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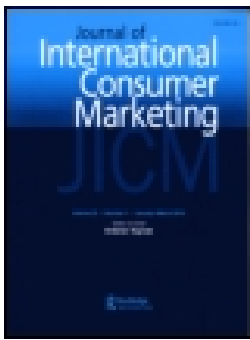
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# Demystifying Horizontal/Vertical Cultural Difference in Green Consumption: A Cross-Cultural Comparative Study

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## ABSTRACT

To understand green consumption in cross-cultural context, this study examines the influence of horizontal individualism (HI-Finnish) and vertical collectivism (VC-Pakistani) cultural values on consumers' attitude toward green products and purchase intentions. Besides, the mediating role of environmental responsibility is examined for the relationship between these cultural values and consumers' attitude toward green products. Partial Least Square structural equation modeling (PLS-SEM) analysis is performed to measure the significance of the hypothesized model and to assess differences between these two countries. This study empirically validates that these cultural variations can determine green consumption by consumers in each country. The results show an insignificant influence of horizontal individualism and vertical collectivism cultural values on consumers' attitude toward green products, but a positive influence on environmental responsibility. The impact of environmental responsibility on consumers' attitude toward green products and of their attitude toward green products on purchase intention was also positive. Environmental responsibility plays the role of a full mediator between cultural values and consumers' attitude toward green products. The findings of this study may help practitioners in the development of culturally appropriate green marketing and advertising strategies.

## KEYWORDS

Culture; horizontal individualism; vertical collectivism; environmental responsibility; consumers' attitude toward green products; purchase intentions

## Introduction

The world community is committed to limiting global temperature rise to less than 2°C above preindustrial levels by the year 2100. However, reaching this goal will require major changes to current socioeconomic systems and consumption patterns. Sustainable Development Goal 12 outlines a shift in traditional methods of production and consumption of resources toward responsible and sustainable options subject to increasing our responsibility to protect the environment on behalf of both current and future generations (United Nations 2018). Accordingly, to alleviate environmental problems, businesses and consumers are both now showing their commitment. Businesses are increasingly integrating environmental policies and strategies into their activities, such as in the shape of designing, manufacturing, and distributing environmentally friendly/green products (Kolk and Pinkse 2004; Nidumolu,

Prahalad, and Rangaswami 2009). Similarly, consumers are becoming more ecologically conscious and therefore buying environmentally friendly/green products and services, embracing a greener economy (Albino, Balice, and Dangelico 2009; Gouvea, Kassicieh, and Montoya 2013). Researchers find that in industrialized nations, more than 50% of individuals buy sustainable brands and 24% are ready to pay more for eco-products (Chen, Chen, and Tung 2018). At the same time, it has been found that the market share of green products around the world is declining by 1%–6%. (Nielsen 2013; Jahanshahi and Jia 2018). This means that some consumers are committed to buying green products whereas others resist sustainable consumption (Liobikiene and Juknys 2016).

Recent research suggests that the promotion of sustainable consumption requires study of the role of social and cultural aspects of consumption

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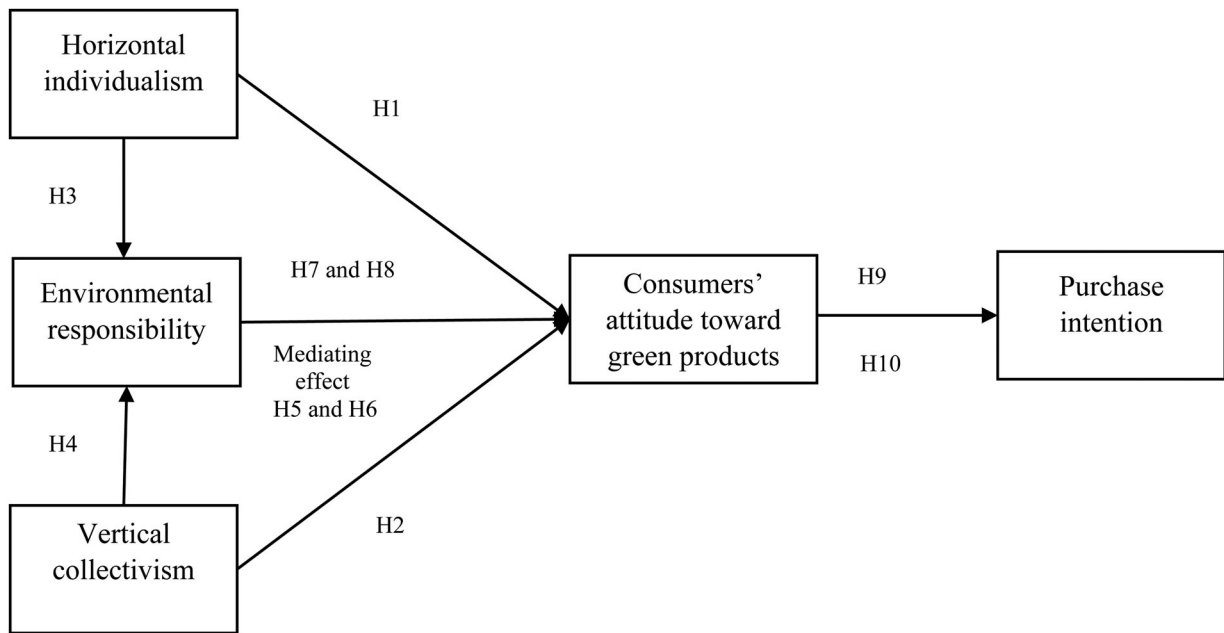
in the environmental concerns of consumers (da Costa et al. 2016). However, understanding culturally relevant pro-environmental behavior seems to be far more complex than was previously thought (Gifford and Nilsson 2014). In this context, for many years researchers believed that consumers in individualistic cultures buy and consume green products for self-interest and in collectivistic cultures for others-interest (McCarty and Shrum 2001; Laroche, Bergeron, and Barbaro-Forleo 2001; Milfont, Duckitt, and Cameron 2006). Accordingly, in differentiating individual vs. collective pro-environmental behavior across cultures, past research has relied on individualist vs. collectivist cultural values (Park, Russell, and Lee 2007; Soyeuz 2012). However, despite the research trend for many years classifying sustainable consumption for individual or collective reasons, it has been considered to be inconsistent and serve as a barrier in understanding consumers' green motives (Morren and Grinstein 2016).

Because the concept of individual vs. collective-oriented behavior is situational, and it varies from one situation to another and from one time to another (Markus and Kitayama 1991), therefore when consumers consider sustainable choices, their absolute values may conflict or lack salience (van Zomeren 2014). Another possible reason could be that green products have attributes and features that serve consumers' individual vs. collective reasons for consumption including benefit to health, status/image improvement, social concerns, and environmental concerns (Birch, Memery, and Kanakarathne 2018; Oliver and Lee 2010; Griskevicius, Tybur, and Van den Bergh 2010; Stern et al. 1995; Moisander 2007; Gupta and Ogden 2009). For that reason, a consumer, irrespective of their individual or collective cultural orientation, might prefer to buy and consume green products for individual and collective benefits, and for social, health, status improvement, and environmental motives.

Research further notes that negotiating the pro-environmental change can be difficult, especially when our consumption culture is fueling environmentally detrimental activities. That said, consumers have the power to change their own consumption to make it more eco-friendly, which

would force companies to implement the responsible paradigm (Dursun 2019). The viability of the formation of environmentally responsible behavior is based on the conviction that it is possible to convince individuals accept their responsibility for causing environmental problems and therefore change their everyday actions to lessen the negative consequences (Barr 2003). Therefore, having a culture of environmental responsibility is a source of environmental protection (Lee, Kim, and Kim 2018).

Against this background, the more general research aim of this study is to capitalize on the new refined conception of the classical individualism-collectivism dimension, namely its horizontal and vertical versions in an attempt to advance theorizing concerning cross-cultural differences in green consumption. More specifically, this study both applies more established conceptualizations (theories of planned behavior and value-belief-norm) and introduces an emerging mediation mechanism (environmental responsibility) for the effects of culturally shaped values. This exercise leads to the development of an integrative theoretical framework and a set of testable hypotheses (See Figure 1). Achievement of these objectives contributes to green customer behavior literature in four ways. First, it qualifies as an informed response to the continual calls by environmental psychologists to examine the role culture plays in human-environment interactions (Tam and Milfont 2020). Second, as revealed by the reviews of Shavitt and Cho (2016), Shavitt and Barnes (2019), the cultural differences dimensions of vertical individualism and horizontal collectivism - and not horizontal individualism and vertical collectivism - have received the greatest attention so far. In other words, our study helps to close that knowledge gap. Third, it provides the first empirical evidence regarding the ways in which environmental responsibility mediates the effects of horizontally individualistic and vertically collectivistic cultural values on various green consumption constructs (Minbashrazgah, Maleki, and Torabi 2017). The fourth contribution of this study is managerial. For example, effective marketing strategies require empirically robust and validated evidence of actual consumer behavior as well as an understanding of theoretical frameworks that best anticipate such



**Figure 1.** Conceptual model of this study.

behavior (Reisch et al. 2016). Accordingly, this study carries forward and examines key issues currently faced by marketers, such as how to design culturally congruent strategies and policy measures for marketing and selling green products in both industrialized and less-industrialized countries (Gifford and Nilsson 2014; Grebitus and Dumortier 2016; Nair and Little 2016).

In order to examine the proposed model, this study focuses on consumers' of horizontal individualistic (low power distance and a higher degree of individualism; e.g., Finland) and vertical collectivistic (high power distance and a lower level of individualism; e.g., Pakistan) countries as an empirical research context (Hofstede-insights 2020; Rahman & Luomala 2020). According to Hofstede and Minkov (2010), the individualism score (range 0–100) is 14 for Pakistan and 63 in Finland showing that the former is a collectivist and the latter is an individualistic country. In addition, the power distance dimension of cultural difference, which is the extent to which the less powerful members of institutions and organizations within a country expect and accept that power, is distributed unequally, pertains to how vertical or horizontal society is (Triandis and Gelfand 1998). This score (range 0–100) is 55 for Pakistan and 33 in Finland (Hofstede and Minkov 2010). Accordingly, the net difference of

22 suggests that Pakistani culture can be described as a vertical and Finnish culture is horizontal. Besides, previous studies offered evidence that Finland represents HI-culture and Pakistan is a VC-culture (Rantanen and Toikko 2017; Aycan et al. 2013). As mentioned above, prior research implies that both individualistic and collectivistic cultural values can be associated with self- and other-centered green consumption motivations. Specifically choosing Pakistan (a VC culture) and Finland (an HI culture) as the empirical research contexts for this study enables new insights concerning the ways and degrees in which culture and green consumption interact in different geographic locations and market environments. In the remainder of this study, we address the literature review, theoretical framework, hypotheses development, research methods, findings and results, and the discussion and conclusion of the study. Finally, theoretical and managerial implications, study limitations, and future research recommendations are discussed.

## Literature review

### Theoretical framework

This research is guided by the theory of planned behavior (TPB) and the VBN theory (Ajzen 1991; De Groot and Steg 2008). The application of

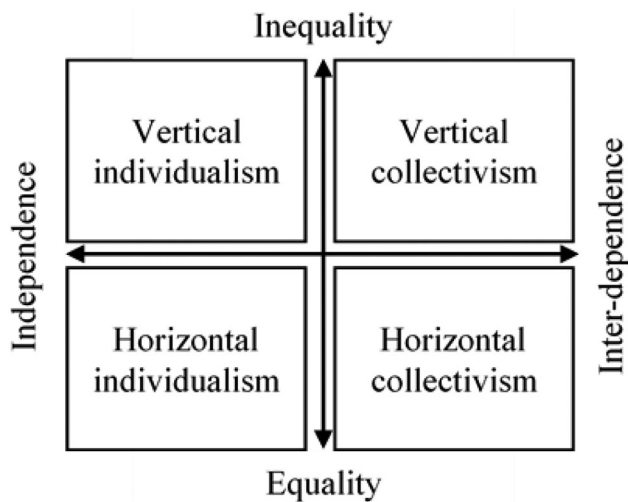


Figure 2. H/V IND vs COL (Triandis and Gelfand 1998).

these two theories together has proved useful in predicting consumers' pro-environmental and socially responsible behavior (Cho et al. 2013; Han 2015; Gkargkavouzi, Halkos, and Matsiori 2019). In the TPB framework, perceived behavioral control, subjective norms, and attitude variables work together to shape an individual's behavioral intentions and behaviors. VBN theory is an extended version of the norms activation model (NAM) (Schwartz 1977; Stern et al. 1999) and the new environmental paradigm (NEP) (Dunlap et al. 2000). In order to develop a VBN framework, Stern (2000), merged three factors: awareness of consequences, ascription of responsibility, and personal norms for NAM and ecological world factor of NEP in the pro-environmental context. The most important aspect of VBN is that beliefs play a mediating role between values and actions (De Groot and Steg 2008). In the context of environmental behavior, the role of mediating determinants between values, attitudes, and action must be considered (Thøgersen, Zhou, & Huang 2016). In the current study, the merging of VBN and TPB gives us a conceptual framework in which HI and VC cultural orientations represent individual values; the environmental responsibility variable is a belief (Cho et al. 2013); and other constructs such as attitude and purchase intentions toward green products are actions (See Figure 1).

### Horizontal/vertical individualism vs. collectivism cultural values

In consumer psychology, regarding the role of culture in predicting individual and collective consumer behavior, research at the cultural level involves the broad concept of IND vs. COL classification (Hofstede 1980; Shavitt, Johnson, and Zhang 2011; De Mooij and Hofstede 2011). However, researchers have disagreed and argued that it is not necessarily true that a culture can be congruent with IND/COL cultural values. The IND/COL continuum explains a slight variation but cannot capture enough cultural difference to make any credible recommendations (Oyserman, Coon, and Kimmelmeier 2002). Singelis et al. (1995), and Triandis and Gelfand (1998) treated and operationalized IND/COL cultures as vertical vs. horizontal. H/V IND/COL nested in IND/COL orientations predict different personal values, goals, normative expectations, and power concepts (Triandis 1995) (See Figure 2). The authors divided IND/COL orientations into four distinct cultural patterns. For example, (a) vertical individualistic (VI) (France, Great Britain and the United States, where people emphasize hierarchy, power, individual competition, and being different and notable, (b) horizontal individualistic (HI) (Denmark, Norway, Sweden, Australia), where people emphasize equality, independence, self-reliance, and uniqueness. Also, (c) vertical collectivistic (VC) (India, Japan, Korea) where people are submissive, comply with authority, preserve unity, prioritize group benefits, goals and interests, and accept inequality, and (d) horizontal collectivistic (HC) where people emphasize equity, group commonality, sociability, and interdependence. H/V IND-COL patterns resemble the combination of the scores for Hofstede's dimensions, (e.g., individualism/collectivism and power distance) (Shavitt and Cho 2016). Moreover, H/V IND-COL cultural individuals may achieve different, culturally relevant goals (Triandis 1995; Shavitt and Cho 2016). For example, self-respect (e.g., being proud and confident of oneself) is congruent with HI being distinct and separate from others. Being well respected/admired (e.g., being admired and recognized by others) is the hallmark of VC cultural

values such as maintaining and protecting in-group status (Shavitt et al. 2006, p. 327). In the field of consumer behavior, H/V IND-COL societies are structured around specific dominant attitudes. How consumers react to advertisements, brands, and service providers in the marketplace, and their responses to others and to the needs of others, are based on H/V IND-COL orientations (Shavitt, Johnson, and Zhang 2011). For example, VI-oriented consumers are brand and status-conscious and hate lying (Lu, Chang, and Yu 2013; Zhang and Nelson 2016), whereas consumers of HC cultures are interested in cause-related marketing, and show leisure attitudes (Wang 2014; Wong, Newton, and Newton 2014).

## Hypotheses development

### *Horizontal IND vs. Vertical COL and consumers' attitude toward green products*

Up to the present time, not much attention has been paid by researchers to the role of HI and VC cultural values in consumer behavior research. According to Shavitt and Barnes (2019), most of the research addressed the influence of VI and HC values as compared to HI and VC in various consumption phenomena. In addition, few studies addressed HI and VC cultural orientations in the context of pro-environmental behavior (Cho et al. 2013; Rahman 2019; Gupta, Wencke, and Gentry 2019). Previous research demonstrates that consumers with VC cultural values show pro-environmental attitudes and are prone to other-directed symbolism (Waylen et al. 2012; Yi-Cheon Yim et al. 2014). However, consumers with HI cultural values display an impersonal interest in nutritional practices and show environmental attitudes (Cho et al. 2013; Parker and Grinter 2014). Accordingly, this study assumes that there can be a potential influence of HI and VC cultural-congruent values on consumers' attitude toward green products. Therefore, it is hypothesized that,

*H1. HI cultural values positively influence consumers' attitude toward green products*

*H2. VC cultural values positively influence consumers' attitude toward green products*

### *Horizontal IND vs. Vertical COL and environmental responsibility*

Consumers are becoming more willing to solve problems and accept environmental responsibility in terms of personal habits, lifestyles, and purchases (Knopman, Susman, and Landy 1999; Paco and Gouveia Rodrigues 2016; Kinnear, Taylor, and Ahmed 1974; Follows and Jober 2000). Researchers further argue that environmentally responsible individuals are different with respect to their values and personality profiles and that environmental responsibility varies across different cultures (Schultz 2002; Dagher and Itani 2014), specifically across individualistic versus collectivistic cultures (Hanson-Ramussen and Lauver 2018). Several researchers have established that environmentally responsible consumers not only see an improvement in their image, but also project a good image of themselves as environmentally responsible in the opinion of others (Nyborg, Howarth, and Brekke 2006; Lee 2009). These research findings are compatible with the conceptual definitions of how HI and VC cultural-oriented consumers see themselves. From these research findings, it is inferred that an "environmentally responsible" consumer in a HI culture may project her/himself as being environmentally responsible for self-image/unique-ness in society, and VC consumers will see themselves as an environmentally-friendly, admired persons in the eyes of others, having in-group-status. Accordingly, we hypothesize that

*H3. HI cultural values positively influence consumers' environmental responsibility*

*H4. VC cultural values positively influence consumers' environmental responsibility*

*H5. HI-culture relevant environmental responsibility plays the role of a mediating variable in the relationship between HI cultural values and consumers' attitude toward green products*

*H6. VC-culture relevant environmental responsibility plays the role of a mediating variable in the relationship between VC cultural values and consumers' attitude toward green products*

### *Environmental responsibility and consumers' attitude toward green products*

According to Schwartz (1968), perceived responsibility for environmental damage refers to the

degree to which a person believes that he or she is directly or indirectly responsible for harming the environment. Environmental responsibility featured in the value-belief-norm (VBN) model (Stern et al. 1999) and a better predictor of consumers' sustainable behaviors (Luchs, Phipps, and Hill 2015), but has been generally neglected by researchers in predicting pro-environmental behavior (Attaran and Celik 2015; Wells, Ponting, and Peattie 2011).

Environmental responsibility positively influences and predicts consumers' environmental attitudes (Taufique et al. 2014; Paco and Gouveia Rodrigues 2016) that eventually translate into positive green purchase behavior (Lee 2009). In their study, Attaran and Celik (2015) found that consumers with a high level of environmental responsibility show favorable attitudes and purchase intentions. Previous research also shows that responsibility toward environmental protection leads consumers to evaluate and form opinions regarding the purchasing of green products (Kanchanapibul et al. 2014; Miniero et al. 2014). Moreover, environmentally responsible consumers would be ready to be green and purchase green products (Arli et al. 2018). For example, they would buy lower emission vehicles (Ngo, West, and Calkins 2009). Accordingly, it is hypothesized that

*H7. Environmental responsibility positively influences HI consumers' attitude toward green products*

*H8. Environmental responsibility positively influences VC consumers' attitude toward green products*

### **Consumers' attitude toward green products and purchase intention**

Attitude refers to the degree to which a person forms a favorable or unfavorable evaluation of the behavior in question (Ajzen 1991). Attitude is an important predictor of behavioral intentions (Kotchen and Reiling 2000). In the context of tourism research, consumers' attitude positively determines their green hotel intentions (Han and Yoon 2015). Similarly, consumers' attitude toward organic products positively influences their purchase intentions. Tang, Wang, and Lu (2014) found that consumers' attitude toward low

carbon emitting products positively influences their purchase intentions of these products. Paul, Modi, and Patel (2016) and Sreen, Purbey, and Sadarangani (2018) found that consumers' attitude toward green products positively influences their purchase intentions. Moreover, consumers' cultural characteristics can explain the positive link of their attitude and intention with environmentally friendly products (Morren and Grinstein 2016). Accordingly, it is hypothesized that,

*H9. In a HI-culture, consumers' attitude toward green products has a positive influence on their purchase intentions*

*H10. In a VC-culture, consumers' attitude toward green products has a positive influence on their purchase intentions*

## **Methodology**

### **Measures and sample**

The questionnaire in this study has two parts. The first part contains the underlying independent and dependent variables. The second part consists of demographic information about the respondents, such as age, gender, marital status, educational qualifications, and income level. Scale items of the variables are adapted from earlier studies. For instance, the scale items for "horizontal individualism" (HI) (e.g., "I'd rather depend on myself than others") and "vertical collectivism" (VC) (e.g., "It is important to me that I respect the decisions made by my group"), value orientations, are taken from the study by Triandis and Gelfand (1998). Questions relating to the mediating variable "environmental responsibility" (ER) (e.g., "I should be responsible for protecting our environment") are taken from the study by Lee (2009). Scale items for the "consumers' attitude toward green products" (CAGP) (e.g., "I like the idea of purchasing green products"), are taken from the study by Mostafa (2007), and scale items of "purchase intention" (PI) variable (e.g., "I definitely want to purchase green products in the near future") are taken from the study by Paul, Modi, and Patel (2016). All scale items were measured using a Likert scale of "strongly disagree" (1) to "strongly agree" (5).



**Table 1.** Independent t-test comparing Finland-HI and Pakistan-VC samples.

Dependent variable	Pakistan		Finland		t
	Mean	S.D	Mean	S.D	
Horizontal individualism	3.07	.62	3.75	.87	7.63*
Vertical collectivism	4.14	.81	3.86	.66	3.19*

\*p &lt; 0.05

### Data collection procedure

Before participating in the survey, the purpose and objectives of the research were explained to the respondents. The questionnaires were translated into Urdu for the Pakistani respondents and Finnish for the Finnish respondents. Moreover, to give an accurate depiction of the exact meaning of the text of the questionnaire in the target languages of both countries, we followed the back translation method (Tyupa 2011). A non-probability convenience sampling technique was used to collect the data. Participants were recruited in public places such as parks, malls, city centers, and educational institutes. We used the same data collection technique in both countries. A total number of 172 completed questionnaires were obtained from Pakistani respondents living in the cities of Rawalpindi and Islamabad. In Finland, 193 responses were obtained from residents of the cities of Helsinki and Vaasa.

### Data analysis

The collected data were examined using the Statistical Package for the Social Sciences (SPSS 20.0). Data were scrutinized for missing and unclear values, and these were removed. Furthermore, to analyze the data and to check the hypothesized relationships and fitness of the model, we used the structural equation modeling (SEM) technique, using the partial least squares (PLS) SmartPLS (v. 3.2.6) software application (Hair et al. 2006). PLS is a prediction-oriented SEM-based software package that works with smaller data sets (Henseler, Ringle, and Sinkovics 2009).

## Results and findings

### Sample characteristics

In Pakistan, the majority of the respondents were aged between 26 and 40 years (n = 93, 54.1%); in

**Table 2.** Discriminant validity and correlation (Finland).

Variables	HI	ER	CAGP	PI	CR	AVE
HI	(0.88)				0.89	0.78
ER	.425	(0.93)			0.85	0.86
CAGP	.420	.640	(0.90)		0.85	0.81
PI	.641	.714	.389	(0.92)	0.89	0.85

the Finnish sample, they were aged between 21 and 35 years (n = 97, 50.3%). There were more female respondents in the Finnish sample than males (n = 143, 74.1%). The number of unmarried respondents was almost the same in both samples (Pakistan, 105, 61.1%, Finland, 106, 54.92%). In the Pakistani sample there were 60 (n = 60, 34.88%) bachelor's degree holders, but in the Finnish sample this number was 77 (n = 77, 39.90%). The monthly income level of the respondents in Pakistan was between Pakistani rupees (PKR) 10,000 – 30,000 (n = 122, 70.93%), and in Finland, the income level was €501 – €2,499 (n = 126, 65.28%).

### Variation of dependent variables

To analyze the differences between Pakistani and Finnish groups, we used an independent t-test. Test results show a significant difference between the two groups (See Table 1).

### Correlation, reliability, and discriminant validity of measures

For interrelationships between the variables, we established a correlation. To evaluate the convergent validity, we computed the average variance extracted (AVE), and for the reliability of the measures, we calculated the composite reliability (CR). Moreover, we found adequate discriminant validity using the square root of AVEs exceeding the correlation coefficients between pairs of corresponding constructs (Fornell and Larcker 1981) (See Tables 2 and 3).

### Structural equation modelling analysis

#### Measurement model

The loadings of the measurement model for the five latent variables show adequate convergent validity, indicating acceptable internal consistency and validity above the recommended value of

**Table 3.** Discriminant validity and correlation (Pakistan).

Variables	VC	ER	CAGP	PI	CR	AVE
VC	(0.86)				0.83	0.74
ER	.428	(0.87)			0.80	0.75
CAGP	.436	.555	(0.88)		0.82	0.78
PI	.333	.512	.440	(0.89)	0.84	0.80

Notes: Values of square root of AVEs are shown diagonally in parentheses.

0.50 (Fornell and Larcker 1981) (See Figures 3 and 4).

### Structural model and hypotheses results

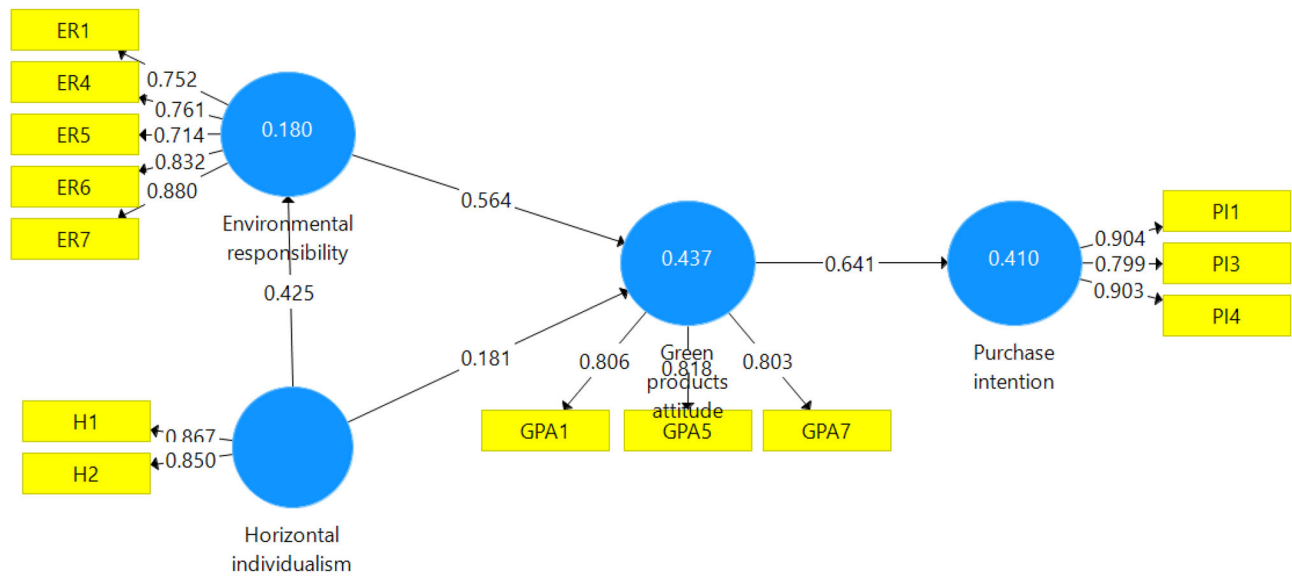
A structural model was used to assess the hypothesized relationships of the constructs. A coefficient of determination  $R^2$  was calculated as the first step of the structural model. This shows the amount of variance in a dependent variable via an independent variable using path coefficients and their corresponding significance scores. In the model for Finland, the  $R^2$  value for ER is 18%, for CAGP it is 44%, and for PI it is 41%. In the model for Pakistan, the  $R^2$  value for ER is 18%, for CAGP it is 36%, and it is 19% for PI, demonstrating considerable significance for the interpretation of the variance (Chin 1998). In the next step, to test the prediction relevance of the models, the  $Q^2$  value, a cross-validated redundancy measure, was calculated using the blind-folding command. The resulting values of  $Q^2$  for the Finland data model are 10% for ER, 26% for CAGP, and 28% for PI. The  $Q^2$  results for the Pakistan data model are 9% for ER, 19% for CAGP, and 11% for PI. All the  $Q^2$  values in the two models demonstrate that the observed values are well reconstructed and that the model has predictive relevance (Henseler, Ringle, and Sinkovics 2009).

To determine the strengths of the direct and indirect hypothesized effects between the variables of the model using path coefficients and t-values, a bootstrapping method for sampling tests was run on the data of both countries, based on 1,000 bootstraps in PLS (Roldán and Sanchez-Franco 2012). Moreover, for the mediating variable analysis, we used specific indirect effect, as suggested by Hair et al. (2017), which we chose for convenience and reliability (Cepeda, Nitzl, and Roldán 2017). Data results reveal that in Finland, H1 is not supported due to the insignificant influence of HI cultural values on CAGP ( $\beta$

= 0.231,  $p > 0.05$ ). However, the influence of HI cultural values on ER ( $\beta = 0.568$ ,  $p < 0.05$ ) is positive, therefore H3 is supported. Data results further show that ER positively influences CAGP ( $\beta = 0.665$ ,  $p < 0.05$ ) so H7 is supported. The influence of CAGP on PI in the Finnish sample is also positive ( $\beta = 0.794$ ,  $p < 0.05$ ), and therefore H9 is supported. Regarding the hypothesis results in Pakistan, the influence of VC cultural values on CAGP is not significant ( $\beta = 0.282$ ,  $p > 0.05$ ). Therefore H2 is not supported, but the VC  $\rightarrow$  ER path is significant ( $\beta = 0.619$ ,  $p < 0.05$ ), and thus H4 is supported. Because the influence of ER on CAGP is significant and positive ( $\beta = 0.587$ ,  $p < 0.05$ ) therefore H8 is supported. The influence of CAGP on PI in Pakistan was also found to be positive and significant. Therefore H10 is supported ( $\beta = 0.610$ ,  $p < 0.05$ ). Regarding the mediating factor analysis, we support H5 and H6: the resulting values of specific indirect effects show that ER plays the role of a full mediator between HI and VC cultural values ( $\beta = 0.378$ ,  $p < 0.05$ ), VC ( $\beta = 0.363$ ,  $p < 0.05$ ) and CAGP (See Table 4 and Figure 5).

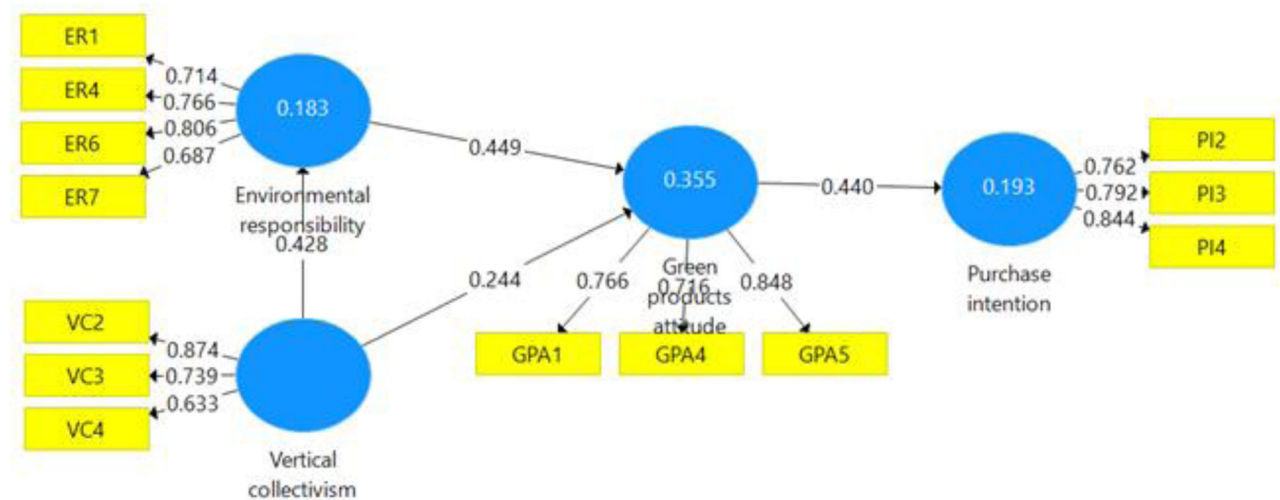
### Discussion

Change in consumers' unsustainable consumption patterns is essential for sustainable consumption and production goals. In this situation, understanding consumers' culturally relevant buying and consumption motives may help to promote pro-environmental behavior. Therefore, this study expanded the long-standing history of the role of cultural value orientations in environmental behavior research, thereby extending the current research debate on understanding consumers' green product preferences in a cross-cultural context. Accordingly, the objective of this study was to examine the influence of the horizontal individualism and vertical collectivism facets of horizontal vs. vertical IND and COL cultural orientations on consumers' attitude toward green product and purchase intentions. In addition to that, the present study attempted to provide empirical evidence regarding the ways in which environmental responsibility mediates the effects of horizontally



Measurement model (Finland)

Figure 3. Measurement model (Finland).



Measurement model (Pakistan)

Figure 4. Measurement model (Pakistan).

individualistic and vertically collectivistic cultural values on consumers' attitude toward green products. The data provide support for our proposed research model and many of our hypotheses. As expected, the measurement scores on cultural values indicate that Pakistanis are vertical collectivist and Finnish are horizontal individualists. Based on the results of the hypotheses, we establish an insignificant influence of vertical collectivism (Pakistan) and

horizontal individualism (Finland) on consumers' attitude toward green products. However, consumers' attitude toward green products is significantly driven by their environmental responsibility belief in these two countries. Moreover, in Pakistan and in Finland HI environmental responsibility uniquely and theoretically consistently mediates the effects of HI- and VC-culture-specific values on consumers' attitudes toward green products.

**Theoretical and practical implications**

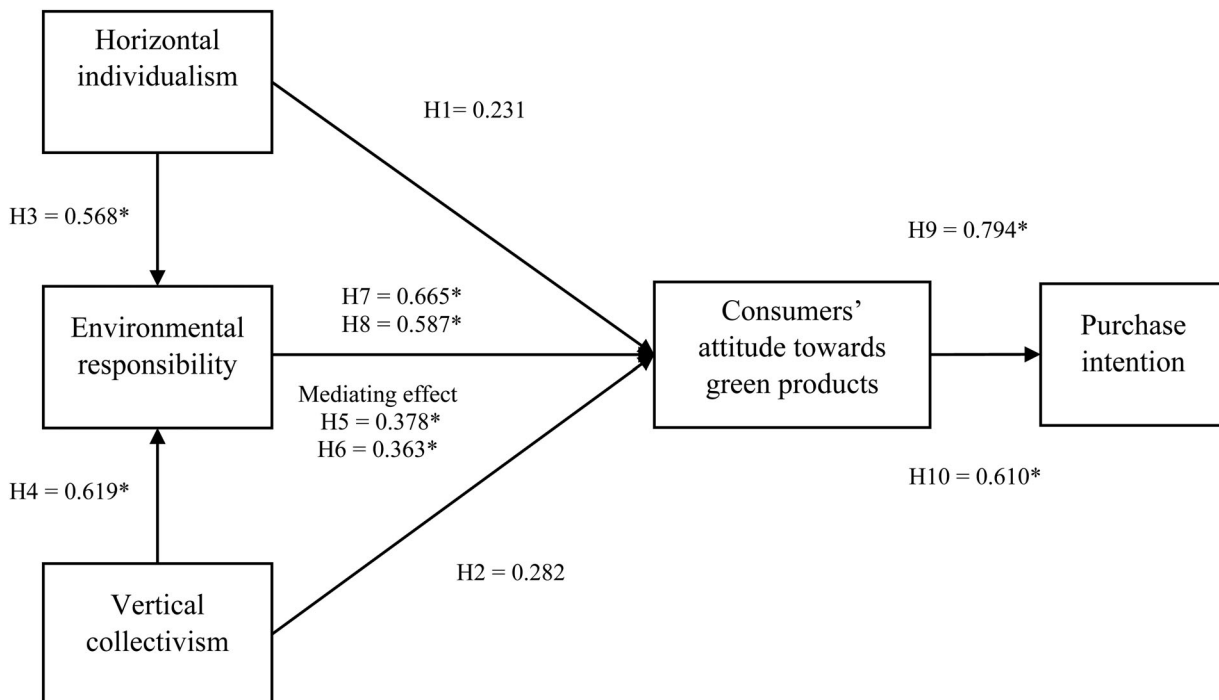
This study contributes by advancing the culturally informed understanding of human–environment interaction research as well as by helping managers to design culturally relevant international green marketing and advertising strategies. Consequently, by taking closer look at the results of this study, several salient theoretical and managerial implications are derived. The results show an insignificant influence of HI and VC cultural values on consumers’ attitude toward green products. This result demonstrates that HI vs. VC consumers may have the opinion that consuming green products may not be beneficial

in terms of their cultural motives, or they may find it inconvenient to change learned consumption patterns and habits (Morwitz, Steckel, and Gupta 2007), showing an attitude-behavior gap (Liobikiene and Juknys 2016). However, when environmental responsibility was introduced between these relationships as a mediator variable, we found a positive influence of HI and VC on ER in both countries. In addition, ER positively influences consumers’ attitude toward green products (Attaran and Celik 2015; Miniero et al. 2014). Environmental responsibility further plays the role of a full mediator in the relationship between HI and VC cultural values and consumers’ attitude toward green products. These results are theoretically interesting, and they are consistent with earlier research that environmental responsibility varies in IND vs. COL cultures (Hanson-Ramussen and Lauver 2018). In this study, the direct influence of HI and VC on ER and the mediating effect of ER between these cultural values and consumers’ attitude toward green product results clearly show that consumers display HI and VC cultural-congruent environmental responsibility, thereby protecting the environment (Nyborg, Howarth, and Brekke 2006; Lee 2009). From a theoretical point of view, this study infers that consumers in both

**Table 4.** Hypotheses result.

Hypotheses	Hypothesized path	B	t-value	P-value	Label
<b>Direct effects</b>					
<b>Finland</b>					
H1	HI → CAGP	0.231	1.934	0.06	Not supported
H3	HI → ER	0.568*	7.519	0.00	Supported
H7	ER → CAGP	0.665*	6.387	0.00	Supported
H9	CAGP → PI	0.794*	16.985	0.00	Supported
<b>Pakistan</b>					
H2	VC → CAGP	0.282	1.807	0.07	Not supported
H4	VC → ER	0.619*	5.533	0.00	Supported
H8	ER → CAGP	0.587*	3.874	0.00	Supported
H10	CAGP → PI	0.610*	6.813	0.00	Supported
<b>Indirect effects</b>					
H5	HI → ER → CAGP	0.378*	5.382	0.00	Supported
H6	VC → ER → CAGP	0.363*	3.139	0.02	Supported

\* $p < 0.05$



**Figure 5.** Hypotheses result.

cultures show environmentally responsible behavior (Paco and Gouveia Rodrigues 2016), and that they are actively involved in issues that relate to environmental protection, and ultimately show positive green products attitude (Taufique et al. 2014). Translating these results, we infer that environmentally responsible consumers see an improvement in their image (to be unique and distinct) in HI culture, and project a good image of themselves as an environmentally responsible person in the opinion of others in the VC culture (in-group status and being admired) (Nyborg, Howarth, and Brekke 2006; Lee 2009; Shavitt et al. 2006). The results further reveal a positive impact of consumers' attitude toward green product on PI in these two countries (Morren and Grinstein 2016). This result indicates that consumers in HI and VC cultures are ready to change their purchasing patterns for the sake of the environment (Kinnear, Taylor, and Ahmed 1974; Follows and Jobber 2000) and that their attitude successfully translates into green purchase intentions. Previous studies have noted that even the individuals who are aware of and in fact concerned about environmental issues, engage in behaviors that may not reflect this awareness and concern (Costarelli and Colloca 2004). However, results of this study indicate that individuals embedded in the HI- and VC-cultures have an awareness of their responsibilities toward the environment and are more likely to purchase green products (Kumar and Ghodeswar 2015; Lee 2009). Therefore, it is reasonable to conclude that this study empirically demonstrated how to translate the HI- and VC- culture-specific values and environmental responsibility into purchase green products (Tam and Milfont 2020; Morren and Grinstein 2016).

The findings of this study further provide implications for product development, consumer segmentation, advertising, and promotion strategies for manufacturers, producers, and marketers of green products. Because environmental responsibility facilitates HI and VC cultural values in consumers' attitude toward green products, consequently, in their purchase intentions, marketers should use specific advertising and promotion messages in HI and VC cultures. For example, the characteristics of the VC-Pakistan

cultural consumer segment include displaying social status and in-group/family obligations, and therefore being eco-conscious could be a new status symbol for such consumers. Marketers and advertisers should insert such messages in the content of print and media advertisements to appeal to those who wish to enhance their status, thereby promoting the purchase and consumption of green products. In addition, marketers should not try to sway consumers based only on the economic and status benefits of green products. They should also highlight the importance of buying such products for the benefit of their family and the current and future generations. In this regard, marketing managers can attempt to use cause-related, socially responsible, environmentally friendly, and mindful consumption messages in green advertising to stimulate the demand for green products. Regarding HI-Finland, to attract consumers, marketers need to embed HI-congruent content, such as using appeals to uniqueness and self-reliance in their advertisements and promotions. The messages could be the merits of appearing unique in one's surroundings or representing self-reliance in protecting the environment when buying and consuming green products. Moreover, marketers can penetrate HI cultures using environmentally and socially responsible marketing strategies more easily than when introducing products using signals about the benefits of the product itself. We further suggest multinationals to start adapting their green marketing and advertising strategies to prevailing vertical collectivist and horizontal individualist cultural values in the selected countries for green brand equity formation, market share, to achieve green competitive advantage, and improved business performance.

### ***Limitations and future research recommendations***

Although considerable conceptual and methodological effort and attention has been expended on examining the cross-cultural HI and VC differences in consumers' environmental behavior, this study still cannot claim to be entirely free from limitations. The limitations of this study provide opportunities for future research on the topic. First, as many studies in consumer behavior, our

research also relied on the self-report methodology. Especially in relation to green consumption issues, socially desirable responding can hamper its reliability. Green attitudes and behaviors can be over-reported to convey an ideal picture of oneself to others (see e.g., Binder and Blankenberg 2017). Thus, when asked directly via self-reporting measures, consumers typically express more socially approved green choice motivations such as health, safety, environmental friendliness and animal welfare - and downplay more reproachable ones such as status drives (Luomala et al. 2020). So, methodological triangulation is needed to form a more comprehensive understanding of both direct and indirect cultural influences on green consumption. Priming experiments represent a viable approach to gather more concrete behavioral data. For example, various cultural values or goals can be primed and the effects on actual product choices or consumption experiences can be analyzed (cf. Puska et al. 2018). Second, the insignificant influence of HI vs. VC on CAGP generates an opportunity for future research to test this using a larger sample size, employing different data collection techniques and methods of analysis with more than one green product category, and a multi-country or cross-country market context, e.g., western vs. non-western countries, to compare the results for similarities and differences. It would be interesting to employ a qualitative research methodology to explore the factors that would further explain if this insignificant relationship is situational or permanent. Third, to be green may be a difficult decision for a consumer to make (Wells, Ponting, and Peattie 2011). Future research can examine the role of factors that either mediate or moderate the green attitude-intention relationship such as ethical responsibility, religious principles and practices, and minimalism factors, to know how these factors would help consumers to buy green products. Fourth, the demography, economic development, and population of the selected countries in this study are different. In the future, research on green consumption should be conducted in countries that are similar regarding these factors. Fourth, as this research has not aimed to examine the role of respondents'

demographic differences, future research could measure the moderating effect of gender, income, and education of consumers on green products preferences. Fifth, technological and information development are changing in H/V IND vs. COL cultures, and ultimately the patterns of consumption are changing. Therefore, in the context of sustainable consumption, an interesting area would be to examine the impact of technological advancements such as internet and mobile technology devices on the consumption patterns of consumers of these cultures. Sixth, it is possible that there are cultural similarities and differences due to the diverse populations of the selected countries. Future research could include other countries. Future research should examine rural as well as urban areas and then compare the populations to determine the HI, VC, also HC and VI culture-level differences, and determine the cultural reasons for consumers' preference for green products. Last, future studies on advertising could use horizontal and vertical IND/COL culturally relevant message frames and appeals to consumers' attitudes and intention to purchase of both low-involvement and high-involvement green, organic, and renewable energy products in the countries structured around HI, VC, HC and VI cultural groups.

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