). Attitude and attitude change. *Annual review of psychology*, 32(1), 357–404
- Clark, C., & Dugdale, G. (2008). *Literacy changes lives: The role of literacy in offending behaviour: A discussion piece. Part 1*. London: National Literacy Trust
- Costanza, R., d'Arge, R., De Groot, R., Farber, S., Grasso, M., Hannon, B. ... Van Den Belt, M. (1997). The value of the world's ecosystem services and natural capital. *nature*, 387(6630), 253–260
- Crawford, E. C., & Jackson, J. (2019). Philanthropy in the millennial age: Trends toward polycentric personalized philanthropy. *The Independent Review*, 23(4), 551–568
- Breitenfellner, A., Pointner, W., & Schuberth, H. (2019). The potential contribution of central banks to green finance. *Vierteljahrshefte zur Wirtschaftsforschung*, 88(2), 55–71
- De Groot, J. I., & Steg, L. (2008). Value orientations to explain beliefs related to environmental significant behavior: How to measure egoistic, altruistic, and biospheric value orientations. *Environment and behavior*, 40(3), 330–354
- dos Santos, P. M., & Cirillo, M. (2021). Construction of the average variance extracted index for construct validation in structural equation models with adaptive regressions. *Communications in Statistics-Simulation and Computation*, 1–13
- Economic Times (2010). SBI turns Green, Installs Windmills. Retrieved from http://articles.economic-times.indiatimes.com/2010-04-23/news/27587704_1_windmills-windpower-mw-capacity
- Fazio, R. H. (1989). On the power and functionality of attitudes: The role of attitude. *Attitude structure and function*, 153–179
- Geng, L., Xu, J., Ye, L., Zhou, W., & Zhou, K. (2015). Connections with nature and environmental behaviors. *PLoS One*, 10(5), e0127247
- Gerbing, D. W., & Anderson, J. C. (1992). Monte Carlo evaluations of goodness of fit indices for structural equation models. *Sociological Methods & Research*, 21(2), 132–160
- Goulgouti, A., Plakitsi, A., & Stylos, G. (2019). Environmental literacy: Evaluating knowledge, affect, and behavior of pre-service teachers in Greece. *Interdisciplinary Journal of Environmental and Science Education*, 15(1), e02202
- Grankvist, G., Dahlstrand, U., & Biel, A. (2004). The impact of environmental labelling on customer preference: Negative vs. positive labels. *Journal of Customer Policy*, 27(2), 213–230
- Häggström, M., & Schmidt, C. (2020). Enhancing children's literacy and ecological literacy through critical place-based pedagogy. *Environmental Education Research*, 26(12), 1729–1745
- Hayes, D. (1995). Environmental Law and Millennial Politics. *Environmental Law*, 953–965
- Heo, J., & Muralidharan, S. (2019). What triggers young Millennials to purchase eco-friendly products?: the interrelationships among knowledge, perceived customer effectiveness, and environmental concern. *Journal of Marketing Communications*, 25(4), 421–437
- Heo, J., & Muralidharan, S. (2019). What triggers young Millennials to purchase eco-friendly products?: the interrelationships among knowledge, perceived consumer effectiveness, and environmental concern. *Journal of Marketing Communications*, 25(4), 421–437.
- Hesterberg, T. (2011). Bootstrap. *Wiley Interdisciplinary Reviews: Computational Statistics*, 3(6), 497–526
- Holt, B. E. (1933). Animal drive and the learning process. An essay toward radical empiricism. *The Journal of Nervous and Mental Disease*, 78(5), 554
- Jaiswal, D., & Singh, B. (2018). Toward sustainable consumption: Investigating the determinants of green buying behaviour of Indian customers. *Business Strategy & Development*, 1(1), 64–73
- Jatana, R., & Jain, H. (2016). Green Banking: A Study of Customers' Perspective in Rajasthan. *Sumedha Journal of Management*, 5(4), 4–13
- Jisana, T. K. (2014). Customer behaviour models: an overview. *Sai Om Journal of Commerce & Management*, 1(5), 34–43
- Kahn, R. V., & Kahn, R. (2010). *Critical pedagogy, eco-literacy, & planetary crisis: The ecopedagogy movement* (359 vol.). Peter Lang
- Kaiser, F. G., Ranney, M., Hartig, T., & Bowler, P. A. (1999). Ecological behavior, environmental attitude, and feelings of responsibility for the environment. *European psychologist*, 4(2), 59
- Kautish, P., Paul, J., & Sharma, R. (2019). The moderating influence of environmental consciousness and recycling intentions on green purchase behavior. *Journal of Cleaner Production*, 228, 1425–1436
- Kim, S. Y., Yeo, J., Sohn, S. H., Rha, J. Y., Choi, S., Choi, A. Y., & Shin, S. (2012). Toward a composite measure of green consumption: an exploratory study using a Korean sample. *Journal of family and economic issues*, 33(2), 199–214
- Kumar, K., & Prakash, A. (2020). Managing sustainability in banking: extent of sustainable banking adaptations of banking sector in India. *Environment Development and Sustainability*, 22(6), 5199–5217

- Lee, H. J., & Yun, Z. S. (2015). Customers' perceptions of organic food attributes and cognitive and affective attitudes as determinants of their purchase intentions toward organic food. *Food quality and preference*, *39*, 259–267
- Lee, K. (2011). The role of media exposure, social exposure and biospheric value orientation in the environmental attitude-intention-behavior model in adolescents. *Journal of environmental psychology*, *31*(4), 301–308
- Lestari, E. R., Hanifa, K. P. U., & Hartawan, S. (2020, June). Antecedents of attitude toward green products and its impact on purchase intention. In *IOP Conference Series: Earth and Environmental Science* (Vol. 515, No. 1, p. 012073). IOP Publishing
- Levine, D. S., & Strube, M. J. (2012). Environmental attitudes, knowledge, intentions and behaviors among college students. *The Journal of social psychology*, *152*(3), 308–326
- Li, G., Yang, L., Zhang, B., Li, X., & Chen, F. (2021). How do environmental values impact green product purchase intention? The moderating role of green trust. *Environmental Science and Pollution Research*, *28*(33), 46020–46034
- Li, Y., Lu, Y., Zhang, X., Liu, L., Wang, M., & Jiang, X. (2016). Propensity of green consumption behaviors in representative cities in China. *Journal of Cleaner Production*, *133*, 1328–1336
- Lim, W. M., Ting, D. H., Bonaventure, V. S., Sendiawan, A. P., & Tanusina, P. P. (2013). What happens when customers realise about green washing? A qualitative investigation. *International journal of global environmental issues*, *13*(1), 14–24
- Liobikienė, G., & Poškus, M. S. (2019). The importance of environmental knowledge for private and public sphere pro-environmental behavior: modifying the value-belief-norm theory. *Sustainability*, *11*(12), 3324
- Loneragan, S. (1998). The role of environmental degradation in population displacement. *Environmental change and security project report*, *4*(6), 5–15
- Lopez-Odar, D., Alvarez-Risco, A., Vara-Horna, A., Chafloque-Cespedes, R., & Sekar, M. C. (2020). "Validity and reliability of the questionnaire that evaluates factors associated with perceived environmental behavior and perceived ecological purchasing behavior in Peruvian customers". *Social Responsibility Journal*, *16* No(3), 403–417. <https://doi.org/10.1108/SRJ-08-2018-0201>
- Martin, C., & Czellar, S. (2017). Where do biospheric values come from? A connectedness to nature perspective. *Journal of Environmental Psychology*, *52*, 56–68
- Martinez, C. P., Castaneda, M. G., Marte, R. B., & Roxas, B. (2015). Effects of institutions on ecological attitudes and behaviour of customers in a developing Asian country: the case of the Philippines. *International journal of customer studies*, *39*(6), 575–585
- Matin, A., Khoshtaria, T., Marcan, M., & Datuashvili, D. (2021). The roles of hedonistic, utilitarian incentives and government policies affecting customer attitudes and purchase intention towards green products. *International Review on Public and Nonprofit Marketing*, 1–27
- McBride, B. B., Brewer, C. A., Berkowitz, A. R., & Borrie, W. T. (2013). Environmental literacy, ecological literacy, eco-literacy: what do we mean and how did we get here? *Ecosphere*, *4*, art67
- Meijers, M. H., Noordewier, M. K., Verlegh, P. W., Willems, W., & Smit, E. G. (2019). Paradoxical side effects of green advertising: how purchasing green products may instigate licensing effects for customers with a weak environmental identity. *International Journal of Advertising*, *38*(8), 1202–1223
- Mitchell, A. A., & Olson, J. C. (1981). Are product attribute beliefs the only mediator of advertising effects on brand attitude? *Journal of marketing research*, *18*(3), 318–332
- Naderi, I., & Van Steenburg, E. (2018). "Me first, then the environment: young Millennials as green customers". *Young Customers*, *19* No(3), 280–295. <https://doi.org/10.1108/YC-08-2017-00722>
- Nelson, M. (2021). Biosphere 2's Lessons about Living on Earth and in Space. *Space: Science & Technology*, 2021
- Nguyen, T. N., Lobo, A., & Greenland, S. (2016). Pro-environmental purchase behaviour: The role of customers' biospheric values. *Journal of Retailing and Customer Services*, *33*, 98–108
- Nordlund, A. M., & Garvill, J. (2003). Effects of values, problem awareness, and personal norm on willingness to reduce personal car use. *Journal of environmental psychology*, *23*(4), 339–347
- Oldfield, F., & Dearing, J. A. (2003). The role of human activities in past environmental change. *Paleoclimate, global change and the future* (pp. 143–162). Berlin, Heidelberg: Springer
- Orr, D. W. (1991). *Ecological Literacy: Education and the Transition to a Postmodern World* (SUNY series in Constructive Postmodern Thought) (Fir ed.). SUNY Press
- Parker, R. I., & Vannest, K. (2009). An improved effect size for single-case research: Nonoverlap of all pairs. *Behavior therapy*, *40*(4), 357–367

- Patterson, M. G. (2002). Ecological production based pricing of biosphere processes. *Ecological Economics*, 41(3), 457–478
- Phipps, M., Ozanne, L. K., Luchs, M. G., Subrahmanyam, S., Kapitan, S., Catlin, J. R. ... Weaver, T. (2013). Understanding the inherent complexity of sustainable consumption: A social cognitive framework. *Journal of Business Research*, 66(8), 1227–1234
- Ramayah, T., Lee, J. W. C., & Mohamad, O. (2010). Green product purchase intention: Some insights from a developing country. *Resources conservation and recycling*, 54(12), 1419–1427
- Rejikumar, G. (2016). *Antecedents of green purchase behaviour*. An examination of moderating
- Ricci, E. C., Banterle, A., & Stranieri, S. (2018). Trust to go green: An exploration of customer intentions for eco-friendly convenience food. *Ecological economics*, 148, 54–65
- role of green wash fear. *Global Business Review*, 17(2), 332–350
- Rolston, H. (2015). Environmental ethics for tomorrow: Sustaining the biosphere. *Sustainability* (pp. 347–358). Routledge
- Rönkkö, M., & Cho, E. (2022). An updated guideline for assessing discriminant validity. *Organizational Research Methods*, 25(1), 6–14
- Sahoo, P., & Nayak, B. P. (2007). Green banking in India. *The Indian Economic Journal*, 55(3), 82–98
- Schuitema, G., & De Groot, J. I. (2015). Green customerism: The influence of product attributes and values on purchasing intentions. *Journal of Customer Behaviour*, 14(1), 57–69
- Shukla, S. (2019). A study on millennial purchase intention of green products in India: applying extended theory of planned behavior model. *Journal of Asia-Pacific Business*, 20(4), 322–350
- Simon, S. (2006). Systemic educational approaches to environmental issues: the contribution of ecological art. *Systemic Practice and Action Research*, 19(2), 143–157
- Sleimi, M. T., & Emeagwali, O. L. (2017). Do employee attitudes mediate the relationship between strategic human resource management practices and organizational effectiveness? A SEM based investigation using smartPLS software. *Business and Economic Horizons (BEH)*, 13(1232-2017-2403), 42–59
- Sowińska-Swierkosz, B., & Chmielewski, T. J. (2014). Comparative assessment of public opinion on the landscape quality of two biosphere reserves in Europe. *Environmental management*, 54(3), 531–556
- Stern, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of social issues*, 50(3), 65–84
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behaviour. *Journal Of Social Issues*, 56, 407–424
- Stokols, D. (2000). Social ecology and behavioral medicine: implications for training, practice, and policy. *Behavioral medicine*, 26(3), 129–138
- Subiza-Pérez, M., Santa Marina, L., Irizar, A., Gallastegi, M., Anabitarte, A., Urbieta, N. ... Ibarluzea, J. (2020). Who feels a greater environmental risk? Women, younger adults and pro-environmentally friendly people express higher concerns about a set of environmental exposures. *Environmental Research*, 181, 108918
- Tamura, R., Kobayashi, K., Takano, Y., Miyashiro, R., Nakata, K., & Matsui, T. (2019). Mixed integer quadratic optimization formulations for eliminating multicollinearity based on variance inflation factor. *Journal of Global Optimization*, 73(2), 431–446
- Tara, K., Singh, S., & Kumar, R. (2015). Green banking for environmental management: A paradigm shift. *Current World Environment*, 10(3), 1029–1038
- Unruh, G. C. (2008). The biosphere rules. *Harvard Business Review*, 86(2), 111–117
- Van der Werff, E., Steg, L., & Keizer, K. (2014). I am what I am, by looking past the present: The influence of biospheric values and past behavior on environmental self-identity. *Environment and behavior*, 46(5), 626–657
- Vaske, J. J., Beaman, J., & Sponarski, C. C. (2017). Rethinking internal consistency in Cronbach's alpha. *Leisure sciences*, 39(2), 163–173
- Vazifehdoust, H., Taleghani, M., Esmailpour, F., & Nazari, K. (2013). Purchasing green to become greener: Factors influence customers' green purchasing behavior. *Management Science Letters*, 3(9), 2489–2500
- Wang, X., & Lu, Y. (2021). Man and Nature: A New Perspective on the Community of Destiny for All Mankind. *The Frontiers of Society, Science and Technology*, 3(2)
- Wong, F. M. (2021). First Data in the Process of Validating a Tool to Evaluate Knowledge, Attitude, and Practice of Healthcare Providers in Oral Care of Institutionalized Elderly Residents: Content Validity, Reliability and Pilot Study. *International journal of environmental research and public health*, 18(8), 4145

- Wong, K. K. K. (2016). Mediation analysis, categorical moderation analysis, and higher-order constructs modeling in Partial Least Squares Structural Equation Modeling (PLS-SEM): A B2B Example using SmartPLS. *Marketing Bulletin*, 26(1), 1–22
- Wu, L., & Zhu, Y. (2021). How love of nature promotes green customer behaviors: The mediating role of biospheric values, ecological worldview, and personal norms. *PsyCh Journal*, 10(3), 402–414
- Xie, X., Qin, S., Gou, Z., & Yi, M. (2020). Can Green Building Promote Pro-Environmental Behaviours? The Psychological Model and Design Strategy. *Sustainability*, 12(18), 7714
- Yadav, R. (2016). Altruistic or egoistic: Which value promotes organic food consumption among young customers? A study in the context of a developing nation. *Journal of Retailing and Customer services*, 33, 92–97
- Yang, Y. C. (2017). Customer behavior towards green products. *Journal of Economics Business and Management*, 5(4), 160–167
- Zheng, G. W., Siddik, A. B., Masukujjaman, M., Alam, S. S., & Akter, A. (2020). Perceived environmental responsibilities and green buying behavior: The mediating effect of attitude. *Sustainability*, 13(1), 35
- Zhuang, W., Luo, X., & Riaz, M. U. (2021). On the factors influencing green purchase intention: A meta-analysis approach. *Frontiers in Psychology*, 12, 1074

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.