Green purchase and sustainable consumption: A comparative study between European and non-European tourists

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ABSTRACT

This research aims to investigate tourists' sustainable consumption values and choice behaviour regarding green products in Europe by integrating the Theory of planned behaviour (TPB) and consumption values (TCV). This study also compares the decisions of European and non-European tourists to purchase green products and services while travelling in some selected European cities. A total number of 720 useable questionnaires were collected from residents of two tourist groups in Europe. PLS-SEM, MGA, and other newly developed advanced analysis methods were applied to test the model and hypotheses. Findings reveal that environmental attitudes, environmental knowledge, subjective norms, perceived behavioural control, conditional value, and emotional value have a significant positive relationship with green purchase intentions for European and non-European tourist groups. To our knowledge, this is the first empirical study that broadly provides a theoretical framework for green purchase choice and sustainable consumption intention in Europe. The theoretical and practical contributions to tourists' purchasing green products are discussed.

1. Introduction

Environmentally sustainable consumption behaviour has become a crucial topic in the consumer market and research over the last few decades due to rising global environmental issues such as pollution, global warming, climate change, and environmental degradation (Lee, Hsu, Han, and Kim, 2010; Mohd Suki and Mohd Suki, 2015; Verma and Chandra, 2018). These environmental problems may be overcome by transforming human behaviour in a more environmentally sustainable way (Han, 2020; Steg and Vlek, 2009). The consumption habits of people need to change urgently in order to maintain a safer and healthier lifestyle for the present and future generations (IPCC, 2014, 2021; Ramkissoon, 2022a). Moreover, sustainable consumption behaviour (approaching, purchasing, and consuming products in an environmentally friendly manner) consider an indispensable requirement for promoting sustainable development (Han, 2020; Ramkissoon, Weiler, and Smith, 2012; Ramkissoon, Graham Smith, and Weiler, 2013; Wang, Shen, Amy, Song, and Phau, 2020). Sustainable consumption is the most

important goal of the Sustainable Development Goals (SDGs), which includes avoiding negative health and environmental impacts, minimizing waste generation, ensuring an environmentally friendly lifestyle (Ramkissoon, Weiler, and Smith, 2013), as well as promoting sustainable tourism (United Nations, 2015; Nekmahmud and Fekete-Farkas, 2021; Nekmahmud, Daragmeh, Oshora, and Mohammed, 2021). Therefore, transforming unsustainable consumption patterns is crucial for achieving the vision of sustainable development (Awuni and Du, 2016). Sustainability and sustainable consumption issues appeal to all sectors (Hasan, Nekmahmud, Yajuan, and Patwary, 2019), and the hospitality and tourism industry is no exception. Tourist sustainable consumption (TSC) is described as "environmentally friendly consumption i.e., purchasing green products or services, anti-consumption and sustainable disposal practices during travelling" (Lee and Lee, 2015). Nowadays, tourists are increasingly demanding environmentally friendly products (e.g., eco-friendly -hotels, restaurants, cruise ships, airlines, destinations, resorts, and casinos) and express a willingness to engage in sustainable consumption (Hall, 2013; Ramkissoon, Graham

Smith, and Weiler, 2013; Wang, Wang, Wang, Yan, and Li, 2018). However, a study by (Miller, Merrilees, and Coghlan, 2015) identified four pro-environmental tourists' behaviour in Australian urban destinations (e.g., recycling, green transportation, green energy use, and green consumption). With these pro-environmental demands, several hospitality businesses are becoming more proactive in greening their logistics, operations, and services (Ramkissoon, Mavondo, and Sowamber, 2020; Ramkissoon and Sowamber, 2018). Europeans' tourism industry is inextricably tied to its sustainability and sustainable consumption. For example, the European Commission (EC) is involved in several environmental initiatives such as reducing negative environmental impacts at tourist destinations, using available tourism-related eco-friendly transportation, managing destinations risk, promoting the use of-ecolabel tourism services, etc. According to the EU Integrated Tourism Policy (2021),tourism must increases its environmental sustainability by purchasing local bioproducts, using green products, promoting eco-efficiency, as well as raising tourist awareness about more responsible behaviour (Palma and Culic, 2019). Nevertheless, the primary goal of COP26 is to achieve worldwide net-zero emissions by 2050 (COP26, 2021). Several of the world's largest tourism companies have joined governments and destinations in pledging to reduce emissions by half by 2030 (UNWTO, 2021). Moreover, UNWTO cooperated on the Glasgow Declaration-COP26 to provide a shared platform to catalyze climate action in tourism through sustainable consumption and production (UNWTO, 2021). However, most studies analyze the determinants of green purchases by tourists are in developing countries such as India (Verma and Chandra, 2018), Taiwan (Chen and Tung, 2014), Bangladesh (Nekmahmud, 2020), Malaysia (Abbasi, Kumaravelu, Goh, and Singh, 2021) and China (Zhao, Gao, Wu, Wang, and Zhu, 2014). In the developed country context, most studies focused on green purchase intentions in the USA (Han, Hsu, and Sheu, 2010). Meanwhile, in Europe, most authors only focused on green procurement and financial performance in the tourism industry (Galeazzo, Ortiz-de-Mandojana, and Delgado-Ceballos, 2021; Trišić et al., 2021), green purchase in Cyprus (Olya, Bagheri, & Tumer, 2019), tourist perception and uses of urban green infrastructure (Terkenli et al., 2020). As a result, there is a lack of research about tourist green purchase behaviour and its determinants in all of Europe, where consumption levels are quite high. Furthermore, all EU countries are committed to achieving sustainable consumption as part of promoting SDGs.

To ensure tourist sustainable consumption, it is necessary to understand current tourist consumption habits as well as their preference for green products and services. Therefore, this study aims to investigate tourists' consumption values and choice behaviour regarding green products and services in Europe. Other research objectives are proposed as follows: 1) to apply the Theory of planned behaviour (TPB) and the Theory of consumption values (TCV) to determine the influence factors on tourists' choice behaviour regarding green products; 2) to understand European and non-European tourists' decision to purchase green products and services when travel; 3) to examines the moderating effects of environmental knowledge on sustainable consumption values.

Previously, only a few research examined tourist green buying behaviour by applying the TPB model with specific products, e.g., green hotels (Verma and Chandra, 2018; Wang, Wang, Wang, et al., 2018), restaurants (Eid, Agag, and Shehawy, 2021), tourist destinations (Elhoushy and El-Said, 2020; Meng and Choi, 2019). Some scholars (Sniehotta, 2009; Sussman and Gifford, 2019) argued that TPB overlooks an individual's needs before entering a certain action that influences behaviour regardless of expressed attitudes. Further, TPB fails to provide the overall present green purchase scenario at tourist destinations, such as green tourist needs, value, and consumption patterns. Therefore, TCV integration with TPB could help to determine individual preferences and describe a wide spectrum of product or service consumption. However, to the best of the authors' knowledge, there is still remains an uninvestigated comprehensive understanding of the underlying complexities of European and non-European tourist sustainable consumption behaviours at destinations. The aim of this research is to fill this gap by applying the TPB and TCV with added synchronous variables like green trust and environmental knowledge. The novel contributions of our study are: firstly, to combine the TPB and TCV to explain tourists' sustainable consumption and choice behaviour by purchasing green products and services. Secondly, to establish a comparison between European and non-European tourists' willingness to buy green products and services while travelling. Thirdly, we investigate the moderating impact of consumers' environmental knowledge on their environmental attitudes, subjective norms, and perceived behavioural control over green purchase intentions in the context of the tourism sector.

However, to our knowledge, this study is the first empirical survey that widely provides a theoretical framework regarding tourists' green purchase choices and sustainable consumption behaviour while travelling in Europe.

To achieve the research objective, we aim to answer the specific research questions: 1) What are the significant variables affecting tourists' choice of green products? 2) What is the current state of sustainable tourism consumption among European and non-European tourists? 3) How does environmental knowledge moderate the intention behaviour relationship? However, it is unclear how consumption values influence green purchase intentions among young European tourists. The current study also aims to fill this gap. The findings will largely contribute to theoretical and practical insights and efforts to build a sustainable tourist environment for society in Europe. The next sections of this study continue with a review of the theoretical explanation and literature, describing methods, followed by the findings, discussions, and conclusion with implications.

2. Literature review

2.1. Theoretical orientation: Theory of planned behaviour (TPB) and consumption value (TCV)

The Theory of planned behaviour (TPB) was postulated by (Ajzen, 1991), which is being used to understand consumers' behavioural intentions in several situations (Park and Kwon, 2017). TPB includes three variables, namely, attitude, subjective norm, and perceived behavioural control. According to Theory, intention results from individual attitudes and subjective norms refer to an individual's perception of behaviour under society's influence (Nekmahmud and Fekete-Farkas, 2020; Verma and Chandra, 2018). In recent decades, the TPB has been commonly applied in pro-environmental behavioural science, e.g., environmental psychology, green purchase, green consumption, organic food consumption, and so on (Chen and Peng, 2012; Nekmahmud, 2020; Wang et al., 2020). A few scholars applied the TPB theory to measure tourists' green purchase behaviour in particular products and services, for example, green hotels (Verma and Chandra, 2018; Wang, Wang, Xue, Wang, and Li, 2018), restaurants (Eid et al., 2021), tourist destinations (Elhoushy and El-Said, 2020; Liu, Wu, and Che, 2019; Meng and Choi, 2019). Nevertheless, consumption values refer to consumers' overall assessments of the utility of products and services they buy and use (Hänninen and Karjaluoto, 2017; Sheth, Newman, and Gross, 1991). Consumer purchase decisions depend on multiple value dimensions, e. g., enjoyment, social value, quality, financial value, and tradeoffs (Awuni and Du, 2016). The Theory of consumption value (TCV) developed by (Sheth et al., 1991) is widely applied in marketing and consumer behaviour. Researchers in previous studies used TCV to describe a wide range of consumption of products or services such as food, clothes, tobacco, education, tourism, etc. (Ramkissoon, Nunkoo, and Gursoy, 2009; Tanrikulu, 2021). Sheth et al. (1991) identified five consumption values that significantly contribute to consumer preference: functional value (price and quality), social value, emotional value, epistemic value, and conditional value. Previously, scholars (Amin and Tarun, 2020; Lin and Huang, 2012; Wang, Zhang, Yu, and Hu, 2018) applied TCV to

examine the influence factors of choice behaviour toward green products. Similarly, TCV is also used to know the tourist purchase behaviour of green hotels and restaurants (Wang, Wang, Wang, et al., 2018) and destination choice (Lee and Lee, 2015). A few researchers criticize that both theories of TPB and TCV have limitations. For example, TPB does not incorporate an individual's feelings in expressing intentions and decision-making. Besides, TPB ignores human needs before taking action (Sniehotta, 2009; Sussman and Gifford, 2019). Nevertheless, TCV is a narrow paradigm that only implies the effect of value on choice behaviour (Tanrikulu, 2021) and identifies perceived values related to purchasing products. Still, it does not explain the causes of the given values (Hyun and Fairhurst, 2018). To overcome these research gaps and comprehensive understanding of the basic complexities of consumption behaviour, we combined TPB and TCV to judge the effectiveness of tourists' sustainable consumption behaviour by adding variables green trust, and environmental knowledge. To summarize, although the TPB has been used to predict a range of intentional behaviours, the TCV is often employed to identify factors influencing consumers' choice of products (Liu et al., 2019). In the current study, we anticipated that our integrated research framework will provide comprehensive and complementary insights on tourists' sustainable consumption values and green products choice behaviour in Europe.

2.2. Hypotheses and research model development

2.2.1. Green trust

Green trust (GT) is an important component in environmental marketing (Schlosser, White, and Lloyd, 2006). Green trust is defined as consumers' propensity to purchase and rely on environmentally sustainable products based on its performance, reliability, efficacy, credibility, and previous qualities (Amin and Tarun, 2020; Chen, 2010). Consumers' trust in a product or service works as a fundamental influential factor in their purchase attitude and intention, which drives their actual behaviour (Harris and Goode, 2010) and determine the long-term customer behaviour and purchase pattern (Lee et al., 2010). Green trust has influenced consumer purchasing decisions on green products. For example, a tourist will stay at the green hotel if s/he trusts the green image of the hotel. The consumers' green trust is further correlated with their propensity to suggest green hotels to others (Wang, Wang, Wang, et al., 2018). Recently, Amin and Tarun (2020) observed that green trust has the most significant influence on consumers' green buying intentions and acts as a mediator between consumption values and green purchase intentions (Gupta and Ogden, 2009). Nonetheless, consumers may lack trust in green products due to excessive exaggeration and vagueness (Kalafatis, Pollard, East, and Tsogas, 1999). Our model, therefore, considers green trust as the most important component in tourists' sustainable consumption behaviour. Consequently, we propose the following hypothesis:

H1. : *Green trust positively influences tourists' green purchase intentions.*

2.2.2. Environmental attitude

Environmental attitude (EA) is defined as a "cognitive and affective evaluation of the object of environmental protection" (Bamberg Sebastian, 2003 p. 21). EA is consistent with the cognitive consistency theory (Festinger, 1957), which claims individuals concerned about ecological issues are highly motivated to protect the environment. According to scholars (Ramkissoon, 2020; Wang, Liu, and Qi, 2014), consumers who are more worried about the environment and climate change are more inclined to engage in pro-environmental behaviour. Previous literature (e.g., Nemcsicsné Zsóka, 2008; Zhao et al., 2014) confirmed that environmental attitude is a highly predictive factor for environmental behaviour. Similarly, scholars (e.g., Luo and Deng, 2008; Wu, Wu, Hsieh, and Ramkissoon, 2022), stated that positive environmental attitudes have been related to a greater desire to experience and enjoy nature during travelling. Empirical findings in previous studies

confirmed that a favourable environmental attitude significantly affects purchasing green products which lead to sustainable consumption behaviour (Verma and Chandra, 2018). Tourism studies also showed that tourists' environmental attitude is strongly associated with sustainable consumption during travelling (Gautam, 2020; Nekmahmud, 2020). In the light of the above discussion, we hypothesize that

H2. : *Environmental attitude positively influences tourists' green purchase intentions.*

2.2.3. Environmental knowledge

Environmental knowledge (EK) is defined as the level of concern about natural environments, which includes environmental protection and ecosystems (Lo and Fryxell, 2003). Petty and Cacioppo (1986) introduced the Elaboration Likelihood Model (ELM) to explain the relationship between environmental knowledge and attitude. They found that those with environmental knowledge have a positive attitude toward green products. Consumers' green choices can depend significantly on whether they have more or less information about the environment (Hasan et al., 2019). As a result, consumer adoption processes are influenced by environmental knowledge and consumption fluctuations are affected by the degree of environmental attitude (Gautam, 2020). Tourists with environmental knowledge participate in more environmentally sustainable activities (Abdullah, Samdin, Teng, and Heng, 2019; He and Filimonau, 2020). However, Gautam (2020) verified that tourists' environmental knowledge positively relates to green attitude. In addition, tourists' knowledge about environmental problems was a significant predictor of environmentally friendly behaviour (Biswas and Roy, 2015; Cheung and To, 2019). Consequently, environmental knowledge influences sustainable consumption, purchasing of green products, and participation in pro-environmental activities (Tariq, Wang, Tanveer, Akram, and Akram, 2019). As a result, we consider the importance of environmental knowledge as a key element in combining TPB and TCV tourists' sustainable consumption behaviour model. We hypothesize that

H3. : *Environmental knowledge positively influences tourists' environmental attitude.*

H4. : *Environmental knowledge positively influences tourists' green purchase intentions.*

2.2.4. Subjective norms

Subjective Norm (SN) denotes the perceived social pressure experienced by a person to perform certain actions or behaviours (Ajzen and Fishbein, 1980). McClelland (1987) proposed the theory of needs and suggested an individual's propensity to display behaviour that his reference group appreciates is because it is a person's nature to seek group association and relationships. This is referred to as social bonding (Ramkissoon, 2022a; 2022b; 2022c). Ramkissoon et al., (2013) argue a significant and positive relationship exists between subjective norms and purchase intention. Contrary to this, several studies failed to support the positive association between subjective norms and green purchase behaviour (e.g., Khare, 2015; Paul, Modi, and Patel, 2016). According to Wang and Zhang, (2020) tourists' subjective norms about the environment at destinations will positively impact their behavioural intentions. Hence, we postulate the following hypothesis:

H6. : *Subjective norms has positively associated with tourists' green purchase intention.*

2.2.5. Perceived behavioural control

Perceived behavioural control (PBC) is defined as the perceived difficulty or ease to perform a particular behaviour (Ajzen, 1991; Ajzen and Fishbein, 1980). Earlier research supported that PBC has a significant influence on green purchases (Chen and Peng, 2012; Chen and Tung, 2014; Paul et al., 2016). Ajzen (1991) argued that the perspicacity of behavioural control is more crucial than the actual behaviour.

However, some studies reported that perceived inconvenience to perform a specific behaviour negatively influences the purchase intention of eco-friendly products (Barbarossa and De Pelsmacker, 2016). Nevertheless, Wang and Zhang (2020) claimed that tourists' PBC toward the environments at destinations positively impacts their environmental behaviour. Thus, we postulate the following hypothesis:

H7. : *Perceived behavioural control positively influences tourists' green purchase intentions.*

2.2.6. Functional value (quality & price)

Functional value (FV) has been assumed to be the primary factor of consumers' preference (Gonçalves, Lourenço, and Silva, 2016) which underpins the economic utility theory developed by Marshall (1890). According to Sheth et al., (1991, pp. 160), "functional value is the perceived utility acquired from an alternative's capacity for the functional, utilitarian or physical performance of a product." Sweeney and Soutar (2001) divided functional value into two dimensions: price and quality, which are the primary factors of consumer purchase decision-making (D'Souza, Taghian, Lamb, and Peretiatko, 2007; Nekmahmud, 2022). Consumers always look for the lowest possible cost with maximum benefit and avoid repeated purchases of too expensive products (Hur, Yoo, and Chung, 2012). For example, green hotels may provide better services compared to conventional hotels and are worth paying for the services (Nekmahmud, 2020; Verma and Chandra, 2018). Functional value significantly impacts consumer decision-making regarding green products and services (Amin and Tarun, 2020). The research found consumers are willing to pay premium prices for green products to keep their personal and societal benefits (Liu, Pieniak, and Verbeke, 2013) but on the condition that quality has to be maintained (D'Souza et al., 2007; Hur et al., 2012). For example, Wang, Wang, Xue, et al. (2018) found both functional value-price and value-quality positively influence intentions to visit green hotels and stated that functional value-price has a more substantial influence than functional value-quality in a green hotel. Based on the above discussions, we propose the following hypotheses:

H8. : *Functional value (quality) positively influences tourists' green purchase intentions.*

H9. : *Functional value (price) positively influences tourists' green purchase intentions.*

2.2.7. Social value

Social value (SV) refers to self-image and perceived usefulness of goods or services, especially for socio-economic, stereotyped demographic, and cultural-ethic groups (Mohd Suki and Mohd Suki, 2015; Ramkissoon et al., 2009). Social value is significantly connected to social interactions in tourism (Wang, Zhang, Yu, and Hu, 2018). When tourists choose green products, they may assume that their social group has a favourable impression of them (Jiang and Kim, 2015). Previous scholars (e.g., Awuni and Du, 2016; Biswas and Roy, 2015; Lin and Huang, 2012) identified that social groups, peer opinion, pressure of social recognition and other related social values strongly impact consumer purchase and repurchase decisions for green and sustainable products. Nevertheless, Amin and Tarun (2020) asserted that social value has less or no impact on individuals' repurchase decision process. In the tourism context, social value positively influences tourists' revisit intention to a green hotel (Chen and Peng, 2012; Kim and Han, 2010; Wang, Wang, Wang, et al., 2018). Conversely, Biswas and Roy (2015) argued that personal factors like individual attitudes and personal norms are more influential than social values to purchase green products. In light of the debate discussed above, we propose the following hypothesis:

H10. : *Social value positively influences tourists' green purchase intentions.*

2.2.8. Conditional value

Conditional value (CV) may be influenced by antecedent physical or

social circumstances that increase social and functional value (Hur et al., 2012). According to Sheth et al. (1991), conditional value refers to the perceived utility acquired by an alternative due to the specific situation or set of circumstances facing the choice maker. Consumer purchases frequently depend on a particular situation and condition (Samson and Voyer, 2014). For example, more awareness of climate and environmental threats may affect consumer preference for purchasing more green products (Lin and Huang, 2012). Situational variables can influence consumers' buying behaviour on the market (Laaksonen, 1993). Recent research by Awuni and Du (2016) suggested that conditional values are insignificantly associated with green buying intentions among young adults in Chinese cities due to a lack of consumers' awareness of creation and promotional activities. Conditional values are considered less significant in the context of goods purchase intention and behaviour (Sweeney and Soutar, 2001). Green tourism products are significantly influenced by conditional value in tourism. Therefore, we propose the following hypothesis:

H11. : *Conditional value positively influences tourists' green purchase intentions.*

2.2.9. Emotional value

Emotional value (EV) is the ability to arouse feelings or affective states such as excitement, security, and comfort (Khan and Mohsin, 2017; Sheth et al., 1991) as well as facilitate pro-environmental behaviours and intentions (Ramkissoon et al., 2009). According to Sheth et al. (1991), products and services are usually connected with emotional responses (e.g., the romance aroused by a candlelight dinner, the fear aroused while viewing a horror movie). Trust in goods or services' information may contribute to positive emotions or affective responses (Ramkissoon, 2021). As a result, consumers' strong emotional values, moral actions, and affectionate behaviours may significantly impact decisions making to buy green or organic products (Awuni and Du, 2016; Lin and Huang, 2012). For example, there was a significant correlation between green practices and consumers' attachment to a particular coffee shop in the USA (Jiang and Kim, 2015). Environmentally conscious consumers who have strong emotional values are more likely to engage in pleasurable and experiential green purchasing, as it reinforces their belief that environmental consumption will protect the environment in the long run (Lin and Huang, 2012). However, environmentally responsible consumers place a high emotional value on the sustainable use of green products (Amin and Tarun, 2020; Lin and Huang, 2012) and tourism services (Wang, Wang, Wang, et al., 2018). Thus, we propose the following hypothesis:

H12. : *Emotional value positively influences tourists' green purchase intentions.*

2.2.10. Epistemic value

The epistemic value (EpV) refers to "the perceived utility acquired from an alternative's capacity to arouse curiosity, provide novelty, and satisfy a desire for knowledge" (Sheth et al., 1991, p. 162). As stated by Laroche, Bergeron, and Barbaro-Forleo., (2001) and Lin and Huang., (2012), consumers' knowledge of product and novelty-seeking also plays a crucial role in determining new product purchase decisions or product adoption (Assaker, Vinzi, and O'Connor, 2011). Similarly, the use of green products may stimulate novelty and interest in meeting knowledge aspirations (Lin and Huang, 2012). Epistemic values have a significant influence on green Bamboo textiles (Yoo, Divita, and Kim, 2013), green products (Lin and Huang, 2012), and sustainable consumption (Abdullah et al., 2019; Lee, Levy, and Yap, 2015). Consuming green products can give consumers novelty and curiosity while satisfying their knowledge-seeking desires (Lin and Huang, 2012). Although epistemic values are thought to be less important in terms of goods purchase intent (Sweeney and Soutar, 2001), it has significant impact on sustainable tourism products such as green hotels. Thus, we propose the following hypothesis:

H13. *: Epistemic value positively influences tourists' green purchase intentions.*

2.2.11. Moderating role of environmental knowledge

Environmental knowledge (EK) is connected with the natural environment and motivates for consumers to be more responsible for protecting the environment (Cheng and Wu, 2015). Townsend (2000) states that drivers of environmental knowledge help individuals improve their abilities and express responsible behaviour while minimizing the environment's negative impact. According to earlier studies (e.g., Choi & Johnson, 2019; Hamzah & Tanwir, 2021), environmental knowledge is positively correlated with consumer beliefs and attitudes regarding green consumption. Consumers' scepticism of green products, on the contrary, discourages them from buying sustainable and green products (Goh & Balaji, 2016; Hamzah & Tanwir, 2021). In addition, consumers are less aware of sustainable products because of their insufficient knowledge about sustainable products (Kumar, Manrai, and Manrai, 2017) and environmental change (Kardoni, Yusoff, & Kari, 2016). For example, lack of knowledge may make it difficult for consumers to make informed purchases of hybrid vehicles (Larson, Viáfara, Parsons, and Elias, 2014), green hotels (Wang, Wang, Xue, et al., 2018), and green products (Kumar et al., 2017). Nevertheless, Levine and Strube (2012) argue that the relationship between environmental knowledge and intention was not statistically significant in predicting pro-environmental intentions. Environmental knowledge contributes greatly to extra variation in green purchase intention. Therefore, this study proposes that consumers' environmental knowledge positively moderates the effects of environmental attitudes, subjective norms, and perceived behavioural control on green purchase intentions such as visiting green hotels when travelling (Wang, Zhang, Yu, and Hu, 2018). EK can moderate the relationship between attitude and purchase

intention of sustainable products. EK strengthens the relationship between GA which positively influences GPI (Kumar et al., 2017). To our knowledge, no prior study has examined the moderating impact of EK between SN and GPI, and PBC and GPI, in the context of green purchasing behaviour in the tourism sector. Therefore, we propose the following hypotheses:

H5a. *: EK moderates the relationship between tourists' green attitude and green purchase intentions.*

H5b. *: EK moderates the relationship between tourists' subjective norms and green purchase intentions.*

H5c. *: EK moderates the relationship between tourists' Perceived behavioural control and green purchase intentions.*

Based on the abovementioned literature and theoretical background, a hypothesised conceptual model of sustainable tourist consumption is proposed (Fig. 1).

3. Methods

3.1. Sample and data collection

Data was collected from European countries with two groups: 1) European citizens and 2) non-European citizens (people who do not hold European nationality but reside in a European country). The non-European respondents hold different nationalities from Asia and Middle East. Since it is important in cross-cultural research that the samples for different cultures are as similar as possible in all aspects other than culture, convenience sampling was performed in each country. The similar criteria for both groups were: 1) respondents of both groups represent Z and Y generations 2) the percentages of age in each group
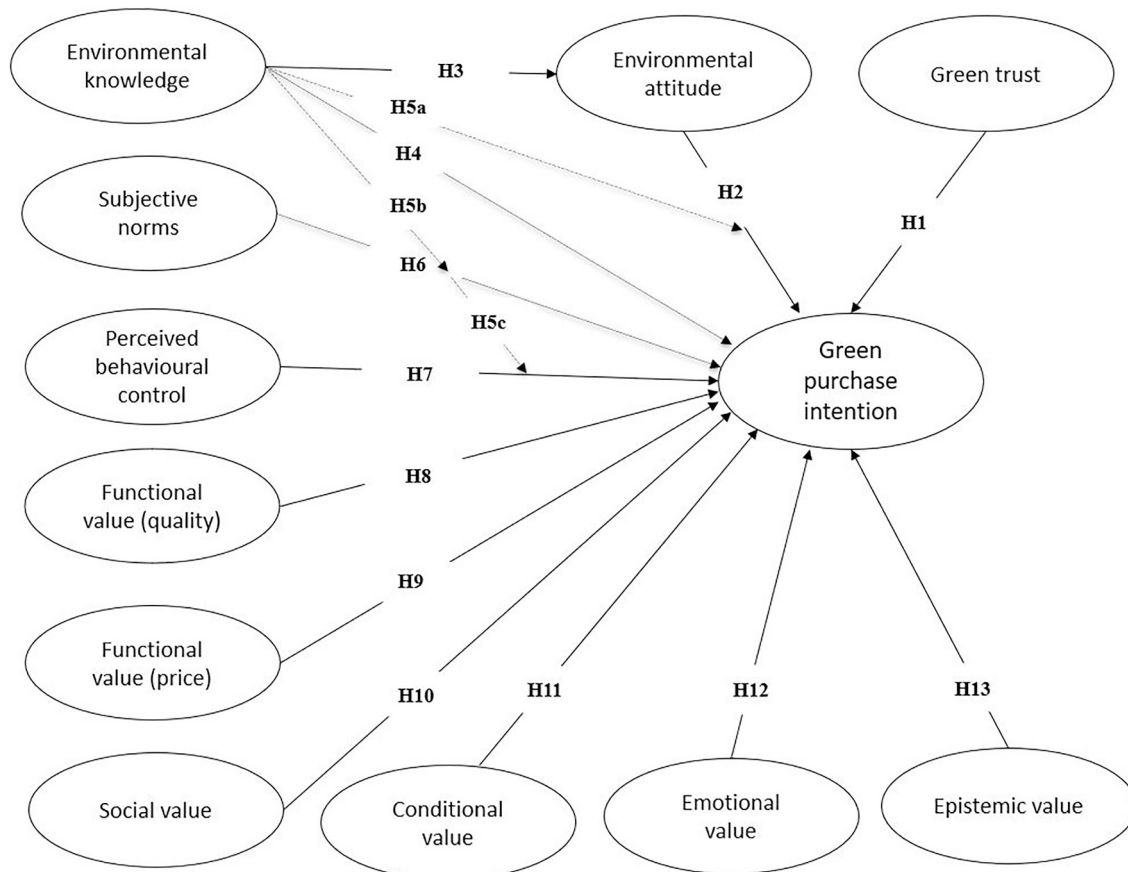

Fig. 1. Proposed conceptual model of tourists' sustainable consumption behaviour.

are nearly similar 3) the respondents of each group are almost university students 4) the proportions of undergraduate and postgraduate respondents are nearly the same.

Participants in the study had previously experienced visiting tourist destinations throughout the European continent (e.g., Paris, Budapest, Vienna, Prague, Berlin, Rome, Malta, Poland, Venice, Brussels, Amsterdam, Slovenia, Oslo, Athens, Barcelona, Munich, Iceland, London, and so on).

To ensure geographic coverage of the population, we selected universities with a high number of international and European students who live in 12 European countries such as Hungary, France, Poland, Norway, Germany, Switzerland, Netherlands, UK etc. The non-Europeans hold different nationalities including 7 countries from Asia and 6 countries from the Middle East. We targeted tourists who had previously purchased green or eco-friendly products, such as organic or local vegan foods, recyclable, reusable, and bioproducts, eco-friendly travel items, green hotels & restaurants, and local green shops during their travels. We asked participants whether they have any prior experience purchasing green items while on travels? If they answered yes, they were given access to further questions.

Due to COVID-19 and lockdown situation, we could not have a face-to-face survey administered. Therefore, in April 2021, a self-administered questionnaire was distributed to a group of respondents using a convenience sampling method over a twelve-week duration. A Google docs form was used to conduct an online survey through social media e.g. Facebook which has been suggested in recent research as the most successful way to collect online data, with an average response rate of 54% in prior studies (Ali, Ciftci, Nanu, Cobanoglu, and Ryu, 2021). We posted our online questionnaire on some European survey exchange Facebook groups and universities Facebook groups. Survey exchange Facebook groups serve as a pool of prospective subjects for research projects, especially for undergraduate, master's, and doctoral students who are willing to participate or post links to their online surveys. Nevertheless, Universities' Facebook groups are run by the university administration. Besides, we contacted 20 university professors and administrational authorities to send individual emails via the university educational email system because of its convenience.

To avoid biased results, 790 responses were collected, incomplete and irrelevant responses were excluded, and 720 valid questionnaires were used for further analysis. Of these, 312 were European tourists and 408 were non-European tourists, representing a 56% response rate.

Table 1 demonstrates the socio-demographic profile of the young participants for both cases (European and non-European) and shows the different structures of the groups. For example, European females are higher than non-European females. It was justified by other studies in Europe that European females are mainly more willing to participate in

research surveys (Mulder and de Bruijne, 2019; Smith, 2008). Participants of non-European PhD students are comparatively higher than European ones. Respondents were informed that their information would be used for research purposes. As a result, non-European PhD students realized that their answer is important for research and development, so their willingness to answer was significantly higher. Those who are more educated, are more likely to participate in online surveys than less educated people (Dolnicar, Laesser, and Matus, 2009; Smith, 2008).

3.2. Measurement instrument

The questionnaire was designed using a five-point Likert scale 1-strongly disagree and 5 - strongly agree. The questionnaire had three parts namely (1): socio-demographic characteristics of tourists (e.g., gender, age, education level, and current citizenship/residence/nationality); (2) general questions about tourists' sustainable consumption and travelling experience (e.g., visited different tourist places in Europe, preferable green tourism products and services); (3) factors influencing tourists' sustainable consumption behaviour during travelling. We included demographic variables as control variables to reduce the possibility of baseless relationships based on such personal characteristics. Four items were used to measure the following constructs (e.g., green trust, environmental attitude, environmental knowledge, perceived behavioural control, functional value-quality, conditional value); three measurement items for (e.g., subjective norms, functional value-price, social value, emotional value, epistemic value) and five measurement items for green purchase intention were adapted from previous literature (see Appendix-A).

The pilot test was performed by interviewing two experts to validate the items and sharing the questionnaire with 50 participants to assess its reliability (Cronbach's alpha). The reliability of all items exceeded Cronbach's alpha value of 0.700, indicating acceptable reliability from the pilot test. Therefore, we did not remove any items from the constructs and proceeded with the questionnaire to collect data. Based on responses, collected data were split into two groups (European Vs. non-European) for hypothesis testing.

3.3. Common method bias (CMB)

As part of the research, convenience sampling methods are used in gathering data. The method is often used in quantitative studies to overcome bias (Alshurideh, Al Kurdi, Salloum, Arpaci, and Al-Emran, 2020). Similarly, our research has also applied the common method bias (CMB) test (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). The two sets of European and non-European data were analyzed using Harman's single factor through the factor analysis tool in SPSS to ensure that the collected data did not have CMB effects. The twelve factors were then loaded into a single factor. Based on this analysis, the largest variance explained by the newly created factor is 27.53% for Europeans and 42.16% for non-Europeans, which is below the threshold value of 50% (Podsakoff et al., 2003). Accordingly, the collected data did not raise any concerns about the CMB. Nevertheless, according to the results of the correlation matrix procedure among the major constructs (as shown in Table 3), none of the r values is statistically significant. The correlation value between constructs is below 0.9, which indicates that CMB is not an issue in the research model (Rasoolimanesh, Roldán, Jaafar, and Ramayah, 2017). As a result, common method bias does not pose a significant risk to the validity of research findings (Bagozzi, Yi, and Phillips, 1991).

3.4. Analytical technique

A combination of partial least squares – structural equation modelling (PLS-SEM) and multi-group analysis (MGA) were applied to examine the measurement model, structural model, and hypotheses. The

Table 1
Profile of respondents.

Characteristics	Percentage	
	European	non-European
Gender		
Female	69.36	35.3
Male	28.84	64.7
Age		
Under 20 years	1.92	2.95
21–25 years	48	25
26–30 years	26.93	33.83
31–35 years	9.61	17.65
Above 35 years	13.46	20.58
Education level		
Undergraduate/Bachelor	50.00	26.48
Postgraduate/Mater's	34.61	32.35
PhD	15.38	41.17

PLS-SEM application was applied because this study used low sample sizes, non-normal data, and structural indicators (Hair, Sarstedt, Hopkins, and Kuppelwieser, 2014). Also, non-parametric SEM methods are suitable for our model (Hair et al., 2014; Henseler, Ringle, and Sarstedt, 2016; Sarstedt, Henseler, and Ringle, 2011). The measurement and structural model are examined in this study by assessing the reliability constructs, R^2, path coefficients, and the values of the standardised root mean square residual (SRMR) as an estimate of the model fit for PLS-SEM (Henseler et al., 2016). Additionally, two non-parametric, Henseler's MGA (Henseler, Ringle, and Sinkovics, 2009) and permutation test (Chin and Dibbern, 2010) methods were employed for MGA. Before performing MGA, a recently developed MICOM method for PLS-SEM was used to evaluate measurement invariance. However, PLS-SEM and MGA were performed by applying the SmartPLS 3.2.1 software package (Ringle, Wende, and Becker, 2015).

4. Results

4.1. Measurement model assessment using PLS-SEM

The current work compares the calculated path coefficients between European and non-European groups of tourists using a three-stage approach: assessment of measurement models, assessment of structural models, and MGA.

4.1.1. Assessment of measurement model

In the measurement model, twelve reflective constructs were evaluated for reliability and validity (Zahid, Ali, Ahmad, Thurasamy, and Amin, 2018) to measure tourists' sustainable consumption behaviour. Table 2 shows Cronbach's alpha's outer loadings, composite reliability value (CR), and average variance extracted (AVE) values. Fornell and Larcker (1981) stipulated that all indicator factor loadings should have a cut-off value of 0.50. All European and non-European tourists had outer loading values above 0.7, and only five items of European loading values are above 0.6. In addition, Cronbach's alpha values for all constructs exceeded 0.700 (Hair et al., 2014), indicating high reliability. Therefore, we did not remove any items from the constructs.

The composite reliability (CR) value coefficient is also used to determine to construct reliability, and it should be more than 0.7 (Chin and Dibbern, 2010; Ebrahimi et al., 2022; Hair et al., 2014). The CR of all latent variables in the measurement model was higher than 0.7 for both groups. These results indicate that the measurement model possesses acceptable and robust reliability with error-free (Hair et al., 2014). Nevertheless, all latent variables of AVE for both groups exceeded 0.50, indicating satisfactory convergent validity (Anderson and Gerbing, 1988).

Finally, VIF values for each item for both groups of tourists range from 1.00 to 4.00, lower than the reference value of 5.00 (Hair, Hult, Ringle, Sarstedt, and Thiele, 2017), suggesting the structural model has no negative effects and no multicollinearity across items or predictor constructs. In addition, the model can be considered free of common method bias (Kock, 2015, p.7; Rasoolimanesh et al., 2017).

We assessed discriminant validity by applying two most conservative methods: the correlations' Fornell-Larcker Criterion and the heterotrait-monotrait ratio (HTMT) (Henseler, Ringle, and Sarstedt, 2015). According to the Fornell-Larcker criterion, the square root of the AVE of on-diagonal values is higher than the AVE of off-diagonal values in the model. Moreover, the value of HTMT ratio should be smaller than 0.9 to confirm discriminant validity (Hair Jr, Hult, Ringle, and Sarstedt, 2021; Henseler et al., 2015). Table 3 and Table 4 show acceptable discriminant validity based on both criteria and data from two groups.

Table 5 shows the results of PLSpredict for two groups. By evaluating the value of Q^2 predict for the items of each construct, the results demonstrate that the model has a high predictive power for predicting willingness to support a designation and travel intention for two groups. It compared the root mean squared error (RMSE) between PLS-SEM and linear model (LM) (Danks and Ray, 2018).

Table 6 presents the results of MICOM test. MICOM test is necessary to examine the measurement invariance between two groups before evaluating the hypothesis and MGA. As a consequence, the result of measurement invariance was established using three-step measurement invariance of composites (MICOM) approach. MICOM results confirmed full measurement invariance based on configural invariance, compositional invariance, and equal means and variances assessments, which are required to perform MGA (Gannon, Rasoolimanesh, and Taheri, 2021; Hair Jr et al., 2021; Henseler et al., 2016).

4.1.2. Assessment of structural models and MGA

Table 7 and Fig. 2 show the findings of the hypotheses and MGA assessment. The structural model compared sustainable consumption of European and non-European visitors using two non-parametric techniques, e.g., Henseler's MGA (Henseler et al., 2009) and permutation test (Rasoolimanesh et al., 2017). The path coefficients and t-values demonstrate that EA, EK, SN, PBC, FVp, CV, and EV have a significant positive relationship with green purchase intention as it's P-values are lower than the ideal value of 0.05. Consequently, H2, H4, H6, H7, H9, H11, and H13 hypotheses are accepted by both European and non-European tourist groups. Further, the results of MGA indicate that GT, FVq, and Epv have no significant association with green purchase intentions for European tourists. Still, they have a very positive and significant association with non-European tourists. Therefore, H1, H8, and H13 are rejected in the context of European tourists. The path result highlights that EK has a significant positive relationship with green tourist attitudes in both cases. Thus, Hypothesis H3 is supported. Finally, the significant effect of SV supports green purchasing behaviour for European tourists but not yet supports non-European tourists.

Regarding control variables, age has a positive effect on green purchasing intention for both European and non-European tourists, whereas gender has a significant impact on green purchasing intentions for non-European tourists but does not yet support European tourists. Finally, the control variable of the education level of tourists had no relation to green purchase intention in both European and non-European groups.

4.1.3. Testing for moderation effects of environmental knowledge

Table 8 shows the moderating impact of EK on the interaction between EA & GPI, SN & GPI, and PBC & GPI. The interaction effects of the moderate variable of EK have an insignificant association between EA & GPI, SN & GPI, and PBC & GPI. The P-value exceeded the ideal value of 0.05, implying the results do not support the hypotheses H5a, H5b, and H5c for both European and non-European tourist groups.

4.1.4. Slop graph of moderating effects

The moderating influence of GPK is depicted in Fig. 3. The effects of the moderators high (+1 SD above the mean), normal, and low (−1 SD below the mean) are shown by orange, red, and blue lines, respectively. Fig. 3a and 3b exhibit strong GPK (+2 SD) consequences in lower GA & GPI for the European group and a low GPK (−0.4 SD) for the non-European group. Fig. 3c and 3d show that EK has no moderate effect on SN & GPI in the European group but a strong GPK (+1 SD) consequence on stronger SN & GPI for the non-European group. Nevertheless, Fig. 3b, c, f also confirms that EK has no moderating effects on the PBC-GPI relationship for European and non-European tourists.

5. Discussion and conclusion

European and non-European tourists' consumption values and choice behaviour regarding green products by combining TPB and TCV are compared in this research. We develop a theoretical framework regarding European and non-European tourists' green purchase choices and sustainable consumption behaviour during their travels across destinations in Europe. In our survey, we found that 68% of respondents prefer to purchase recyclable, reusable, and bioproducts during their

Table 2
Results of the assessment of measurement model.

Constructs	Items	Outer Loading		Cronbach's Alpha		rho_A		Composite reliability		AVE		VIF	
		European	non-European	European	non-European	European	non-European	European	non-European	European	non-European	European	non-European
Green trust	GT1	0.821	0.861	0.867	0.898	0.880	0.914	0.909	0.929	0.714	0.766	1.937	2.870
	GT2	0.855	0.851									2.528	2.506
	GT3	0.849	0.877									2.136	2.383
	GT4	0.853	0.909									2.167	3.609
Environmental attitude	EA1	0.798	0.804	0.777	0.819	0.778	0.819	0.856	0.881	0.599	0.649	2.071	1.709
	EA2	0.790	0.770									1.915	1.531
	EA3	0.807	0.840									1.664	2.091
	EA4	0.694	0.807									1.284	1.831
Environmental knowledge	EK1	0.706	0.871	0.838	0.829	0.872	0.845	0.889	0.886	0.668	0.662	2.002	2.604
	EK2	0.863	0.822									2.592	2.397
	EK3	0.818	0.815									1.926	2.081
	EK4	0.873	0.740									2.235	1.810
Subjective norms	SN1	0.901	0.916	0.811	0.909	0.819	0.914	0.889	0.943	0.728	0.846	2.426	3.059
	SN2	0.879	0.926									2.260	3.447
	SN3	0.775	0.918									1.447	2.771
Perceived behavioural control	PBC1	0.707	0.929	0.727	0.905	0.802	0.927	0.828	0.933	0.549	0.778	1.843	4.037
	PBC2	0.721	0.890									2.066	3.486
	PBC3	0.879	0.873									1.931	2.421
	PBC4	0.636	0.834									1.574	2.093
Functional value quality	FVq1	0.610	0.796	0.741	0.865	0.772	0.876	0.835	0.908	0.562	0.711	1.315	1.766
	FVq2	0.702	0.894									1.558	2.784
	FVq3	0.818	0.821									1.872	2.090
	FVq4	0.843	0.858									1.796	2.036
Functional value price	FVp1	0.750	0.859	0.779	0.819	0.822	0.883	0.868	0.888	0.687	0.726	1.632	2.141
	FVp2	0.853	0.883									1.510	1.622
	FVp3	0.879	0.813									1.950	1.946
Social value	SV1	0.859	0.828	0.805	0.851	0.894	0.854	0.875	0.910	0.700	0.771	1.336	1.594
	SV2	0.845	0.924									2.862	3.842
	SV3	0.805	0.879									2.756	3.307
Conditional value	CV1	0.725	0.786	0.706	0.834	0.757	0.859	0.811	0.889	0.521	0.668	1.347	1.634
	CV2	0.628	0.871									1.477	2.199
	CV3	0.652	0.724									1.573	1.591
	CV4	0.861	0.877									1.600	2.203
Emotional value	EmV1	0.913	0.863	0.755	0.870	0.874	0.876	0.854	0.920	0.668	0.793	2.547	1.803
	EmV2	0.902	0.910									2.065	3.335
	EmV3	0.598	0.897									1.369	3.007
Epistemic value	EpV1	0.805	0.875	0.812	0.874	0.825	0.910	0.888	0.921	0.726	0.796	1.601	2.382
	EpV2	0.874	0.888									1.864	2.401
	EpV3	0.874	0.914									2.122	2.275
Green purchase intention	GPI1	0.747	0.929	0.841	0.917	0.842	0.923	0.887	0.938	0.611	0.752	1.807	4.672
	GPI2	0.745	0.853									1.719	3.189
	GPI3	0.809	0.897									1.929	3.757
	GPI4	0.814	0.867									2.879	2.986
	GPI5	0.791	0.782									2.667	2.567

Table 3
Discriminant validity: Fornell–Larcker (European and non-European).

	CV	EA	EK	EmV	EpV	FVp	FVq	GPI	GT	PBC	SN	SV
European												
CV	0.722											
EA	0.447	0.774										
EK	0.514	0.421	0.818									
EmV	0.477	0.521	0.554	0.818								
EpV	0.138	0.123	−0.082	0.030	0.852							
FVp	0.243	0.466	0.034	0.191	0.552	0.829						
FVq	0.331	0.560	0.323	0.539	0.240	0.548	0.749					
GPI	0.727	0.700	0.561	0.597	0.149	0.471	0.589	0.782				
GT	0.434	0.602	0.259	0.331	0.128	0.511	0.672	0.610	0.845			
PBC	0.265	0.421	0.079	0.167	0.458	0.529	0.439	0.454	0.453	0.741		
SN	0.386	0.434	0.176	0.128	0.190	0.503	0.336	0.504	0.446	0.322	0.853	
SV	0.257	0.429	0.233	0.272	0.204	0.479	0.478	0.371	0.509	0.316	0.396	0.837
non-European												
CV	0.817											
EA	0.533	0.805										
EK	0.488	0.634	0.813									
EmV	0.676	0.599	0.541	0.891								
EpV	0.719	0.524	0.467	0.561	0.892							
FVp	0.574	0.636	0.441	0.634	0.564	0.852						
FVq	0.575	0.680	0.430	0.591	0.525	0.773	0.843					
GPI	0.685	0.727	0.614	0.691	0.701	0.664	0.688	0.867				
GT	0.450	0.567	0.397	0.382	0.445	0.447	0.378	0.517	0.875			
PBC	0.612	0.655	0.462	0.626	0.565	0.641	0.557	0.537	0.573	0.882		
SN	0.498	0.499	0.217	0.388	0.538	0.467	0.434	0.384	0.379	0.490	0.920	
SV	0.707	0.455	0.303	0.658	0.559	0.684	0.637	0.592	0.365	0.608	0.431	0.878

Table 4
Discriminant validity: HTMT (European and non-European).

	CV	EA	EK	EmV	EpV	FVp	FVq	GPI	GT	PBC	SN	SV
European												
CV												
EA	0.529											
EK	0.634	0.468										
EmV	0.641	0.623	0.663									
EpV	0.251	0.183	0.169	0.186								
FVp	0.366	0.583	0.183	0.204	0.740							
FVq	0.499	0.724	0.377	0.693	0.343	0.728						
GPI	0.878	0.853	0.650	0.695	0.212	0.555	0.706					
GT	0.492	0.714	0.272	0.364	0.167	0.625	0.838	0.693				
PBC	0.514	0.546	0.226	0.265	0.585	0.678	0.629	0.549	0.546			
SN	0.450	0.562	0.204	0.244	0.245	0.603	0.439	0.607	0.531	0.406		
SV	0.318	0.558	0.245	0.368	0.252	0.551	0.603	0.410	0.601	0.383	0.420	
non-European												
CV												
EA	0.628											
EK	0.569	0.763										
EmV	0.778	0.702	0.639									
EpV	0.804	0.611	0.516	0.625								
FVp	0.666	0.761	0.490	0.713	0.630							
FVq	0.673	0.801	0.507	0.663	0.592	0.887						
GPI	0.763	0.841	0.691	0.761	0.753	0.723	0.766					
GT	0.498	0.653	0.446	0.421	0.483	0.520	0.420	0.559				
PBC	0.690	0.747	0.516	0.695	0.633	0.730	0.620	0.573	0.628			
SN	0.565	0.577	0.249	0.424	0.606	0.564	0.489	0.416	0.418	0.543		
SV	0.828	0.542	0.359	0.757	0.632	0.823	0.746	0.663	0.411	0.685	0.486	

Note: GT: Green Trust; EA: Environmental attitude; EK: Environmental knowledge; SN: Subjective norms; PBC: Perceived behavioural control; FVq: Functional value quality; FVp: Functional value price; SV: Social value; CV: Conditional value; EV: Emotional value; EpV: Epistemic value; GPI: Green purchase intention.

travels. On the other hand, 47.5% of tourists purchase organic or local vegan foods and eco-friendly travel items. In addition, 37.5% prefer to go to eco-friendly restaurants and local green shops to purchase its products. Finally, 34.2% of travellers are interested in staying at a green hotel while travelling to a destination. The SEM-MGA empirical finding shows that GT has a significant positive association with non-European tourists' intention to purchase green products, consistent with earlier studies (Amin and Tarun, 2020). The results of Wang, Wang, Wang, et al., (2018) also revealed that trust positively inclined consumers' intention to recommend green hotels. However, our finding does not reflect this for European tourists. Green advertising and quality products and services can boost European tourists' trust. EA and EK have significant positive impacts on the sustainable consumption for both groups of tourists. These findings are consistent with earlier research (e.g., Gautam, 2020; Nekmahmud, 2020; Wang, Wang, Wang, et al., 2018). Tourists are more willing to purchase green products if they have

Table 5
Results of predictive power using PLSpredict.

Items	European			non-European		
	Q²_predict	RMSE		Q²_predict	RMSE	
		PLS-SEM	Linear Model		PLS-SEM	Linear Model
EA1	0.077	0.808	0.261	0.264	0.680	0.407
EA3	0.117	0.632	0.297	0.233	0.622	0.392
EA4	0.155	0.651	0.268	0.316	0.522	0.345
EA2	0.019	0.736	0.315	0.213	0.662	0.337
GPI4	0.532	0.441	0.202	0.514	0.511	0.381
GPI5	0.374	0.686	0.434	0.323	0.676	0.456
GPI3	0.526	0.523	0.256	0.639	0.550	0.371
GPI1	0.367	0.545	0.294	0.636	0.436	0.323
GPI2	0.467	0.460	0.258	0.502	0.522	0.369

environmental knowledge and a favourable attitude toward the environment, climate, and health. Moreover, EK has insignificant moderate interaction with EA, SN, PBC, and GPI for both European and non-European tourists.

Our findings highlight that SN and PBC have significant strong association with GPI for both groups, which aligns with previous studies (Chen and Peng, 2012; Chen and Tung, 2014; Hsu, Chang, and Yansritakul, 2017; Paul et al., 2016; Ramkissoon, Graham Smith, and Weiler, 2013). Nevertheless, Barbarossa and De Pelsmacker (2016) argued that PBC negatively influences the purchase intention of individuals toward eco-friendly products. Consumers usually spend less time and effort when they have enough information to identify and locate environmentally-friendly tourist products or services while travelling. There are major differences in the effects of functional value on GPI for both cases. The functional value of price positively impacts GPI for both European and non-European tourists. But the functional value of quality is negatively associated with GPI for European tourists. European citizens are dissatisfied with green services. The destination firm should ensure the quality of its services because previous research found that quality must be maintained for customers to pay premium rates for green products (Hur et al., 2012; Liu et al., 2013). Nevertheless, in the

context of social value, both groups have favourable social value on GPI. Social value had the most significant positive effect on the GPI of European tourists supported by the previous studies (Biswas and Roy, 2015) while the effect of SV on GPI was low for non-European tourists as also argued by (Amin and Tarun, 2020). It depends on the social culture of a country. The MGA results revealed that both CV and EmV have positive and strong relationship with GPI for both groups. A study by Lin and Huang, (2012) in Taiwan supported that emotional and conditional values influence consumer preference toward green products. Nevertheless, Awuni and Du (2016) argued that conditional values are not significantly associated with green buying intentions. Governments and business sectors may offer incentives and promotions for green products, providing more significant opportunities to raise the conditional value. Finally, there are significant differences and the highest positive effects of EpV on supporting GPI, for tourists from non-European countries, resulting in tourists who are curious, seek information, or prefer novelty in being more inclined to choose green products. This result is consistent with prior studies (e.g., Abdullah et al., 2019; Lee et al., 2015; Lin and Huang, 2012) in the sustainable consumption context. Non-European tourists, however, have the lowest power relationship between EpV and GPI. Thus, producers should increase consumers' curiosities on flourishing product features, design, and style concepts and inform the benefits of green vs. non-green items by promotional mix. Product information and presentation styles have potential epistemic value, effectively influencing consumer choice behaviour.

With regards to socio-demographic variables, our findings show that age has a positive effect on green purchase intention aligning with earlier studies (Dangelico, Nonino, and Pompei, 2021) whereas younger consumers are more concerned about environmental issues (Suki, 2013) and purchase organic food (Dangelico et al., 2021; Van Doorn and Verhoef, 2011). Gender has a significant effect on green purchasing intentions for non-European tourists which is consistent with findings by Chen & Chai, (2010) and Suki, (2013). There is no significant difference between males and females in environmental attitude or green purchasing behaviour. Whereas this is not supported by European tourists. Females are somewhat more likely to purchase green products (Finisterra do Paço, Barata Raposo, and Filho, 2009; Dangelico et al., 2021).

Table 6
Results of invariance measurement testing using permutation.

Construct	Configural invariance (Same algorithms for both groups)	Compositional invariance (Correlation = 1)		Partial measurement invariance established	Equal mean assessment			Equal variance assessment			Measurement invariance established
		C = 1	Confidence interval (CIs)		Differences	Confidence interval (CIs)	Equal	Differences	Confidence interval (CIs)	Equal	
GT	Yes	1.000	[1.000, 0.999]	Yes	−0.656	[−0.148, 0.143]	Yes	−0.228	[−0.213, 0.206,]	Yes	Full
EA	Yes	0.998	[1.000, 0.999]	Yes	−0.634	[−0.146, 0.141]	Yes	−0.033	[−0.194, 0.188]	Yes	Full
EK	Yes	0.989	[1.000, 0.999]	Yes	−0.743	[−0.150, 0.145]	Yes	0.216	[−0.282, 0.292]	Yes	Full
SN	Yes	0.999	[1.000, 0.999]	Yes	−0.508	[−0.145, 0.145]	Yes	−0.694	[−0.203, 0.197]	Yes	Full
PBC	Yes	0.994	[0.999, 0.998]	Yes	−0.254	[−0.147, 0.150]	Yes	−0.654	[−0.211, 0.207]	Yes	Full
FVq	Yes	0.994	[1.000, 0.999]	Yes	−0.598	[−0.145, 0.138]	Yes	−0.459	[−0.165, 0.155]	Yes	Full
FVp	Yes	0.995	[0.999, 0.998]	Yes	−0.408	[−0.149, 0.148]	Yes	−0.289	[−0.199, 0.193]	Yes	Full
SV	Yes	0.993	[0.999, 0.996]	Yes	−0.600	[−0.145, 0.145]	Yes	−0.243	[−0.181, 0.179]	Yes	Full
CV	Yes	0.992	[0.999, 0.998]	Yes	−0.440	[−0.152, 0.141]	Yes	−0.519	[−0.196, 0.189]	Yes	Full
EmV	Yes	0.989	[1.000, 0.998]	Yes	−0.228	[−0.151, 0.141]	Yes	−0.454	[−0.187, 0.185]	Yes	Full
EpV	Yes	0.997	[1.000, 0.998]	Yes	−0.512	[−0.144, 0.146]	Yes	−0.103	[−0.175, 0.167]	Yes	Full
GPI	Yes	1.000	[1.000, 1.000]	Yes	−0.578	[−0.151, 0.144]	Yes	−0.407	[−0.190, 0.191]	Yes	Full

Table 7
Results of structural path model to examine hypothesised relationships and Multigroup Analysis.

Hypotheses	Relationship	Path Coefficients		Confidence interval (95%) bias corrected		t-Value		p-Value		Path coefficient	P-value difference (one-tailed)		Supported	
		European	non-European	European	non-European	European	non-European	European	non-European	Difference	Henseler's MGA	Permutation test	European	non-European
H1	GT – > GPI	0.074	0.119	[−0.027, 0.173]	[0.033, 0.203]	1.451	2.782	0.147	0.005	−0.045	0.496	0.608	No	Yes
H2	EA - > GPI	0.192	0.326	[0.102, 0.270]	[0.240, 0.414]	4.520	7.485	0.000	0.000	−0.135	0.030	0.033	Yes	Yes
H3	EK - > EA	0.421	0.634	[0.345, 0.489]	[0.579, 0.672]	11.463	27.145	0.000	0.000	−0.212	0.000		Yes	Yes
H4	EK - > GPI	0.155	0.088	[0.075, 0.219]	[0.027, 0.149]	4.342	2.831	0.000	0.005	0.067	0.159	0.170	Yes	Yes
H6	SN - > GPI	0.114	−0.146	[0.052, 0.171]	[−0.203, −0.083]	3.745	4.733	0.000	0.000	0.260	0.000		Yes	Yes
H7	PBC - > GPI	0.128	−0.244	[0.059, 0.205]	[−0.326, −0.173]	3.526	6.203	0.000	0.000	0.373	0.000		Yes	Yes
H8	FVq - > GPI	0.076	0.145	[−0.008, 0.157]	[0.078, 0.216]	1.829	4.073	0.067	0.000	−0.069	0.208	0.216	No	Yes
H9	FVp - > GPI	0.150	0.073	[0.076, 0.228]	[0.002, 0.143]	3.823	2.055	0.000	0.040	0.077	0.152	0.192	Yes	Yes
H10	SV - > GPI	−0.091	0.064	[−0.145, −0.037]	[−0.029, 0.163]	3.288	1.303	0.001	0.193	−0.155	0.012	0.019	Yes	No
H11	CV - > GPI	0.360	0.120	[0.277, 0.438]	[0.022, 0.220]	8.726	2.397	0.000	0.017	0.240	0.000	0.001	Yes	Yes
H12	EmV - > GPI	0.136	0.181	[0.045, 0.212]	[0.090, 0.280]	3.234	3.790	0.001	0.000	−0.045	0.494	0.487	Yes	Yes
H13	EpV - > GPI	−0.088	0.311	[−0.172, 0.000]	[0.229, 0.401]	1.949	7.047	0.051	0.000	−0.399	0.000		No	Yes
Control variables														
	Gender - > GPI	0.118	0341	[−0.020, 0.257	[0.207, 0.475]	1.687	4.998	0.093	0.001	−0.315	0.986	0.008	No	Yes
	Age - > GPI	0.085	−0.104	[0.022, 0.148]	[−0.100, −0.029]	2.654	−2.717	0.008	0.007	0.068	0.298		Yes	Yes
	Education - > GPI	−0.088	0.006	[−0.182, 0.600]	[−0.100, 0.112]	1.115	0.117	0.067	0.907	−0.185	0.911		No	No

Note: GT: Green Trust; EA: Environmental attitude; EK: Environmental knowledge; SN: Subjective norms; PBC: Perceived behavioural control; FVq: Functional value quality; FVp: Functional value price; SV: Social value; CV: Conditional value; EV: Emotional value; EpV: Epistemic value; GPI: Green purchase intention.
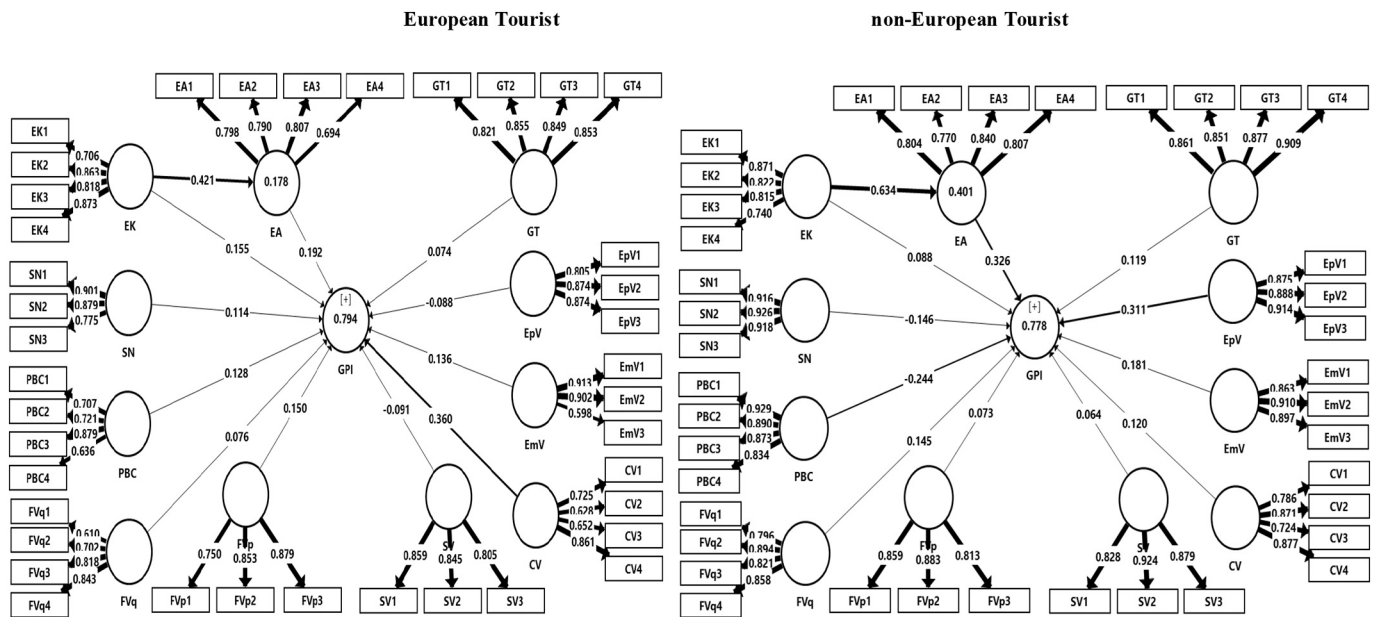
Fig. 2. Results of Conceptual framework (Path coefficient, R square and P-value).

Table 8
Results of the moderation investigation.

Hypotheses	Relationship	Europen	non-Europen	Europen	non-Europen	Europen	non-Europen	Europen	non-Europen	Europen	non-Europen	Supported
		Std β		Mean		Standard deviation		t value (bootstrap)		P-Values		
H5a	Mod_EA_EK_GPI ➔ GPI	−0.150	0.049	−0.079	0.035	0.143	0.035	1.049	1.409	0.294	0.159	No/No
H5b	Mod_SN_EK_GPI ➔ GPI	0.058	−0.073	0.030	0.038	0.095	0.038	0.616	1.912	0.538	0.056	No/No
H5c	Mod_PBC_EK_GPI ➔GPI	0.079	−0.006	0.053	0.052	0.079	0.052	1.011	0.109	0.312	0.913	No/No

Surprisingly, education level does not exert any influence whereas all of the participants in this study had a good educational background. Dangelico et al. (2021) stated that education is an important tool to increase consumers' environmental knowledge and purchasing intentions.

5.1. Implications

5.1.1. Theoretical implications

This study has both theoretical and practical implications. Our study overcomes the limitations of the basic TPB model and establishes the combined model in predicting tourists' intention to purchase green products. The TPB was applied to most studies about behavioural intentions for environmental initiatives in tourism research. Some scholars criticized that TPB is a self-interest theory and cannot measure the complete behaviour intention. All the constructs of TPB are rational predictors (Bertoldo and Castro, 2016). Considering these limitations of the TPB model thus, TCV theory and two environmental variables, namely, green trust and environmental knowledge, are merged into the model to better understand tourists' consumption values and choice behaviour about green products. On the other hand, TCV helps clarify and comprehend a wide range of goods and services. TCV has a few empirical implications in tourism marketing, such as local foods choice, tourists' environmental destination selection behaviour, self-service experiences, value preferences, and value satisfaction (Tanrikulu, 2021). According to the authors' knowledge, this is the first study to use TPB and TCV to investigate influencing factors on green purchases in a tourism context. Therefore, the current study postulated a framework to

provide a broad understanding of tourist green purchase behaviour, which brings a new theoretical contribution to the tourism and hospitality industry for further research. This study provides a complete framework for analyzing consumer travel intentions and prevailing research orientations in tourism and hospitality management. Simultaneously, our study examined how environmental knowledge functions as a moderator variable in the TPB model. This paradigm can help further research into the intention of purchasing green products, e.g., green hotels, local or organic vegetables, and souvenirs in developing and developed countries. Results of this study will help fill major research gaps in the literature by providing a sound theoretical framework for consumer behaviour in any research context.

5.1.2. Practical implications

Our research helps marketing managers and policymakers better understand consumer choice and sustainable consumption of green products in the tourism and hospitality industry. Our findings clearly show a connection between tourists' internalized perceptions and behavioural intentions toward purchasing green products and services. Therefore, destination managers and policymakers may focus on tourist-specific sustainable consumption issues and strive to deliver more environmentally friendly services. Our research shows that European visitors think green products are not generally reliable and trustworthy and don't keep commitments to environmental protection. Hence, companies should invest more resources in increasing green trust (Chen, 2010). Destination marketers are encouraged to provide appropriate information about green products and how to consume nature's eco-friendly products as well as how the benefits of green products and
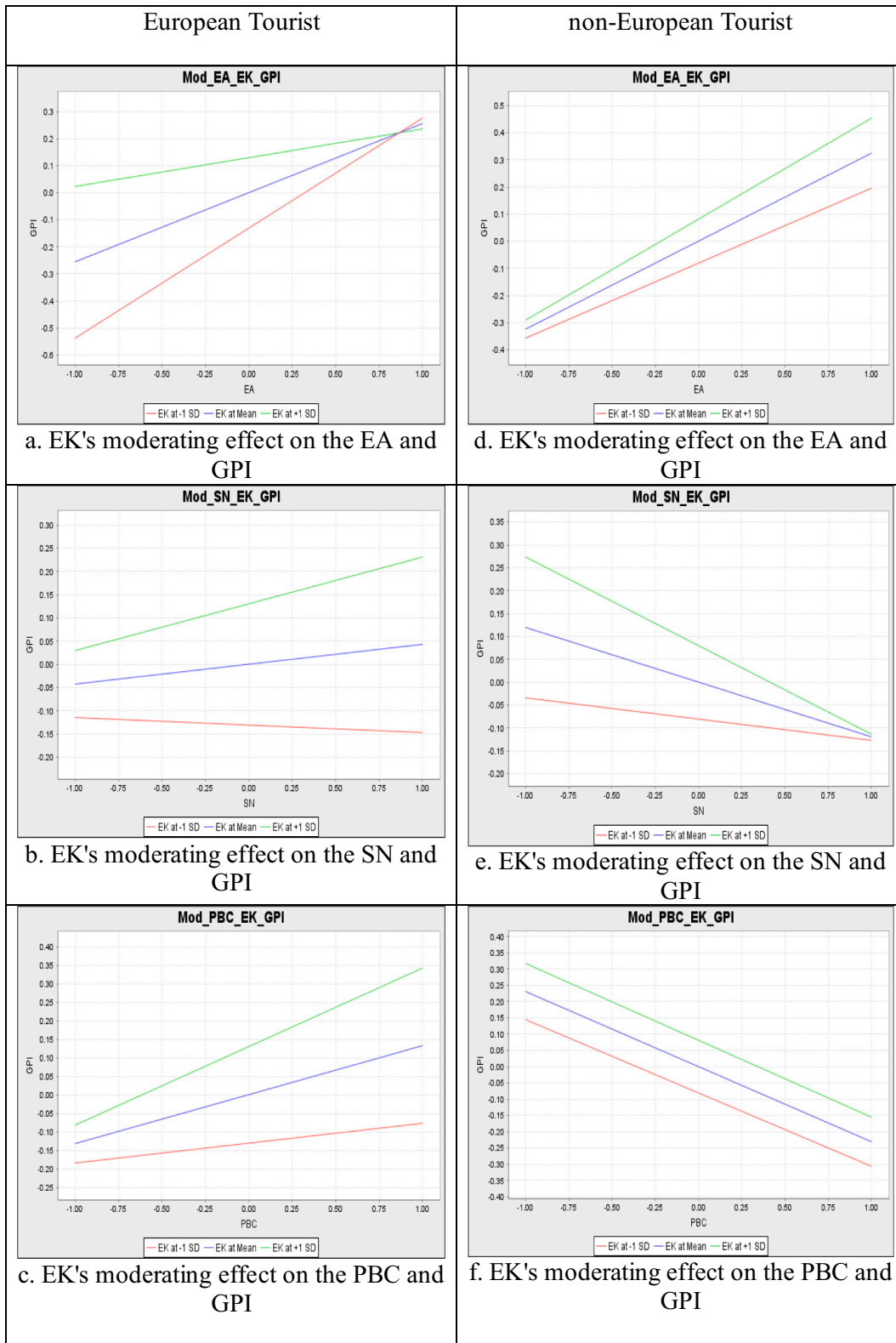
Fig. 3. Slop graph of moderating effects.

services contribute to health and environment (Han et al., 2010). Destination marketers should take proactive measurement initiatives to raise environmental awareness through green marketing strategies, e.g., green advertising, green branding, and eco-labelling, leading to a long-term positive attitude toward green consumption. Destination marketers should do more to raise awareness of environmental issues among

consumers, rather than focusing on just applying eco-labels to their products. Governments, NGOs, and environmental groups may also have to initiate advertising campaigns to establish credibility for eco-label information regarding using sustainable products. Additionally, it is high time to force the efficacy of green advertising by highlighting the environmental advantages of green products, encouraging a sustainable

lifestyle, enhancing green brand image, and minimizing the inherent flaws of green products (Nekmahmud, 2020). Moreover, marketers can use social media tools to inform tourists about green products.

The European Union (EU) should implement policies requiring the mandatory use of sustainable transnational tourism products e.g., environmentally friendly tourism (Ramkissoon, Mavondo, and Uysal, 2018), sports tourism (Zarei and Ramkissoon, 2021), food and wine tourism, health and wellbeing tourism, nature tourism, or 'slow tourism' (Baird, Hall, Castka, and Ramkissoon, 2022) in European member countries. Nevertheless, the quality of products and services is a high priority for tourists. According to our study, European tourists are not satisfied with the quality. Marketing managers should thus ensure the quality of green products and services is enhanced so that tourists may purchase green products during their travels. Ecotour operators and nature tour guides can play a key role in offering additional information on environmentally friendly tour packages as well as a high-quality interpretive service. The effect of the social value of non-European tourists on green purchase intentions was low. The purchase of green products and services does not make a good impression on society and the eyes of other people. Therefore, marketing people should ensure green brand value, and make tourists feel comfortable and different. Increasing the availability of green products may help promote sustainable consumption. So, the government should create rules to encourage firms to manufacture more eco-friendly goods. They can propose conditions for the hotel industry to deliver green hotel services. The government should often publicize and emphasize that each consumer has the capacity and responsibility to safeguard the environment. Their environmental consciousness leads to a substantial impact on resolving environmental issues (Zhao et al., 2014). Governments should focus on improving consumer effectiveness and environmental concerns through school education and public awareness initiatives (Ramkissoon, 2022a; 2022b; Wang, Wang, Xue, et al., 2018). Effective greening practices should be the core of eco-friendly tourism services. This implies that employees of green service providers must receive training to successfully explain their green products and services. Finally, supportive regulatory policies can facilitate consumer engagement by presenting evidence of the firms' green claims.

5.2. Limitations and directions for future research

The current study includes limitations that offer opportunities for future research. Firstly, this study used an online survey to collect data and compare European and non-European travellers on a small scale due to COVID-19. Therefore, further investigation should consider large-scale sample size. Second, the current study had limitations regarding products and consumer categories and focused on available green products. Future studies can categorize products using our proposed conceptual framework to measure tourists' green purchase intentions for specific products and services, e.g., green hotels, organic food or local vegan food, green travel products, environmental-friendly restaurants, recyclable, reusable, bio-products, and local green shops. Future researchers need to ensure participants hold similar criteria, i.e., nationality, gender, and educational level when collecting data from European or Asian countries. Future research can replicate our proposed model with a more homogenous sample in actual consumption circumstances in the tourism and hospitality industry. Finally, further research could consider willingness to recycle, perceived price, education, collectivism, media, advertising, and price sensitivity as additional constructs in our integrative model for theoretical advancement.

5.3. Impact statement

This is the first study to examine tourists' sustainable consumption

values and choice behaviour regarding green products by integrating the theory of planned behaviour and consumption values in Europe. The research makes theoretical and practical contributions to building a sustainable tourist environment for society in Europe. The results reveal that environmental attitudes, subjective norms, perceived behavioural control, conditional value, and emotional value significantly and directly influence green purchase intentions for European and non-European tourist groups. Green trust and environmental knowledge play the most significant roles in the TPB and TCV models as they predict how tourists are likely to purchase green products. The quantitative MGA analysis reveals novel findings on the functional value of price, which is the main barrier for tourists to purchase green products while travelling. Additionally, the study confirms that environmental knowledge has insignificant moderate interaction with EA, SN, PBC, and GPI for both European and non-European tourists. The study provides several opportunities for tourism practitioners to conduct research in the growing field of sustainable tourism.

CRediT authorship contribution statement

Md. Nekmahmud: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Visualization. **Haywantee Ramkissoon:** Resources, Validation, Writing – review & editing, Supervision, Project administration. **Maria Fekete-Farkas:** Resources, Validation, Writing – review & editing, Supervision, Project administration, Funding acquisition.

Appendix A

Constructs	Items	Sources
Green trust	GT1: Environmentally-friendly products are generally reliable & trustworthy GT2: Environmentally-friendly products meet my expectations regarding environmental issues GT3: Environmental-friendly products keep promises and commitments for environmental protection GT4: Environmental performances of green products are generally consistent and reliable	(Amin and Tarun, 2020; Chen, 2010)
Environmental attitude	EA1: I am favourable to purchasing environmental-friendly products/services when I travel EA2: During my travelling, I feel much better about myself when I purchase environmental-friendly products EA3: It is worth using environmental-friendly products during my travels because it will help in conserving natural resources EA4: Use of environmental-friendly products/services will reduce pollution to improve the environment of tourist places	(Gautam, 2020; Wang, Zhang, Yu, and Hu, 2018)
Environmental knowledge	EK1: I know more about recycling than the average person. EK2: I am very knowledgeable about environmental issues EK3: Using environmental-friendly products /green products is one of the most effective ways to reduce pollution EK4: Using environmental-friendly products/services is a substantial approach to minimizing waste of natural resources	(Ahmad & Thyagaraj, 2015; Sidique et al., 2010; Wang, Wang, Wang, et al., 2018; Gautam, 2020)
Subjective norms	SN1: My family supports me to purchase environmental-friendly products/services when I travel SN2: My friends support me to purchase environmental-friendly products/services during my travelling SN3: Those important to me support my decision to purchase environmental-friendly products/services	(Wang, Wang, Xue, et al., 2018)
Perceived behavioural control	PBC1: I have enough information to identify and purchase environmentally-friendly products/services during travelling PBC2: I have enough information to locate environmentally-friendly products/services during my travel PBC3: I have the preference to take environmentally-friendly tourists' products/services PBC4: I can afford slightly higher price to take environmental-friendly products	(Wang, Zhang, Yu, and Hu, 2018)
Functional value quality	FVq1: During my travelling, I buy environmentally-friendly products due to their consistent quality FVq2: I think the environmental-friendly products and services are well made FVq3: I think environmental-friendly products/services have an acceptable standard of quality FVq4: I think the environmental-friendly products/services are reliable	(Sweeney and Soutar, 2001; Awuni and Du, 2016; Wang, Wang, Wang, et al., 2018)
Functional value price	FVp1: I think environmental-friendly products/services offer value for money when I travel PVq2: It is valuable choosing environmental-friendly products and services while travelling FVq3: I think it is economical to purchase environmental-friendly products during my travelling	(Sweeney and Soutar, 2001; Gugkang, Sondoh, & Tanakinjal, 2013; Wang, Wang, Xue, et al., 2018)
Social value	SV1: I think buying environmental-friendly products helps me feel comfortable when I travel SV2: I think purchasing environmental-friendly products and services makes me good impression in the eyes of other people SV3: I think purchasing environmental-friendly products and services in tourist places gives me social approval/respect	(Awuni and Du, 2016; Khan and Mohsin, 2017; Sweeney and Soutar, 2001; Wang, Zhang, Yu, and Hu, 2018)
Conditional value	CV1: When I travel, I will buy environmentally-friendly products and services under worsening/deteriorating environmental conditions CV2: I will buy environmentally-friendly products when there is a subsidy for green products and services CV3: I will buy environmentally-friendly products and services when they offer a discount on green products CV4: During my trip, I will buy environmentally-friendly products and services when green products are available	(Dholakia, 2001; Hirschman, 1980; Lin and Huang, 2012; Awuni and Du, 2016)
Emotional value	EV1: Purchasing environmental-friendly products feel me a good personal contribution to sustainable tourism instead of conventional products EV2: Environmental-friendly products instead of conventional products would feel it is the morally right thing to do EV3: uring my travelling, purchasing environmental-friendly products/services instead of conventional products would make me feel like a better person	(Awuni and Du, 2016; Khan and Mohsin, 2017; Wang, Wang, Wang, et al., 2018)
Epistemic value	EpV1: Before buying an environmentally friendly product, I would gather sufficient information about the various brands, manufacturers, quality levels and models of that product EpV2: Before buying a product, I am willing to seek out novel information about environmentally-friendly products/services EpV3: Before buying an environmentally-friendly product and services, I like to search for new and different information about products	(Awuni and Du, 2016; Lin and Huang, 2012; Sheth et al., 1991)
Green purchase intention	GPI1: I am willing to choose environmentally-friendly tourisms products/services when I travel GPI2: I plan to choose environmentally-friendly products/services during my travelling. GPI3: I will make an effort to buy environmentally-friendly products and services during travelling GPI4: I will purchase products/services that are considered less harmful to the environment GPI5: I will avoid buying products and services that are potentially harmful to the tourist places	(Awuni and Du, 2016; Chen and Tung, 2014; Wang, Wang, Xue, et al., 2018)

Appendix B. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tmp.2022.100980.

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