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RESEARCH ARTICLE

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Consumers' choice behavior: An interactive effect of expected eudaimonic well-being and green altruism

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Abstract

Grounded in the behavioral reasoning theory, this study aims to determine the impact that green brand awareness (GBA) and perceived green brand credibility (PGBC) have on consumers' choice behavior for green electronics in the context of an emerging country. Furthermore, by focusing on a novel perspective of expected eudaimonic well-being, the mediatory role of expected self-acceptance (ESA) and expected social contribution (ESC) and the moderating role of green altruism were empirically tested. Data were collected surveying 556 consumers from twin cities of Pakistan applying longitudinal research design. The findings indicate the direct and indirect impacts of GBA and PGBC on consumers' choice behavior via ESA and ESC as mediators. Also, the interactive effect of green altruism with ESA and ESC has been found to augment consumers' choice behavior. Moreover, this study encourages organizations to focus on the consumers' perceptions of self-responsiveness and social responsibility to attract them to choose green brands.

KEYWORDS

consumers choice behavior, expected eudaimonic well-being, green altruism, green brand awareness, perceived green brand credibility

1 | INTRODUCTION

Electronic/electrical waste (e-waste) has become a key concern worldwide (Kumar et al., 2017). According to "step initiative 2014," all the electronic and electrical equipment (EEE) and their parts discarded as waste instead of being recycled or reused by their owners are considered e-waste (Danish et al., 2019). Moreover, following the Organization for Economic Co-operation and Development (OECD), e-waste includes all appliances that use an electric power supply, reach their end life, and are not recycled and reused. These e-wastes contain dangerous materials like organic pollutants, mercury, lead, heavy metals, and flame retardants, which require special handling to reduce their harmful environmental impacts (Robinson, 2009). As per the estimation of the United Nations (UN), 53.6 million tons (Mt) of e-waste has been produced worldwide during 2019, which has been further projected to reach 74 Mt by the year 2030 (Forti et al., 2020). As per *The Global E-waste Monitor 2020*, Asian countries were placed at the top while generating nearly half of the global e-waste generation (Forti et al., 2020).

In addition, the innovation of new technologies and reducing their life cycle is among the biggest reasons for this e-waste as consumers urge to replace the new electronic models with existing ones (Jayaraman et al., 2019). The global consumer electronic market size in 2019 was 729.11, which is expected to react at 989.37 billion in 2027 with a growth rate of 5.3% from 2020 to 2027 (Herat, 2021). Moreover, e-waste that is not recycled contributes to about 4.25% of the greenhouse emissions every year (Dhir et al., 2021). Therefore, there is a dire need for consumers to switch their priorities from conventional to green electronics to decrease their destructive effects on the natural ecosystem (Ali et al., 2020; Tao et al., 2017). Besides, green electronics are comprised of organic, biodegradable, and renewable constituents, which are environmental friendly and sustainable (Tansel, 2017).

There has been a rejuvenated interest among the consumers for pro environmental and green products and brands (Chwialkowska & Flicinska-Turkiewicz, 2020; Deliana & Rum, 2019; Gao et al., 2021; Gunden et al., 2020; Lim et al., 2020; Sharma, 2021). Moreover,

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consumers are reconsidering their buying choices due to environmental issues and pollution (Kautish et al., 2019). In Asia and Europe, numerous consumers consider the mass production of non-green products as a substantial cause of environmental pollution and hazards (Sanchez-Sabate & Sabaté, 2019). Although waste reduction and environmental protection are two of the main concerns for green consumers (Patel et al., 2017; Wu et al., 2018), for which they mostly opt to buy green products (Mezger et al., 2020). However, the literature suggests that green electronics acceptability is slow (Ali et al., 2020; Jones, 2019; Zammit-Lucia, 2013). Therefore, the current study investigates the various factors that affect consumers' choice behavior while purchasing green electronics because they are imperative for e-waste reduction, particularly in developing nations (Sanito et al., 2021).

Being a part of consumers' behavior, two groups of options constitute their choice behaviors: (i) the non-material group (i.e., family, friends, spouse, home location, and society) and (ii) the material group (i.e., goods, service, and notable brands) (Kushwah et al., 2019). Thus, while depicting choice behavior, consumers decide which products to buy and which service to avail based on multiple motives (Danish et al., 2019; Sadiq et al., 2020; Sadiq et al., 2021a, 2021b). Environmental protection is among such motives that influence consumers' choice of green products over conventional products (Deliana & Rum, 2019; Wier et al., 2008). This green choice behavior can be further explained by green brand awareness (GBA), defined by Huang et al. (2014, p. 253) as "the strength of the brand node in memory, i.e., how easy it is for the consumer to recall the brand." Literature reveals the impact of GBA on consumers intentions to purchase green brands (Alamsyah et al., 2020; Huang et al., 2014; Zhou et al., 2021); however, it lacks evidence regarding the direct and indirect impacts of GBA on consumers choice behaviors, particularly while purchasing green electronics, which has been investigated in the current study.

Further, while choosing green products, consumers questioning the credibility of the information provided by the brand and whether it delivers what it is promising (Chen & Chang, 2013) can affect the consumers' positive outcomes, that is, quality perceptions (Baek & King, 2011), purchase, and decision (Nayeem et al., 2019). Despite its noticeable significance for developing green brand preferences (Kumar et al., 2021; Wei et al., 2017), brand credibility in the context of consumers choice behavior has been relatively unexplored. The current study addresses this gap. Moreover, this study is incremental in investigating the mediatory role of expected eudaimonic well-being (EEWB) between the association of GBA and perceived green brand credibility (PGBC) with consumers' choice behavior. Literature reflects that prosocial consumption preferences significantly influence consumers' buying intentions and behaviors through subjective well-being (Suki, 2016; Yamaguchi et al., 2016; Zhou et al., 2021). Besides, EEWB is based on eudaimonism, focusing on the social (expected social contribution, ESC) and psychological (expected self-acceptance, ESA) aspects of consumers' well-being (Deci & Ryan, 2008; Waterman, 1993).

Contemporary environmental research supports a well-established trait of individuals known as altruism (Bautista et al., 2020; Panda et al., 2020). The act of behaving beneficially for society represents an individual's altruistic characteristics (Tan et al., 2020). In connection to the literature on eudaimonic well-being, the moderating role of green altruism in transmitting the benefits of the ESA and ESC in choosing more green brands is among the important contributions of the current study. Furthermore, the theoretical foundation of this study is based on behavioral reasoning theory (BRT) (Westaby, 2005). BRT advocates that human behavior is predicted based upon global motives such as attitudes, subjective norms, perceived behavioral control, and justifications (Dhir et al., 2021). As BRT supports, consumers attach reasons for engaging in a particular behavior based on their beliefs and values (Gupta & Arora, 2017); therefore, the current study posits that the rationales behind consumers' choice behavior are green product awareness and PGBC. On the other hand, attitudes and norms are studied in terms of green altruism and the eudaimonic well-being of the consumers as triggering factors and underlying mechanisms in the consumers' choice of the green-buying journey. Thus, based on behavioral reasoning theory, we aim

- To examine the direct and indirect impacts of GBA and PGBC on consumers' choice behavior for green electronics via EEWB (i.e., expected self-acceptance and expected social contribution).
- To examine the impact of EEWB (i.e., expected self-acceptance and expected social contribution) on consumers' choice behavior for green electronics.
- To examine the interactive effect of green altruism and consumers EEWB (i.e., expected self-acceptance and expected social contribution) on consumers' choice behavior for green electronics.

2 | LITERATURE REVIEW AND THEORETICAL FOUNDATION

2.1 | GBA, PGBC, and consumers' choice behavior

GBA is the knowledge of the brand's green features while considering its commitment and concern towards the environment (Huang et al., 2014; Keller, 1993). Moreover, GBA is quite distinctive from a consumers' mere awareness of environmental issues (Lin et al., 2019), as it is linked with the promise and concern of the brand for its harmless impact on the environment (Dhaliwal et al., 2020). Besides, consumers' choice behavior depicts the consumers' selection of a product over the other based on the attributes of that product (Danish et al., 2019). Literature reveals the direct impact of green awareness on attitudes to purchasing green products (Barber et al., 2009) and green brand purchase intentions (Suki, 2016; Zhou et al., 2021). Likewise, literature also reflects the negative impact of the paucity of product awareness on green purchase behaviors (Padel & Foster, 2005). However, research lacks evidence regarding the effect of GBA on consumers' choice behavior, especially for green electronic brands. Therefore, to address this literature gap, this study—established on the behavioral reasoning theory, which advocates that

consumers' GBA serves as a reason behind their choice of buying green electronics—hypothesizes that

H1a. *Green brand awareness is positively associated with consumers' choice behavior while purchasing green electronics.*

Perceived credibility of the green brands means that consumers believe all the green claims related to the brand they chose (Adnan et al., 2019), which is likely to generate positive feelings about that brand among consumers (Bickart & Ruth, 2012). Moreover, consumers' choices depend on evaluating the products based on the features of those products (Herbes et al., 2020; Huang & Guo, 2021). Literature suggests the impact of various factors, including environmental attitude (Dhir et al., 2021), identity labeling (Schwartz et al., 2020), green marketing (Gelderman et al., 2021), and green perceived value (Danish et al., 2019), to explain and predict the green brand buying behavior of individuals for different brands. Moreover, in a recent study, Kumar et al. (2021) stated that green brands credibility positively influences green brand evaluation. This positive green brand evaluation is further considered directly associated with consumers choice of green products (Khan & Mohsin, 2017). Green brand credibility has also been positively linked with positive word of mouth (Kim et al., 2020) and green buying intentions (Vidyanata et al., 2018). However, this study is incremental in suggesting and examining the impact of PGBC as a predictor of consumers' choice behavior, based on the BRT. Thus, it is postulated that

H1b. *Perceived green brand credibility is positively associated with consumers' choice behavior while purchasing green electronics.*

2.2 | GBA and EEWB (ESA and ESC)

In philosophy, well-being comprises two perspectives, that is, hedonism and eudaimonism (Deci & Ryan, 2008), which are based on subjective, psychological, and social aspects of well-being (Waterman, 1993). Subjective well-being represents the hedonic view, owing to the experience of happiness (Zhou et al., 2021). In contrast, eudaimonism considers the self-actualization and social value realized from a meaningful life, depicting the psychological and social well-being perspective (Keyes, 1998; Ryff & Keyes, 1995). Thus, following the philosophy of eudaimonism, EEWB illustrates the degree to which individuals anticipate well-being developed from self-actualization and social value gained through meaningful life experiences (Zhou et al., 2021). Grounded in the BRT (Westaby, 2005), the consumers' awareness of the green brand serves as a reason to fulfill their goals of augmenting their social and ideal self-image. Chen and Chang (2012) linked GBA with the ways consumers deliver the green message to represent the green consciousness towards the environment while depicting a positive self-image and demonstrating social concerns. Thus, based on the above arguments, it is hypothesized that

H2. *Green brand awareness is positively associated with green consumers' (a) expected self-acceptance and (b) expected social contribution.*

2.3 | PGBC and EEWB (ESA and ESC)

Consumers who are more confident about the credibility of the green brand are more likely to translate the meaning of a brand to their expected outcomes, such as expected self-acceptance being self-worth (Sharma et al., 2020) and expected social contribution as a social value (Adnan et al., 2019). The social contribution depicts the consumers' perception of their actions towards society (Keyes, 1998). It involves the interaction of the consumers with their community and the external environment in the form of their perception of the credibility of the information available regarding the green brands (Kang et al., 2013). Previous studies illustrated that self-acceptance is more prevalent in individuals who perceive a higher control over their external environment (Ryff & Keyes, 1995). Furthermore, brand credibility has been considered a significant predictor of the consumer perceived brand value and utility (Baek & King, 2011). It is regarded as an essential factor in reducing consumers' efforts to search the product information and limit the required cognitive efforts for brands' evaluations (Erdem & Swait, 2004; Kumar et al., 2021). However, the literature lacks the evidence regarding the association of PGBC with consumers' eudaimonic well-being; thus, to bridge this gap, it is postulated that

H3. *There is a positive association of the perceived green brand with green consumers' (a) expected self-acceptance and (b) expected social contribution.*

2.4 | EEWB (ESA and ESC) and consumer choice behavior

Previous studies advocated the role of well-being in promoting green consumption behavior among the consumers of different product categories (Yamaguchi et al., 2016) and depicted the positive association of subjective (hedonic) well-being with purchase intentions of the green product (Suki, 2016; Xiao & Li, 2011). In contrast, scholars also argued that social and psychological benefits, instead of subjective benefits alone, are substantial to increase the green brand attitudes, intentions, and behaviors (Policarpo & Aguiar, 2020; Zhou et al., 2021). Besides, the literature reveals that consumers' inner and social selves significantly affect their green buying behavior (Policarpo & Aguiar, 2020). Thus, the ESA related to an individual's urge to reach his/her social and ideal self-image is expected to influence his/her choice behavior while purchasing green electronics. Likewise, environmental and social values serve as a strong motivator for green consumers to choose green brands (Bianchi et al., 2020). Therefore, in the current study, a eudaimonism-oriented perspective of well-being that combines psychological and social well-being has been

considered to investigate consumers' choice behavior for green electronics. Thus, it is hypothesized that

> **H4.** *There is a positive association of (a) expected self-acceptance and (b) expected social contribution with consumers' choice behavior to buy green brands.*

2.5 | Mediation

2.5.1 | Indirect association of GBA with consumers' choice behavior

Literature suggests that GBA helps to facilitate green consumption behaviors (Lin & Niu, 2018). In the context of green buying behaviors, it has been witnessed that consumers purchase traditional products over green products due to the lack of GBA (Simpson & Radford, 2014). This reflects the importance of GBA while consumers make their green brand choices. Moreover, GBA has been positively linked with green trust (Alamsyah et al., 2020) and customers satisfaction (Kusumah & Lee, 2020). Simultaneously, psychological well-being is reflected by the expected self-acceptance (Matud et al., 2019). It is conceptualized as expected self-actualization, optimal functioning, and maturity (Ryff, 1989). Hence, consumers with high self-acceptance will depict a stronger positive attitude towards themselves (Kim & Gal, 2014) and, thus, will reflect a positive choice behavior for buying greener brands. Further, expected social contribution has been adopted to represent social well-being and is conceptualized as "the evaluation of one's expected ability to create value for society" (Keyes, 1998, p. 127). This portrays that the consumers perceive themselves as valuable to society while making socially responsible choices of buying green products that have minimal damage to the environment (Butt et al., 2017; Cojuharenco et al., 2016). Hence, it can be inferred that consumers who have GBA and perceive themselves as being responsible towards the environment will choose greener products. Thus, grounded on the BRT, it is hypothesized that

> **H5.** *(a) Expected self-acceptance and (b) expected social contribution mediate the association between green brand awareness and consumers' choice behavior for buying green brands.*

2.5.2 | Indirect association of PGBC with consumers' choice behavior

Research suggests that the consumers who perceive green brands as more credible realize that green brands carry meanings that play a significant role in the sustainability of the environment (Adnan et al., 2019), making them feel responsible for their environment and society. As a result, they depict the positive choice behavior while buying green products. The green brand credibility is the means by which consumers can address their green self-image, which could enhance their sense of identification and self-acceptance (Nayeem et al., 2019). Likewise, the more meanings consumers can infer from their perception of green brands' credibility, the stronger their perceived sense of responsibility to contribute to their society, ensuring ESC (Baek & King, 2011). Research indicates that positive perceptions of environmental-friendly brands enhance consumers' willingness to buy such brands based on their perceived social contribution (Panda et al., 2020). Furthermore, the PGBC of the brand can be linked with brands' commitment to the environment (Kumar et al., 2021). In addition, Baek and King (2011) demonstrated that based on the perception of the credibility of the brands, consumers feel more confident about the brands' attributes, which increases their decision-making efficiency. Moreover, based on the BRT, it is assumed that for consumers' choice of buying green brands, their self-acceptance can increase based on their perception of green brand credibility. Therefore, while purchasing such brands, they will perceive a high level of contribution to their society and environment. Hence, it is hypothesized that

> **H6.** *(a) expected self-acceptance and (b) expected social contribution mediate the association between perceived green brand credibility and consumers' choice behavior for buying green brands.*

2.6 | Moderation

2.6.1 | Green altruism as a moderator between GBA and consumers' choice behavior

For many decades, consumers' like and dislike attitudes towards green brands and products remain the focus of attention for many scholars (Choi & Johnson, 2019; Yadav & Pathak, 2016). In environmental studies, the consumers' altruism has been conceptualized diversely (Corbett, 2005; Guéguen & Stefan, 2016), which has attracted researchers to examine its consequences in terms of consumers' behaviors based on such consumers' environmental-friendly nature (Bautista et al., 2020; Panda et al., 2020; Tan et al., 2020). Besides, green altruism can be defined as the desire of the consumers to selflessly benefit others and the environment; it reflects the individuals' effective concerns towards society and others' well-being (Stern et al., 1993). This indicates that green altruistic consumers have a greater inborn capability to emotionally and socially attach to society and care about the well-being of all the living things in an ecosystem (Panda et al., 2020). Moreover, Guéguen and Stefan (2016) reflected that ecological benefits are the main driving force behind altruistic consumers' actions rather than their potential gains. There are certain pieces of evidence in the literature that support the direct impact of green altruism on green buying intentions of green products (Bautista et al., 2020; Davari et al., 2017; Tan et al., 2020). The current study advances the existing literature by examining the interactive effect of green altruism with consumers' ESA and ESC to enhance their green brand buying behaviors. Thus, it is hypothesized that

H7. *Green altruism moderates the relationship of consumers' (a) expected self-acceptance and (b) expected social contribution with consumers' choice behavior for buying green brands such that in case of higher values of green altruism, consumers will choose to buy more green brands.*

2.7 | Theoretical framework of the study

Figure 1 represents the theoretical model of the study derived from past literature and BRT.

3 | RESEARCH METHODOLOGY

The current study has been conducted among the consumers of green electronics in Rawalpindi and Islamabad, Pakistan. The Islamabad–Rawalpindi metropolitan area is one of the largest metropolitan areas in Pakistan. Concerning the 2020 statistics, the population of Rawalpindi was 2,237,000, and Islamabad was 1,129,000. In terms of literacy rate, Islamabad, with 84%, leads all districts. At the same time, Rawalpindi ranked ninth with a 74% literacy rate. Also, the authors' choice of the study setting lies in the understanding that most of the residents are aware of the environmental concept. Further, consumers' spending power on electronics is increasing based on the growth in the GDP that results in more e-waste generation (Iqbal et al., 2015). Therefore, the current study has been conducted to determine the direct and indirect impacts of factors like consumers' GBA and PGBC on their choice behavior for green electronics via psychological and social well-being. Also, the interactive effect of consumers' green altruism with their expected self-acceptance and expected social contribution has been empirically examined to check their augmented effect on consumers' choice behavior.

The sample was obtained utilizing a multistage random sampling technique as it allows researchers to identify various areas dividing them into clusters/groups until the desired sample size is obtained (Yazdanpanah et al., 2021). Hence, by applying the multistage random sampling technique, a variety of markets and shopping malls in the twin cities were identified and visited by the authors multiple times. The respondents were randomly selected to answer general questions to gauge their understanding of environmental issues and sustainability concepts. Many authors have previously used this technique to collect data from the representatives of the desired population (Choudhary, 2021; Yazdanpanah et al., 2021). Based on those initial interactions, when the authors were satisfied that respondents knew the sustainable ecological concept, respondents were inquired about their identification and selection of green electronics brands. Those who exhibited a solid understanding of the electronic brands in Pakistan and claimed to use one or the other green electronics, including, but not limited to, air-conditioners, televisions, laptops, washing machines, and refrigerators, were requested to participate in the survey. If selected respondents were reluctant to participate in the survey, the next possible respondents were approached. Also, strict adherence to COVID-19 precautionary measures was ensured while interacting with respondents. Consumers' imbalances in different

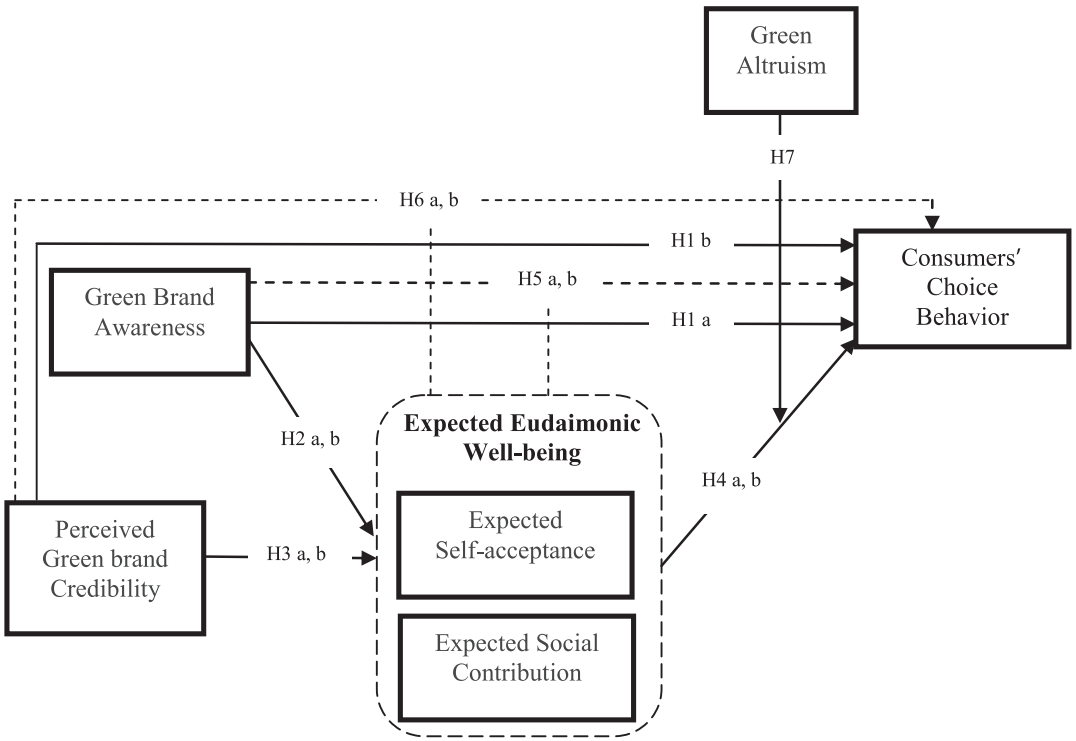


FIGURE 1 Theoretical framework of the study

markets and shopping malls were overcome; the number of respondents was chosen based on the size of the market and consumers' density. Also, based on the respondents' voluntary willingness to participate in the longitudinal survey, they were assured of the anonymity of their response, and the authors briefed them regarding the motivation behind conducting the survey. Further, participants were guided throughout the entire survey procedure, which included obtaining information at various times.

The data collection process started on July 10, 2020, by initially contacting the consumers at 02 shopping malls (The Giga Mall and The City Shopping Mall) and 04 markets (Commercial market, Saddar Market, Raja Bazar, and Qassim Market) in Rawalpindi and 03 shopping malls (The Centaurus Mall and The Safa Gold Mall) and 03 markets (Abpara Market, Jinnah Super Market, and F-10 Markaz) in Islamabad, following the procedure mentioned above. The authors' goal was to select 40 to 60 respondents based on the sizes of the markets and malls. Thus, all the qualified respondents' contact information was recorded and saved by the authors to contact them in a 6-month longitudinal survey, where they were supposed to be contacted for two different periods during the study. Further, the authors visited the selected locations multiple times until the authors achieved their goal of choosing a particular number of respondents from each area. Following this procedure, in 3 months, the authors successfully collected 940 responses from all the selected locations at the end of the Time 1 survey on October 10, 2020. This time 01 survey consisted of three parts, that is, (i) a note explaining the purpose of the survey and seeking the respondents' consent, (ii) items related to the respondents' demographic information, and (3) items of the four constructs including GBA, PGBC, consumers expected self-acceptance, and consumers' expected social contribution.

After 2 months of the Time 1 survey, the authors contacted all the respondents who participated in the Time 1 survey on December 10, 2020. They were requested to complete the remaining part of the survey comprising items of green altruism and consumers' choice behavior while buying green electronics. Upon initial contact, it was realized that 189 respondents were out of communication due to multiple reasons and 72 refused to participate in the survey based on personal issues. In the Time 2 survey, 679 respondents participated in a Google survey sent to them via email or WhatsApp as per their feasibility until March 10, 2021. Out of 679 questionnaires, the authors received 594 questionnaires back. All the responses were scrutinized further, and after careful screening, 21 questionnaires were found with unengaged patterns and 15 with missing values, which are excluded from further analysis. Therefore, the authors left with 556 useable paired questioners filled at Time 1 and Time 2 by the same respondents, generating a final response rate of 59.14%.

3.1 | Measures

The study adapted the following scales to measure its constructs. Keller (1993) and Yoo and Donthu (2001) scale was used to measure GBA. A three items scale of Ryff (1989) measured expected self-acceptance. Keyes (1998) three items scale measured expected social contribution. The six items scale of Erdem and Swait (2004) was utilized to measure green brand credibility. A four items scale by Ferguson et al. (2008) aimed to measure green altruism, which was later used by Ali et al. (2020). Lately, a four items scale of Lin and Huang (2012) measured consumers' choice behavior. All the responses were recorded as 1 (*strongly disagree*) to 7 (*strongly agree*).

3.2 | Demographic characteristics of the respondents

The respondents' demographic statistics showed that most respondents were males (62.5%) than females (37.5%). 15.5% of the respondents were in the age brackets of 20–30 years, 41.6% were 31–40 years old, 29.6% were 41–50 years old, and 13.3% were above 50 years of age. Furthermore, 23.2% of respondents were graduates, 47.3% had a master's degree, and 29.5% were highly qualified. Moreover, 14.7% of respondents were students, 30% were employees, 39.5% were self-employed, 12.4% were house ladies, and 3.1% were retired individuals.

4 | DATA ANALYSIS AND RESULTS

4.1 | Assessing the measurement model

This study used the SmartPLS software to perform structural equation modeling (SEM) analysis. PLS analysis revealed that education and occupation had a significant impact on the dependent variables. Thus, both of these demographic characteristics of the green consumers were controlled during further analysis. Moreover, tests of reliability and validity were performed to check the constructs' psychometric properties; "Cronbach's α" and "composite reliability" (CR) were calculated to assess the reliability of measures as per the directions provided by Henseler et al. (2009). Table 1 depicts the reliability of all the reflective calculations based on values of Cronbach's α (above 0.70) and CR. Additionally, the measures' "convergent and discriminant validity" was assessed. For all the indicator variables, factor loadings were in the range with a significant loading of each item ($p < 0.001$) onto its underlying variable, and "average variance extracted" (AVE) of latent variables was above 0.50 for all study constructs; therefore, "convergent validity" was established (Hair et al., 2010; Mansoor, 2021a) as depicted in Figure 2.

4.2 | Discriminant validity

The heterotrait–monotrait (HTMT) ratio was used to assess the constructs' discriminant validity (Henseler et al., 2015; Noor et al., 2021). Table 2 shows that all HTMT values were less than 0.9 for the whole model.

TABLE 1 Factor loadings, reliability, and validity

Constructs/items	Loading	AVE	CR	CA
Green brand awareness		0.615	0.889	0.809
GBA1: I can recognize green electronics brands among other competing brands because of their environmental commitments	0.818			
GBA2: I am aware of green electronics brands because of their environmental reputation	0.799			
GBA3: Some environmental characteristics of green electronics brands come to the top of mind in my consideration set quickly	0.779			
GBA4: I can quickly recall the green image of green electronics brands	0.719			
GBA5: I can easily figure out green electronics brand because of their environmental concern	0.803			
Perceived green brand credibility		0.589	0.896	0.816
PGBC1: The green electronics brand (I chose/buy) reminds me of someone who is competent and knows what he/she is doing	0.755			
PGBC2: The green electronics brand (I chose/buy) has the ability to deliver what it promises	0.791			
PGBC3: The green electronics brand (I chose/buy) delivers what it promises	0.817			
PGBC4: The green electronics brand's (I chose/buy) product claims are believable	0.767			
PGBC5: The green electronics brand (I chose/buy) has a name I can trust	0.773			
PGBC6: The green electronics brand (I chose/buy) does not pretend to be something it is not	0.696			
Expected self-acceptance		0.549	0.785	0.779
ESA1: I possess a positive attitude towards myself	0.792			
ESA2: I acknowledge and accept multiple aspects of myself, including good and bad qualities	0.705			
ESA3: I feel positive about my past life	0.724			
Expected social contribution		0.552	0.787	0.783
ESC1: I have something valuable to give to the world	0.798			
ESC2: My daily activities do not produce anything worthwhile for my community (R)	0.715			
ESC3: I have nothing important to contribute to society (R)	0.713			
Consumer choice behavior		0.611	0.862	0.801
CCB1: I make a special effort to buy green electronic products that are made from recycled materials	0.810			
CCB2: I have switched to conventional electronic products for ecological reasons	0.790			
CCB3: When I have a choice between two equal products, I purchase the one less harmful to other people and the environment	0.794			
CCB4: I have avoided buying a conventional electronic product because it had potentially harmful environmental effects	0.730			
Green altruism		0.598	0.856	0.791
GA1: By buying green electronics products, I would be fulfilling my duty to society	0.733			
GA2: By buying green electronics products, I would be doing something to help others	0.796			
GA3: By buying green electronics products, I would be saving someone's life	0.795			
GA4: I believe that the world would be a better place if everyone could buy green electronics products	0.768			

Abbreviations: AVE, average variance extracted; CA, Cronbach alpha; CR, composite reliability.

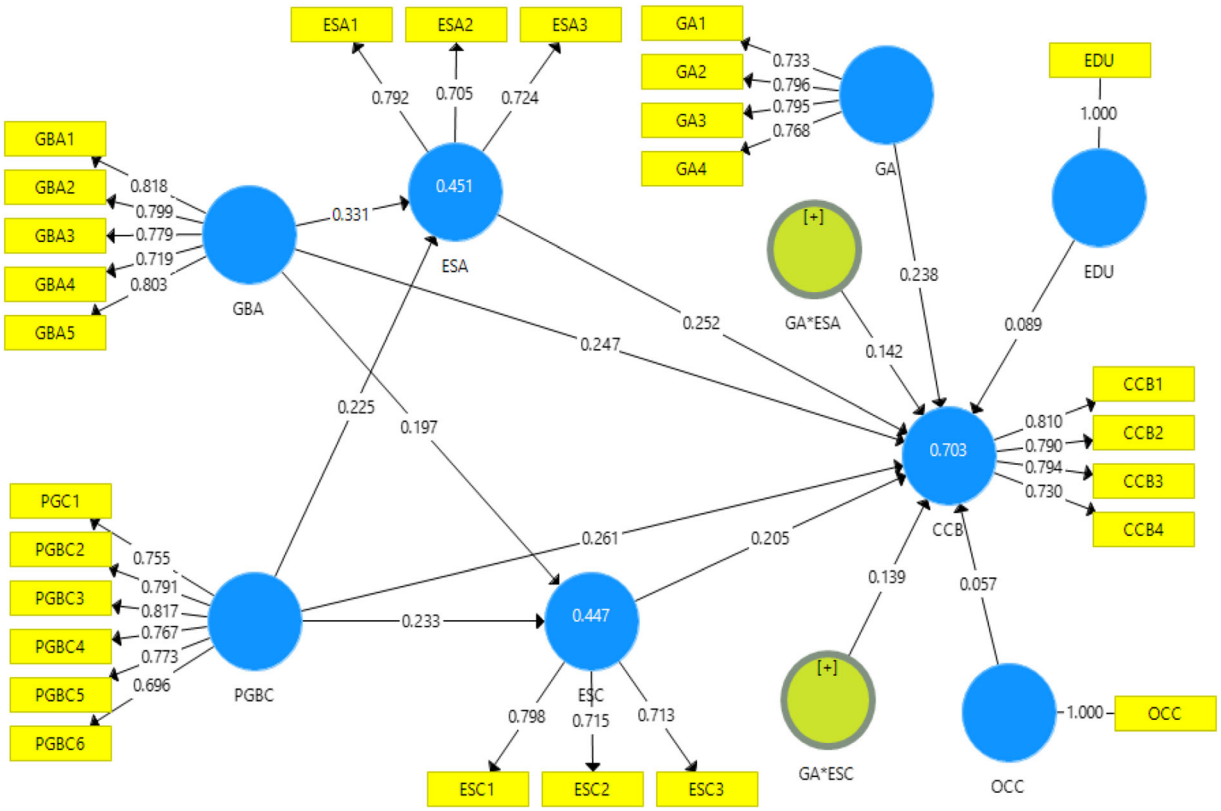


FIGURE 2 Full measurement model [Colour figure can be viewed at wileyonlinelibrary.com]

Constructs	Mean	STD.	1	2	3	4	5	6
GBA	6.01	0.62	**0.784**					
PGBC	5.94	0.83	0.479	**0.767**				
ESA	5.89	0.91	0.567	0.501	**0.740**			
ESC	6.10	0.57	0.478	0.426	0.462	**0.742**		
GA	6.07	0.59	0.399	0.418	0.411	0.509	**0.781**	
CCB	5.95	0.81	0.408	0.391	0.423	0.461	0.473	**0.773**

TABLE 2 Heterotrait–monotrait ratio

Note: The square roots of AVEs of the constructs are shown in bold in diagonal. where GBA, green brand awareness; PGBC, perceived green brand credibility; ESA, expected self-acceptance; ESC, expected social contribution; GA, green altruism; CCB, consumers' choice behavior.

4.3 | Assessment of the structural model

To test the proposed links via structural paths, the authors applied the bootstrapping technique using 5000 sub-samples. It is employed to assess the structural paths as a nonparametric procedure. It allows testing the statistical significance of various PLS-SEM results and uses the sample data to estimate relevant characteristics of the population (Hair et al., 2010). Moreover, the *ß* coefficient, *p* value, and *t* value were recorded to confirm the proposed associations. Simultaneously, to assess the theoretical framework's overall fitness, the coefficient of determination (R^2) was calculated.

4.3.1 | Direct hypothesis

H1a and H1b examine the association of GBA and PGBC with CCB for green electronics. Our findings, as shown in Table 3 suggest the positive and significant impacts of *GBA* ($ß = 0.247^{***}$, $t = 5.915$) and *PGBC* ($ß = 0.261^{***}$, $t = 6.317$) on *CCB* for green electronics. H2a and H2b examine the association of GBA with consumers ESA and ESC. Results show that a positive and significant association of *GBA* with *consumers ESA* ($ß = 0.331^{***}$, $t = 7.412$) and *ESC* ($ß = 0.197^{**}$, $t = 4.561$) was found. Likewise, results depicted the positive and significant association of *PGBC* with consumers *ESA* ($ß = 0.225^{***}$, $t = 5.163$) and *ESC* ($ß = 0.233^{***}$, $t = 5.524$) which is consistent with

TABLE 3 Hypothesis testing results

Hypotheses			Std. beta	*t* value	*p* values	Findings
H1	a	GBA → CCB	0.247	5.915	0.000	Supported
	b	PGBC → CCB	0.261	6.317	0.000	Supported
H2	a	GBA → ESA	0.331	7.412	0.000	Supported
	b	GBA → ESC	0.197	4.561	0.005	Supported
H3	a	PGBC → ESA	0.225	5.163	0.000	Supported
	b	PGBC → ESC	0.233	5.524	0.000	Supported
H4	a	ESA → CCB	0.252	6.161	0.000	Supported
	b	ESC → CCB	0.205	4.707	0.001	Supported
H5	a	GBA → ESA → CCB	0.211	4.993	0.000	Supported
	b	GBA → ESC → CCB	0.187	4.376	0.006	Supported
H6	a	PGBC → ESA → CCB	0.191	4.432	0.003	Supported
	b	PGBC → ESC → CCB	0.216	5.071	0.000	Supported
H7	a	GA*ESA → CCB	0.142	3.297	0.010	Supported
	b	GA*ESC → CCB	0.139	2.915	0.014	Supported

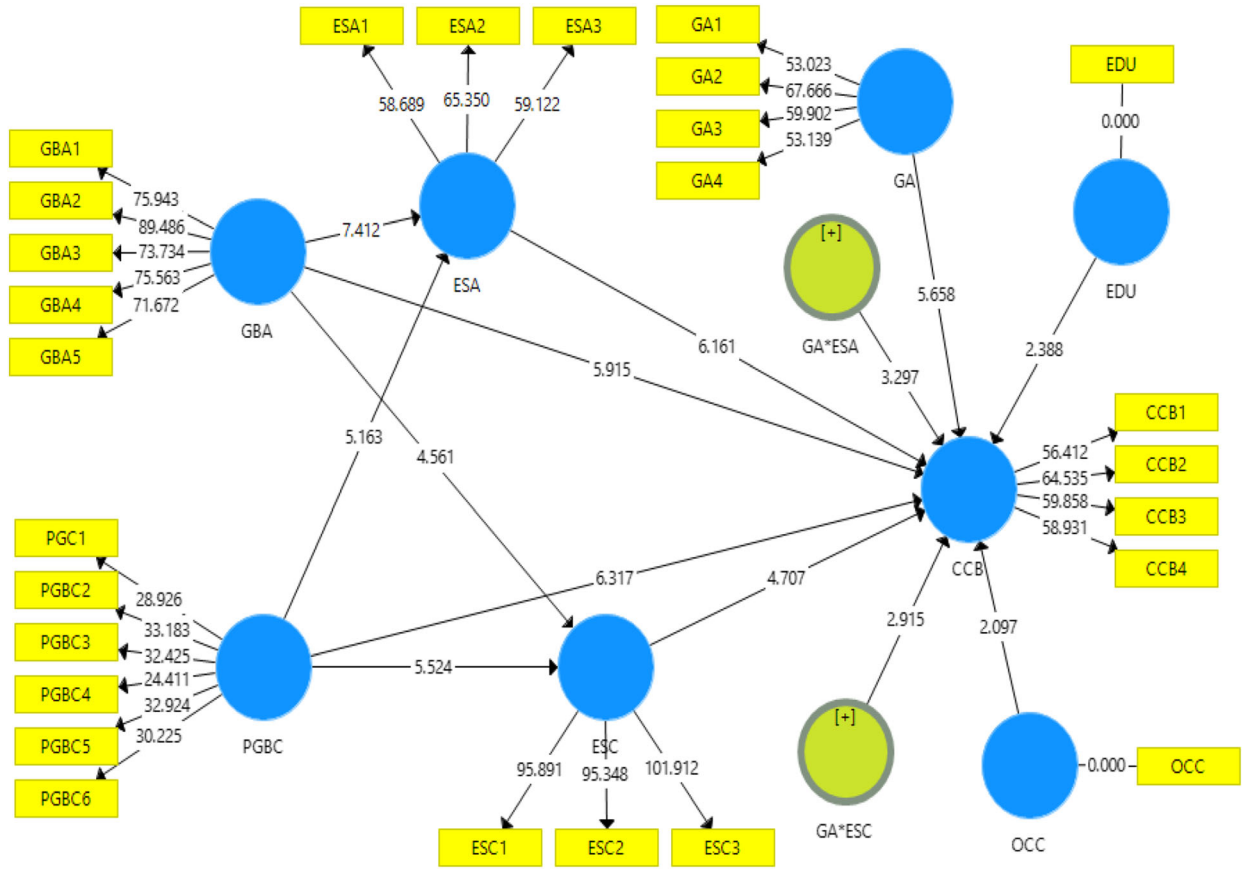


FIGURE 3 Full structural model [Colour figure can be viewed at wileyonlinelibrary.com]

H3a and H3b. Moreover, consumers *ESA* ($ß = 0.252^{***}$, $t = 6.161$) and *ESC* ($ß = 0.205^{**}$, $t = 4.707$) were found to be positively related with *CCB*. Hence, hypotheses H4a and H4b suggesting the positive association between *ESA* and *ESC* with *CCB* for buying green electronics were also supported by the study's results.

4.3.2 | Mediation hypothesis

The mediation hypotheses H5a and H5b and H6a and H6b was also supported by the study's results (see Table 3). An indirect and positive effect of *GBA* on *consumers' choice behavior CCB* was found in the

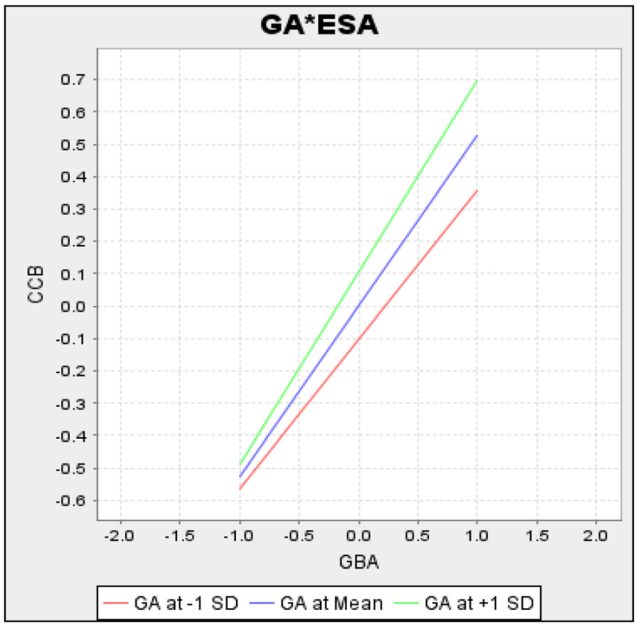


FIGURE 4 Interaction plots for the interactive effect of green altruism and expected self-acceptance [Colour figure can be viewed at wileyonlinelibrary.com]

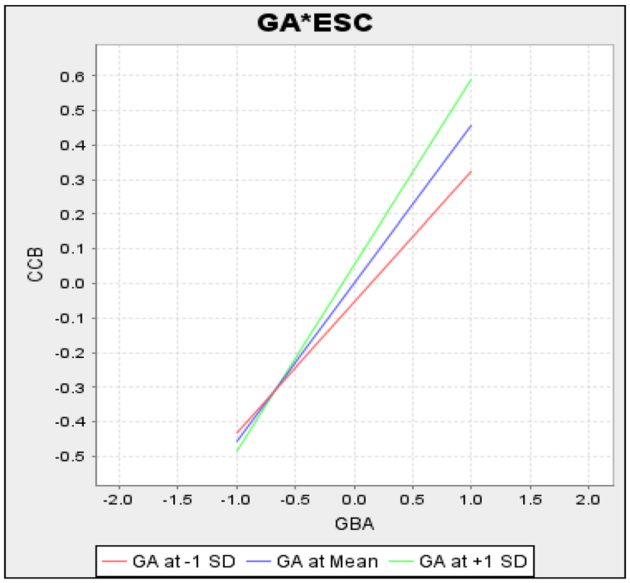


FIGURE 5 Interaction plots for the interactive effect of green altruism and expected social contribution [Colour figure can be viewed at wileyonlinelibrary.com]

presence of *ESA* ($\beta = 0.211^{***}$, $t = 4.993$) and *ESC* ($\beta = 0.187^{**}$, $t = 4.376$) as mediators. Similarly, an indirect and positive effect of PGBC on *CCB* was found in the presence of *ESA* ($\beta = 0.191^{**}$, $t = 4.432$) and *ESC* ($\beta = 0.216^{***}$, $t = 5.071$) as mediators. The significance levels are depicted in Figure 3. Results showed that the non-zero value for the lower and upper limit confidence interval supported the hypothesized path's significance level.

4.3.3 | Moderating hypotheses

To assess the interactive effect of constructs in PLS-SEM, interaction terms between the moderator, *GA*, and mediator variables, *ESA* and *ESC* were made applying the product indicator approach (Chin et al., 2003; Mansoor, 2021b) to investigate its impact on *CCB* for buying green electronics. As shown in Table 3, the results depict a positive and significant effect of the interaction term, *GA* ESA* and *GA* ESC*, on *CCB*. Moreover, the R^2 change due to the moderation effect was also examined. The R^2 for the main effect of predictors and mediating variables on *CCB* was $R^2 = 0.512$, whereas its R^2 with the moderating effect of *GA* increased to $R^2 = 0.703$. The R^2 change suggested that the interaction term's inclusion enhanced the explanatory power of *CCB* by 19.1%. Moreover, these associations of moderator and dependent variables have been explained through plotted moderation graphs.

Figure 4 shows a steeper gradient for higher-level green altruism than the lower level of green altruism for the association of the consumers' expected self-acceptance with their choice behavior to buy green electronics. It represents that those who are conscious about their self-image and feel a strong tendency to associate themselves with environmental-friendly brands are more inclined to choose green electronics. Thus, hypothesis 7a was proved by the results.

Figure 5 shows the higher-level *green altruism* with a steeper gradient than the lowest level of *green altruism* for the association of the *consumers' expected social contribution* with their *choice behavior* for buying green electronics. It represents that those consumers who are kind to others and the environment and perceive themselves as responsible towards their society depict an enhanced choice behavior for green electronics. This shows that self-driven motivations are essential to shaping up the consumers' choice behavior or green electronics. Thus, H7b was proved by the results.

5 | DISCUSSION, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS

Environmental issues and resource deterioration have been among the major concerns of practitioners and researchers (Kumar et al., 2021). For the last two decades, environmentalists, governments, and non-profit organizations have shown concerns regarding resource depletion due to excessive consumption and waste by humans (Ponomarenko et al., 2021; Wang et al., 2019). Hence, they emphasize creating more sustainable and environmentally friendly products that are less harmful to the ecosystem (Chaudhary, 2018). In this regard, the current study examines the factors and underlying mechanisms that affect the consumers' choice behavior to buy green electronics in Pakistan. GBA and credibility play a critical role in consumers' decision-making processes, and scholars reported them as predictors of green buying intentions and green brand evaluation (Kumar et al., 2021; Suki, 2016). This study is incremental in determining their impact on consumers' choice behavior for green electronics

and suggesting the underlying mechanism of EEWB (expected self-acceptance and expected social contribution). Besides, previous studies have focused on values and actions that lead to adopting green buying behavior, primarily utilizing reasoned action and planned behavior theories (Choi & Johnson, 2019; Khare, 2015). In contrast, this study focused on utilizing the behavioral reasoning theory to explain the reasons consumers attached for choosing green brands.

The study results depict the positive and significant impact of GBA on the consumers' choice behavior for buying green electronics. These findings support and extend the previous studies' results, which have found that GBA results in green purchase intentions (Suki, 2016) and willingness to purchase green products (Barber et al., 2009). The results further indicate that when consumers are more aware of green brands, they tend to choose greener brands based on their environmental values. This corroborates with Padel and Foster (2005) who show that consumers who have less knowledge about green brands are less willing to behave in a pro-environmental manner. Besides, PGBC has also positively influenced the consumers' choice of buying green electronics. These results are in line with the (Kumar et al., 2021) findings in suggesting the impact of the green brand credibility on green brand evaluation in the form of their likelihood to purchase the green products. It reflects that when consumers do not perceive the green brands as credible, they will feel reluctant to buy such brands.

Moreover, results also revealed the positive impact of GBA and PGBC on expected self-acceptance and expected social contribution. These results regarding GBA are supported by the findings of Chen and Chang (2012), who linked GBA with consumers' positive self-image and social concerns while behaving in a pro-environmental manner. Likewise, Heo and Muralidharan (2019) support the view that GBA helps consumers to derive more meanings about their green consumptions, thinking of their positive self-image (i.e., ESA) and depicting their positive sense of contributing to society (i.e., ESC). Moreover, the current study explored the positive impact of PGBC on consumers' ESA and ESC. It is based on the understanding that once the consumers consider the green brand and the features associated with that brand as credible, they urge to associate themselves with it to reflect their positive self-image and feel happy to consider their social contribution in consuming such brands that are environmentally friendly. Moreover, the results are supported by BRT (Westaby, 2005), which suggests that consumers' perception of green brand credibility and awareness of the green brand serves as a reason to influence their attitudes (expected self-acceptance) and subjective norms (expected social contribution) to behave in an eco-friendly way.

Results also revealed a positive association of expected self-acceptance and expected social contribution with consumers' choice behavior to buy green electronics supported by the prior research. For instance, Policarpo and Aguiar (2020) demonstrated the importance of individuals' inner and social selves to purchase greener products. Likewise, Bianchi et al. (2020) depicted the significance of environmental and social values of the green consumers while selecting the green brands. This shows that consumers who are more conscious of their self-association (psychological well-being) and are more caring towards their society (social well-being), based on their moral outlook towards their environment, always try to choose greener brands over traditional ones. Regarding the mediatory role of eudaimonic well-being (ESA and ESC), results revealed that the association of GBA and perceived green credibility with consumers' choice behavior was fully mediated by consumers' ESA and ESC. These findings are backed by the results of Huang et al. (2014), who suggested that attitudes and subjective norms mediate the association of GBA. Likewise, in the current study, expected self-acceptance is regarded as the consumers' attitude, whereas expected social contributions are considered the consumers' social norms, both of which trigger them to choose greener brands.

These results further enrich prior research findings that advocate the association of subjective well-being with green consumption behaviors (Xiao & Li, 2011; Yamaguchi et al., 2016). Regarding psychological and social well-being, it can be stated that while choosing a green brand, positive emotions emerge in consumers. It further explains that they are doing something good for the society within their self-efficacy, considering it a positive self-image (i.e., ESA) and social contribution (i.e., ESC). Finally, this study also found that green altruism moderates the association of ESA and ESC with consumers' choice behavior. Previously, altruism has been studied as a moderator to augment the impact of community trust on individuals' knowledge-sharing intentions (Chen et al., 2014). In contrast, the current study is a valuable addition to the green brands' collection of literature in that it examines the coupled effect of green altruism on the consumers' psychological and social well-being to positively augment their choice behavior for buying green brands. Thus, it could be helpful for the brands to attach emotional and valuable traits with their products to attract the selfless nature of the consumers to buy such brands, which are least harmful to the environment.

5.1 | Theoretical implications

The study contributes to the literature in many ways. The first is applying behavioral reasoning theory (Westaby, 2005) to explain consumers' choice behavior, whereas previous studies have mainly utilized theories relating to behavioral intentions for both sustainable and green products (Choi & Johnson, 2019; Kim & Hwang, 2020). Moreover, the current study not only contributes to the literature by testing the direct impact of consumers' GBA and PGBC on their choice behavior. However, it also empirically investigated the impact of eudaimonic well-being, as psychological (i.e., ESA) and social (i.e., ESC) well-being on consumers' choice behavior while buying green electronics. This further illustrates the importance of consumers' internal state of self-satisfaction and desire to be socially beneficial to others without material gains. This will open new horizons in sustainability research while giving more value to the positive emotions and attitudes of the individuals for collective social gains. Moreover, the current study is a valuable addition in the body of literature

by introducing the underlying mechanisms of expected self-acceptance and expected social contribution, which addresses the awareness-attitude-behavior gap in the context of sustainable behaviors and well-being. Finally, the interactive effect of green altruism with consumers' ESA and ESC on boosting their choice behavior for green electronics had been explored in the current study. Previously, studies examined the impact of green altruism on consumers' buying intentions (Panda et al., 2020) and recycling behaviors (Chao et al., 2021), but its coupled effect with psychological and social contracts to enhances consumers' selection of green brands has been ignored; therefore, the current study empirically tested and proved this concept. This reflects that when consumers' tendency to care about the environment (green altruism) interacts with their self-efficacy (i.e., ESA) and social responsiveness (i.e., ESC), it makes them more inclined to choose for green electronics.

5.2 | Practical implications

The current study offers multiple implications for practitioners, managers, and policymakers. First, the present study verified that a higher level of GBA positively impacts the consumers' choice behavior for buying green electronics. Thus, the organizations that want their consumers to select green brands over traditional ones must pay attention to increasing consumers' GBA through multiple ways, that is, via green awareness campaigns, organizing various events regarding green brand features, and providing usage guidelines. Likewise, the positive association of green brand credibility with consumers' choice behavior suggests that organizations can productively invest their resources in green communication. They can use green packaging with detailed descriptions, sustainability reports, and eco-labeling, thus facilitating consumers' understanding of such brands. Scholars also reported that these approaches could enhance the consumers' trust in the environmental comments of the brands (Rokka & Uusitalo, 2008; Walter & Chang, 2017), thus making them more credible. Moreover, the study's results depict that consumers of Pakistan choose green electronics, reflecting their responsibility and obligation to protect their society from the harmful and damaging effects of conventional electronic products on the environment. Although previous studies depicted that subjective well-being (hedonic) predicts the green brand intentions (Suki, 2016) and behaviors (Ismael & Ploeger, 2020) of the consumers. However, the current study's findings also show that organizations can focus on the consumers' perceptions of self-responsiveness and social responsibility to enhance their positive behaviors to choose green brands. In this regard, advertising campaigns must focus on the green benefits of the brands. For instance, in the context of green electronics, low electric power consumption with single electron transmission and recyclable nature can be highlighted to attract green consumers. Moreover, the significant results of the moderating role of green altruism reflect that consumers who feel responsible for their actions and buying choices and their impacts on society tend to choose more green brands. Thus, marketers can stimulate consumers to choose green electronics by creating more awareness among consumers regarding the positive features of such products and assuring them of the credibility of their brands. Finally, governments and environmental protection agencies must highlight the adverse outcomes of conventional products to discourage consumers from buying such products. In the case of Pakistan, the Pakistan Environmental Protection Agency is an attached Ministry of Climate Change department and is responsible for implementing the Environmental Protection Act, 1997, which support sustainable development in Pakistan; however, the implementation of required regulations regarding electric/electronic waste is still insufficient (Danish et al., 2019). Therefore, to overcome e-waste in Pakistan and other emerging economies, it is mandatory to devise and implement the laws and regulations. Also, strict adherence to the procedures is mandatory and must be ensured by law enforcement agencies for developing a sustainable society.

5.3 | Limitations and future research directions

Along with many strengths, there are few limitations that future researchers can address. This study primarily focused on consumers' choice behavior in an Asian developing nation that generates e-waste, and a large quantity of e-waste is imported to this nation every year from various developed countries (Iqbal et al., 2015). Therefore, urban consumers are relatively aware of the consequences of e-waste and the environmental effects of conventional electronics due to increased discussions on the topic in recent years (Sajid et al., 2019). In contrast, future studies can be conducted in other developed and developing countries with a specific focus on low-income consumers constituting a significant portion of the world's population. Further, the current study only focused on electronic brands. Future research can conversely examine the impact of consumers' eudaimonic well-being on their choice behaviors while buying and consuming other brand categories, such as skincare products, apparel, and food items, to increase the generalizability of the results. Additionally, the current study sample is based on consumers who are well aware of environmental issues. To broaden the scope, future cross comparative research can be conducted among green and non-green consumers to help various brands to extend their brand appeals to diversified segments. Moreover, the impact of eco-label credibility as well as consumers' egoistic and biospheric values on their choice behaviors can be studied in the future. Finally, the current study considered the moderating role of green altruism, whereas, in the future, the moderating role of negative variables such as green consumer skepticism can be studied to gauge the extent to which it hinders the GBA to generate the consumers' self-responsibility towards their environment and prevents them from behaving in a socially responsible manner.

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