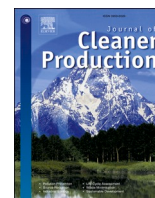




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Determinants of CSR and green purchase intention: Mediating role of customer green psychology during COVID-19 pandemic

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ABSTRACT

COVID-19 is a viral disease also comprehended as a coronavirus pandemic that has compelled the world to revisit business strategies to encounter COVID-19 challenges. Over the last decade, ample research has been accomplished on corporate social responsibility (CSR) and circular economy. Nevertheless, a key research gap requires to be filled that how CSR can perform a foremost role in engaging stakeholders like consumers during the COVID-19 era. Drawing from the stakeholder theory, this research endeavors to probe CSR's impact on green purchase intention (GPI) with mediating role of green psychology (GP). Data for the study were gathered from mainland China employing convenience sampling and examined by utilizing SEM (Structural Equation Model). First, the study indicated a direct relationship between CSR and GPI as well as between CSR and GP within three streams, i. e., green trust (GT), green satisfaction (GS), and green perceived value (GPV). It is found that GT, GS, and GPV positively influence GPI whereas the positive mediating relationships of each GP factor were autonomously observed between CSR and GPI, respectively. This research can improve the understanding of the enterprises about consumers and how incorporating green activities may enhance consumers' GPI and GP during the COVID-19 pandemic. This study addresses numerous interesting and insightful implications for strategic management together with certain possibilities for prospective researchers.

1. Introduction

COVID-19 is a global pandemic that has affected several humans' lives and imposed severe restrictions on daily and business life. It has affected almost every business in the world either SMEs or large-sized enterprises. On March 2020, WHO (World Health Organization) reported COVID-19 as a highly contagious viral disease that has become a global phenomenon. There are several other challenges or uncertainties that are being faced by the organizations in the way of achieving the level of sustainability such as pandemics like COVID-19 (Waheed et al., 2022), environmental (Arrive and Feng, 2018), or pollution-related issues (Yao et al., 2022). A business's sustainability is demarcated as the

process by which organizations manage financial risks, social, and environmental by understanding their opportunities and obligations to adhere to sustainable development during uncertain times (Pajuelo Moreno and Duarte-Atoche, 2019). Firms must understand the stakeholder's situation during uncertain circumstances such as COVID-19. It is worth noting to disclose the importance of CSR in terms of green purchase intention (GPI), and green psychology (Wang, Zhang, & Zhang) of the consumers during the era of COVID-19.

Green purchase intention (GPI) is defined by the experts as the desire or consumers' intention to find a product where organizations follow environment-friendly manufacturing operations by overriding the impact of distinct environmental factors (Nur et al., 2021). CSR is a type

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of worldwide self-regulation that seeks to participate in societal aims of a philanthropic, activist, and generous nature by engaging or advocating ethical as well as volunteer practices (Kotler and Lee, 2008; Sheehy, 2015). Moreover, CSR is defined by different scholars of the world in various ways whereas a common definition of CSR is known as the social responsibility of the corporates to well align its different stakeholders such as internal as well as external stakeholders (Waheed and Zhang, 2020; Wan-Jan, 2006). Green psychology in consumers' perspective is defined as green thinking such as attitude, perceptions, or emotions of the consumers that eventually empower their decision before making a purchase decision (Ahmad and Zhang, 2020; Metzner, 1999).

The response of consumers regarding products, services, and actions shows the success for consumer organization which is also transforming particularly in young consumers from traditional modes to emerging ways of preferences (Cham et al., 2021a). Nowadays, CSR is a dominant research topic in consumer behavior literature (Kraus et al., 2021). Scholars have been attempting to acquire insights into CSR and associated management in many extents and circumstances since the 1950s. Nevertheless, more investigation on this topic is required, predominantly in evolving nations (De Bakker et al., 2005; Waheed et al., 2020a). CSR is regarded as a wide-ranging domain and defined by the extent to which issues relating to corporate governance, legal compliance, community, workforce rights, environmental suitability, philanthropy, market relations, and remainder welfare practices (Pfajfar et al., 2022). Organizations should take care of society which is a key part of CSR where certain authorities can perform their role to shape a better society by providing different safety rules and regulations for the individuals or stakeholders (Chen et al., 2021). CSR has been accredited as an organization's self-regulation to carry out daily business activities following the objective of obtaining sustainability in business procedures (Siltaloppi et al., 2021; Waheed and Yang, 2019).

Furthermore, CSR has evolved to include sustainability and environmental concerns while bringing it nearer to the approach of circular economy (CE). Kirchherr et al. (2017) compiled 114 definitions of CE and classified them into 17 proportions. CE is described as a mixture of reuse, recycle, or reuse practices and is overlooked (Kirchherr et al., 2017). This systemic change implies the shift from a linear economy to a circular economy (Sharma et al., 2021a), which can reduce the need for raw resources and make room for product reuse and recycling models (Kuo and Chang, 2021). This is an effective opportunity to address future economic and employment challenges (Ghisellini et al., 2016). Agenda 2030 is an action plan that addresses planet, prosperity, and the people, on responsible consumption and production, and emphasizes the importance of transitioning to circular economy by effectual use of the resources and implementation of an innovative and new economics model. The circular economy concept is rapidly spreading by encompassing new concerns such as political strategy and economic growth for the expansion and execution of new business models (Morea et al., 2021). Some authors have recently combined the notions of CSR and circular economy. Circular economy derives from the key practices and values of CSR and is brought into practice, both contributing to achieve sustainable behavior and sustainable development goals at large, for citizens, corporations, and institutions (Van Langen et al., 2021).

As asserted by the stakeholder theory, customers are the major stakeholders of an organization, the major foundation of an organization's earnings, and the main driver of firm development (Freeman, 1984). Customers are becoming more concerned about a firm's CSR activities since they have become more attentive to observing the outcomes of a firm's processes and observing its influence on society and the environment, particularly with regard to pollution, workers' status, product quality, and waste management (Muttakin and Khan, 2014). Firms are increasingly engaged in CSR activities in numerous countries, including China since CSR practices play a vital role in persuading customers to purchase products/services from companies that have a strong sense of being socially responsible. Chinese economy is majorly based on the manufacturing sector (Lyu et al., 2018). Several previous

studies on various areas of CSR have been conducted in China (Lyu et al., 2018; Thøgersen and Ölander, 2003), and they have generally suggested that enterprises using CSR methods can better create and sustain long-term customer connections (Choi and Zhang, 2011; Han and Stoel, 2017; Lyu et al., 2018).

Green consumption allows customers to protect themselves from the catastrophic effects of global warming (Suki and Suki, 2019). Many people favor green products and perceive them as an effective method to safeguard the environment (Juvan and Dolnicar, 2017). Green products that were formerly thought to be basic and inexpensive organic commodities have now become a symbol of both status and luxury. Companies have been driven to create and implement green strategies to achieve the confidence of the market individuals since experts advocated that obtaining an individual's confidence has a great significance (Gao et al., 2021; Waheed et al., 2022). Green product usage has arisen as a key theme in academic and policy conversations about the ecological implications of consumption (Souri et al., 2018). Nowadays, Chinese organizations place a high priority on overcoming the COVID-19 challenge, while organizations rethink how to cope with such issues and protect stakeholders' loyalty toward companies during the COVID-19 era. This study aims to achieve specific goals by contributing to the literature by providing multidimensional insights and a relationship between CSR, customer green psychology, and green purchasing intention from China.

First, the objective of this study is to explore a direct relationship between CSR and consumer green purchase intention (GPI) within the Chinese market. Second, the goal is to examine a direct relationship between CSR and consumer green psychology considering three key dimensions of GP, i.e., green trust, green satisfaction, and green perceived value (GPV). Third, the aim is to uncover the mediating influence of each GP factor autonomously between the relationships of CSR and GPI, respectively. The remainder parts of the study are outlined below. The study's context and literature review are explained first immediately after this section. Next section includes the sample procedure, analytical tools, measurements, and remaining procedures. The next part is based on the findings and outcomes during COVID-19 era. Finally, discussion, consequences, inadequacies, future directions, and concluding lines are reported.

2. Theoretical framework and hypothesis development

2.1. Green purchase intention

By traversing the purchasing process, studies have revealed that purchase intention is a foundation that supports the purchasing behavior of an individual (Prentice et al., 2019). There are certain elements such as beliefs, needs, values, motivation, knowledge, demography, and attitudes that are critical when assessing consumers' green intention (Choi and Johnson, 2019). While making a purchasing choice, an individual's propensity and aspiration to prefer eco-friendly items over non-eco-friendly products is theorized (Spielmann, 2020). During the evaluation process, customers recognize their need for a product which affects their purchasing decisions (Sullivan and Kim, 2018). The key to anticipating customer behavior is to know what they want to buy (Ahmed and Zhang, 2020). In most cases, the measure of purchase intent is employed as a proxy for the real purchase activity (Hu et al., 2016). Though buying intention has been researched in various settings (Sharma et al., 2021b), no known study on CSR and GPI has been carried out.

GPI is gaining wider interest from various worldly scholars since consumers have become more mindful to obtain the products manufactured under green operations or environment-friendly production processes (Biswas and Roy, 2015; Lakatos et al., 2021). It is the time to engage consumers as they want to be engaged consequently firms need to revise strategies to better align consumers' interests along with organizational interests (Lakatos et al., 2021). Although the literature is

witnessed about the studies on GPI over the previous decades most works considered GPI other than CSR perspective and other than Chinese market (Costa, da Costa et al., 2021; Lakatos et al., 2021). A study of Costa et al. (2021) recently examined the distinct antecedents of consumer in terms of GPI. Another study of Waheed et al. (2020b) revealed that consumers are more conscious of organizational products and prefer to buy those products that were manufactured under green operations. According to Han et al. (2022), a positive linkage is found between confidence of the consumers and GPI. Likewise, many other experts have worked on green purchase attention within diverse domains and themes globally (Hou and Sarigöllü, 2022; Mehraj and Qureshi, 2022).

2.2. Corporate social responsibility and circular economy (CE)

Indeed, the concept of CSR and CE both reside under the same umbrella in which firms attempt to achieve a level of sustainability (Ghisellini et al., 2021). CE is widely defined as the model of consumption and production that consists of sharing, leasing, refurbishing, reusing, recycling, and repairing existing material of product as long as possible for the organizations (Kirchherr et al., 2017). In this scenario, different studies have attempted to conceptually identify the association among basic concepts and how companies can integrate their CE model into CSR practices. According to the above research, these two concepts can be considered complementary in order to obtain sustainable development. To bring the most fundamental principles of CSR into practice, the circular economy model is required (Leandro & Paixao, 2018). Circular economy is not only concerned with the economic aspects of businesses but environmental sustainability as well (Kirchherr et al., 2017). The advanced research on CE attempts to determine how the various studies on sustainability and responsibility are enclosed in a CE perspective. Undeniably, previous CE research has primarily concentrated on the environmental aspect, while the economic dimension (Kirchherr et al., 2017; Edziah et al., 2022). The recent studies have attempted to incorporate more social and economic features that are consistent with the CE definition itself. The connection between economy and environment is strongly found in the CE model where environment contributes to economic activities as a resource supplier, waste assimilator, and source of utility (Sun et al., 2020, 2021). The closer relationship with sustainability demonstrates how the CE can provide practical solutions by applying sustainability principles.

The stakeholder theory advocates practical, ethical, and successful approaches to structuring and handling organizational affairs in a variety of situations (Harrison et al., 2015). From a global viewpoint, such theory contributes to the understanding of economic and societal concerns by supporting businesses in making strategic decisions (Clarkson, 1995; Harrison et al., 2015). Such theories encourage academicians to carry out more studies to better comprehend the intuitions of CSR in various scopes and settings (Arrive and Feng, 2018). Stakeholder theory supports doing additional studies, particularly in the international setting as CSR is recognized as a significant phenomenon globally (Harrison et al., 2015; Russo and Perrini, 2010). Stakeholder theory is a well-known theory widely explored in CSR research by many specialists from various countries (Waheed et al., 2020b).

Owing to an expanding interest in sustainability, CSR, and other aspects, an increasing number of organizations have understood the potential of incorporating green components into several commercial tasks. Consequently, the green marketing notion is believed to have developed from societal marketing (Wang et al., 2020). Green marketing is recognized as the holistic managerial approach to anticipate, identify, and satisfy the customers as well as society need or requirement to

obtain the level of sustainability (Li et al., 2021; Peattie, 1995). It is a marketing approach that might assist fascinating environment-oriented clients as well as a constituent of CSR, which incorporates triple bottom line accounting into consideration allowing corporations to contribute to the three facets of sustainability at the same time, i.e., environmental quality, economic prosperity, and social equity (Cheung et al., 2015; Choudhary and Gokarn, 2013).

In the past, most studies on CSR have covered a wide range of topics, but they are still changing. Firms prioritize practices and adopt policies aimed at improving the environment, ecosystems, society, and a variety of other factors (Berger and Corbin, 1992; Bombiak and Marciniuk-Kluska, 2018; Dangelico et al., 2017). The impact of CSR on customers got significantly less attention. Many researchers endeavor to explore a considerable positive association between customers' purchase intentions and firms that incorporate CSR (Bianchi et al., 2019). Furthermore, Fischbein and Ajzen (1975) theory of planned behavior, theory of reasoned actions, argue that comprehending the conditions of human conduct in extents terms of diverse elements may be crucial for organizations. Some recent studies have shown the relationships between CSR and consumers by taking consumers as important stakeholders (Al-Haddad et al., 2022; Rynerzewska and Hetrick, 2022; Waheed et al., 2020a; Waheed et al., 2020b). A recent study of Rynerzewska and Hetrick (2022) examined the connection between CSR and consumer boycotts. A study of Zarei and Mirzaei (2022) attempted to uncover the relationships of CSR with respect to consumers' green perception. A recent study revealed the relationships of CSR in terms of consumer GPI (Al-Haddad et al., 2022). A well-known study of Wu and Zhu (2021) researched the area of customers' behavioral intention as well as customers' identifications during the era of COVID-19.

Since the adoption of green practices has been recognized as a primary determinant of economic benefit, the area of CSR has recently attracted the undivided attention of specialists to approve the outcomes and ensure relevance across the countries (Le et al., 2021; Vogel, 1986; Waheed and Yang, 2019). CSR has been identified as a critical driver of organizational success, including social, environmental, financial, sales, and overall performance, according to academics (Beck et al., 2018; Mutuc and Cabrilo, 2022). Furthermore, throughout the previous decade, several researchers explored the CSR role in unlike domain of consumers (Fatma and Khan, 2022; Raza et al., 2020; Xie et al., 2019). It's worth noting that most previous research was done in developed countries, however, experts have stated that more empirical work is vital to demonstrate the significance of CSR in underdeveloped countries (ElAlfy et al., 2020; Gharleghi et al., 2018; Lund-Thomsen et al., 2016). Similarly, most research on CSR looked at several elements of customers to evaluate the effect of CSR policies on their attitudes, preferences, and buying behavior (Jeon et al., 2020; Kraus et al., 2021; Sharma et al., 2018).

Researchers have identified various elements that influence how CSR is perceived and implemented, including the degree of alignment between business and corporate culture as well as societal needs (González-Rodríguez et al., 2019). It has been proposed that CSR efforts influence customer views of the quality of a firm's offerings (Ahmad and Zhang, 2020). Furthermore, CSR is thought to provide customer value at numerous points of the purchasing procedure along with the pre-purchase phase (Ijabadeniyi and Govender, 2019). Researchers, conversely, have shown a favorable link between perceived value and purchase intent (Gan and Wang, 2017). CSR activities are defined as proof of pro-social and pro-eco-friendly business undertakings that attempt to increase the well-being of society as a whole while safeguarding the company's interests, and so CSR operations are designed to foster consumer confidence (Kim, 2019). CSR and trust have also been

linked in previous studies (Chuah et al., 2020; Park et al., 2017).

Initially proposed by Tajfel (1974), the social identity theory helps explain the impact of CSR on consumer happiness. According to Tajfel (1974), people identify with their social groups, and they experience, self-differentiation, superiority, and pride when their groups receive good feedback or make notable achievements. People grow content with their groupings as a result. As a result, customers are more likely to support and identify those organizations that engage CSR practices and express care for the public and deliver services to it. As a result of consumers' good impressions and psychological belonging to such businesses, the levels of customer satisfaction are more likely to improve (Chang and Yeh, 2017; Islam et al., 2021). Furthermore, CSR has an impact on customers' impressions of businesses and their desire to support them (Amatulli et al., 2018; Walker and Kent, 2009).

Additionally, researchers have urged that more research might be done on CSR in many dimensions and circumstances in order to better comprehend the influence of such actions on corporate success across countries (Malik et al., 2020; Úbeda-García et al., 2021). The stakeholder theory also motivated scholars to do additional studies to better comprehend CSR's insights (Harrison et al., 2015). The philosophy of stakeholder theory advocates that research be broadened by allowing scholars to study in a vibrant, practical, and more ethical-oriented way while working in challenging environments (De Gooyert et al., 2017; Freeman, 2010). As per White and Alkandari (2019), understanding the value of CSR toward foreign countries is crucial. Furthermore, Siltaloppi et al. (2021) and Waheed et al. (2020b) claimed further research might be done to confirm the findings and relevance of CSR activities in other viewpoints and situations throughout the world, especially during the era of COVID-19. Furthermore, research on CSR during the COVID-19 period is gaining paramount attention worldwide. From the perspective of consumers, how organizations can win over stakeholders during this difficult time such as during COVID-19 might be another interesting contribution. As a result, grounded on the debate above, the following four hypotheses are being proposed as below.

- H1. CSR has an influence on GT.
- H2. CSR has an influence on GS.
- H3. CSR has an influence on GPV.
- H4. CSR has an influence on GPI.

2.3. Green trust

The variable "trust" indicates the quality of linkage between individuals (Mayer et al., 1995) and is a crucial element for maintaining long-term relationships (Dwyer et al., 1987). As suggested by Rousseau et al. (1998), trust has two key essential characteristics such as trust and the willingness toward another individual or party. According to Wang et al. (2018) and Hang et al. (2022), green trust is the level of customers' dependence on a specific entity. It is based on beliefs derived from benevolence, reputation, and eco-friendly functioning. It forms the basis for guiding consumers to review the producer's environmental sustainability statement. It is conceived that if the consumers have a strong faith in firms' asserting that their products are environmentally friendly, they will definitely evaluate eco-friendly goods better and demonstrate a significantly progressive attitude toward those green products (Wei et al., 2017). Conversely, it is also presumed that customers have low confidence in green products which will lead to negative consumer perceptions of green products. A study shows that if companies exaggerate the eco-friendliness of their products, trust will also be decreased (Akbar et al., 2014). These trusting beliefs increase consumers'

confidence in the user-generated content on green futures, lessen the risk of negative exchange effects, and hence upsurge their GPI (Amin and Tarun, 2020). Customers choose whether to interact with suppliers on the platform by assessing their goodwill and reliability. Credibility includes honesty and the platform's ability to provide promised results, which upsurges inclinations to purchase on the platform (Wong and Haque, 2021). Joshi and Rahman (2015) showed that consumers who trust suppliers are more inclined to buy on these platforms. Ahmed and Zhang (2020) and Roh et al. (2022) also indicated that green trust significantly influenced GPI. Therefore, based on the above-precised discussion and encouragement, we currently assume the following hypothesis.

- H5. Green trust is positively correlated with GPI.

2.4. Green customer satisfaction

Consumers are a company's major stakeholders and the primary source of revenue whereby fulfilling their demands allows a company to boost customer confidence, repurchase intent, profitability, and competitiveness. As a result, consumer satisfaction should be a top priority for corporate management, and it should be considered as a vital source of input from customers (Radojevic et al., 2018). Customer satisfaction refers to a person's happiness or dissatisfaction with a product or service purchase based on a comparison between the product's perceived performance and the person's early outlooks (Kotler and Keller, 2011; Oliver and DeSarbo, 1988). Positive disconfirmation happens when perceived performance surpasses these anticipations, ensuing in high satisfaction, and vice versa. Ahmed and Zhang (2020) and Chen (2010) define green satisfaction as a pleasant level of product consumption that eventually enables to fulfill consumers eco-friendly desires, sustainable prospects, and green needs. Green satisfaction that has been examined in the management area is observed to be critical for businesses in building long-term connections with customers (Gil and Jacob, 2018b; Gruca and Rego, 2005). Consumer happiness has also been shown to have a favorable relationship with company returns of the stock and market value (Anderson et al., 2004; Fornell et al., 2016), as well as influencing consumers' future purchase intentions (Karimi et al., 2020; Matute-Vallejo, Bravo and Pina, 2011). Therefore, based on precised discussion and encouragement about green satisfaction, we currently assumed the following hypothesis.

- H6. Green satisfaction is positively correlated with green purchase intention (GPI).

2.5. Green perceived value

When establishing perceived value (PV) which is founded on the concept of equality, customers examine the link between their purchasing results and the engagement of the service provider (Oliver and DeSarbo, 1988). PV as per Hutt and Speh (2007) is the buyer's awareness and perspective of working with the provider in addition to the respective advantages and expenses. Besides, perceivable advantages are a mixture of the different attributes of the psyche, service features, and technical assistance accessible in a certain usage context (Oriade and Schofield, 2019). Companies may strengthen customers' purchase intentions by supplying high-quality items as the significance of PV rises. Green perceived value (GPV) is a broad assessment of a customer's real benefit of an offering of what is offered and what is provided (Sangroya and Nayak, 2017) in accordance with the environmental goals, desires of green, and consumer environmental expectations. According to Danish et al. (2019), GPV is recognized as one of the most significant

components among green clients. This is demonstrated by the importance of green value in the environmental era. Green products outperform non-green products in terms of value and performance boosting their green value and expanding trade. Customers are more inclined to buy an eco-friendly product if they trust it will offer additional green values to them in return (Confente et al., 2020). GPV connects the consumer’s purchasing attitudes and psychological behavior during decision-making by acting as a link between customers’ perceptions of green products and their purchasing decisions. Because customer-centric environmentalism is common, experts believe that a customer’s GPV is a major factor in influencing their purchasing decisions (Jabeen et al., 2021; Suki and Suki, 2019). Therefore, based on the above-precised discussion and encouragement, we currently assume the following hypothesis.

H7. GPV is positively correlated with GPI.

2.6. Mediating effects of customer green psychology variables (green trust, green satisfaction, and green perceived value)

Indeed, the mediators elucidate the causal relationship between IVs and DVs (Baron and Kenny, 1986). In past, it is revealed that green trust, green satisfaction, and green perceived value have strong effects on customer GPI (Gil and Jacob, 2018a; Jabeen et al., 2021; Majeed et al., 2022). CSR is also considered to be a vital precursor of green trust, green satisfaction, and green perceived value (Galbreath and Shum, 2012; Grabner-Kräuter et al., 2018; He and Lai, 2014; Karimi Sarame et al., 2020). The present research used GT, GS, and GPV to mediate connection between GPI and CSR. GT, GS, and GPV have also been identified as major mediating components in the development of positive attitudes or behavioral relationships (Confente et al., 2020; Gil and Jacob, 2018a; Gupta, 2020). Tian et al. (2020) proposed the term consumer trust to characterize the mechanisms that turn CSR attributes into behavioral outcomes. The association between CSR and customer purchase intent appears to be mediated by consumer trust (Yu et al., 2021). According to Hameed et al. (2018), due to characteristics like shop confidence, a retailer’s CSR strategy has an indirect influence on the behavioral aspect of customer purchase intention. Social identity theory demonstrates that customers are more likely to form relationships with companies that have robust reputes and a strong level of GS and buy extreme values products to gain uniqueness and boost their self-worth (Bianchi et al., 2019). PV is a consumer’s overall estimate of the benefit of products or services based on actual receiving (Bolton and Drew, 1991; Patterson and Spreng, 1997). According to literature, GPV is a significant element among green customers (Ahmad and Zhang, 2020). We hypothesize that GT, GS, and GPV are additional mediators in the association between CSR and green purchasing intention (see Fig. 1).

H8. GT mediates the relationship between CSR and GPI.

H9. GS mediates the relationship between CSR and GPI.

H10. GPV mediates the relationship between CSR and GPI.

3. Research methodology

3.1. The sampling and respondents

As a quantitative study, the data for this research were acquired by means of convenience sampling and questionnaire circulation to 500 CSR-engaged green purchasing participants in China utilizing online tools and individual encounters. There are several reasons as stated by the experts because convenience sampling could be used to gather data since many experts have used a similar approach in related studies (Waheed and Zhang, 2020). Convenience sampling is certainly a non-probability method that helps to gather data in an easier way or the way which is the most convenient, feasible, and efficient for the researchers (Emerson, 2015; Kaminska and Lynn, 2017). Convenience sampling support bringing symmetry in data and researchers feel convenience while collecting specific data from different participants (Kotrlik and Higgins, 2001). Therefore, most scholars prefer to collect data using the convenience sampling method (Waheed et al., 2020a). In addition, we requested our colleagues and students to help with data collection as per their availability from different cities in China. We distributed 550 questionnaires between January 2022 and March 2022 whereby received back 455 surveys that indicate 82% response rate. In addition, 302 surveys were eventually utilized for final analysis after removal of improper, missing information, and doubted questionnaires (see Table 1). We used two approaches for this purpose such as a hard form of the questionnaires and online link sharing of the questionnaires using SurveyMonkey, a well-known website for academic surveys in the Chinese market. We also used emails and WeChat (A well-known Chinese app) for sharing the link with different participants (Waheed et al., 2020b). The survey had 53 measured items that used a seven-point

Table 1
Demographic Characteristics of respondents.

Constructs		Frequency	Percentage
Gender	Male	132	43.7
	Female	170	56.3
Marital status	Married	103	34.1
	Unmarried	199	65.9
Age	20–30 years	122	40.4
	31–40 years	94	31.1
	41–50 years	57	18.9
	Above 50 years	29	9.6
Education	High school	43	14.2
	Bachelor	129	42.7
	Master	76	25.2
	PhD	54	17.9
Monthly Income (RMB)	3001–4000	39	12.9
	4001–8000	138	45.7
	8001–12000	74	24.5
	Above than 12000	51	16.9

Note. n = 302.

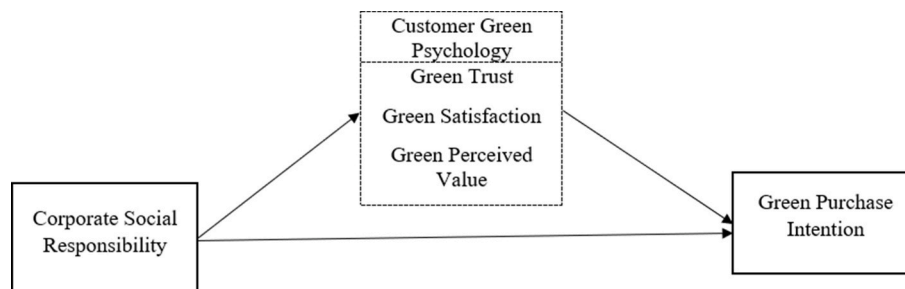


Fig. 1. The conceptual model of the research.

Likert scale as adapted per the studies of Kim and Seock (2019), Mahmood et al. (2020), and Hadj (2020). The questions in the survey were formed based on prior studies and were presented in both Chinese and English languages. The translation from English to Chinese was done with the help of four experts who were proficient in both languages. The measurements and structural models were proceeded using SmartPLS.

3.2. Measures

Since our study is not directly on COVID-19 or attempting to explore COVID-19's impact on any variable by involving within the study framework though this study eventually attempted to explore the role of CSR and GPI along with GP during this COVID-19 period. Experts have revealed that it's immensely difficult to manage the relationships with different stakeholders such as consumers during such kind of uncertain period of a pandemic like COVID-19. It is a great challenge for organizations to rethink and revisit the strategies to engage consumers during the pandemic period. What would be the role of CSR to achieve such a level of consumer satisfaction and whether green approach may help to get sustainability during uncertain circumstances is a key goal of the present study. Furthermore, there are many studies that investigated the relationships among unlike variables to assure the connection during COVID-19 era without directly involving COVID-19 as separate variables of the study framework (Robinson et al., 2022; Waheed et al., 2022; Wu and Zhu, 2021). A study of Waheed et al. (2022) revealed the relationships between CSR and consumers' insights during the COVID-19 period without considering COVID-19 as a separate variable but taking it as timescale. A study of Vallejo-Borda et al. (2022) also confirmed the situation of traveling during this COVID-19 without considering it as a separate variable. Moreover, there are several studies that investigated the relationships among different factors without taking COVID-19 as a separate variable but by taking it as a span of the period (Christa and Kristinae, 2021; Sarfraz et al., 2022; Syaifullah et al., 2021; Vallejo-Borda et al., 2022; Waheed et al., 2022). Likewise, we considered COVID-19 as time span to ensure the role of CSR, GPI, and GP during current uncertain circumstances and how organizations may sustain the relationships with stakeholders such as consumers during unpleasant circumstances of COVID-19. Some other important studies also examined their proposed inquiry during the COVID-19 era (Hu et al., 2021).

Besides, all components were assessed using a seven-point Likert scale. The 39 CSR items were assessed using a Turker (2009)-developed construct (see Appendix A). We utilized four questions adapted from Cheung et al. (2015) to measure green trust. Four questions for GPV were revised from the work of Patterson and Spreng (1997). In accordance with Oliver (1980), three items were adapted to examine green satisfaction. We used six items for green purchase intention from Ahmed and Zhang (2020). To assure the contextual significance, we incorporated certain control variables, i.e., size of the firm and age. Firm size as a control variable infers resources where small firms have lower resources while larger firms have higher resources and such capability often influences the organizational strategic decision (Waheed and Zhang, 2020). Moreover, both control variables, i.e., age and size were extremely used by past experts therefore our study is consistent with those studies where experts controlled these two factors (Abbas and Saqsan, 2019; Bansal, 2005; Shahzad et al., 2020; Waheed et al., 2020b).

3.3. Data analysis techniques

We primarily employed the SPSS and SmartPLS software tools to get findings. The following strategies were utilized to create the findings in accordance with the study objectives. To gather and interpret the respondent profiles, the descriptive statistics analysis approach was firstly applied. Pearson's correlation analysis was performed to measure the interconnections whereas Taylor (1991) offered a decisional criterion range of -1 to +1 for such an approach. Higher numbers indicate a

larger positive influence whereas lower values indicate a weaker association. We employed convergent and discriminant validity to test the validity of the measurement model. We utilized four measures to assess such validity (Chin, 1998) such as (1) Values for indicator factor loadings that must be higher than 0.5, (2) Values for composite reliability that must be higher than 0.7, (3) Values of AVE (Average Variance Extracted) estimations that must be higher than 0.5, and (4) Cronbach's alpha needs to be higher than 0.7. To measure discriminant validity specifically, we evaluated whether the square root of the construct's AVE surpassed the correlations of all other variables with the unique variable (Chin, 1998).

A common method bias was measured using the common latent factor (CLF) model proposed by Podsakoff et al. (2003). The CLF was measured by equating the variances among the standard loadings with CLF and without CLF. Finally, based on previous relevant works by Ahmed and Zhang (2020) and Behnam and Cagliano (2017), the structural equation modeling approach was employed to assure the correlations of paths and hypothesis testing. The quality of the SEM model fit was calculated through the standardized root mean squared residual (SRMR). The SRMR result value should be less than 0.08 for the model to be adequate and acceptable (Hu and Bentler, 1999). The current SRMR score is 0.06 which is sufficiently satisfactory.

4. Analysis of data

4.1. Construct descriptions

The following Table 2 depicts the overall metrics and constructs to evaluate the relationships among latent variables. The results show that five variables were studied of which four were IV's, while one is the DV. Table 2 reveals the description of each variable.

4.2. Descriptive statistics of the variables

Table 3 affirms the means, alpha, average extracted variance, and SD values whereby such values are normal such as alpha >0.7 and AVEs are >0.5 which vividly indicate results accuracy (Fornell and Larcker, 1981a; Hair et al., 2016; Nunnally and Bernstein, 1978). Moreover, the results of average and standard deviation are described below in Table 3.

4.3. Discriminate validity of the measures

Discriminant validity is an effective technique to observe the differentiation between adopted latent factors (Deng et al., 2014; Fornell and Larcker, 1981b). This validity could be observed by comparing the outcome values of AVE-square roots with correlation of the subsequent latent variable as per recommendations by Deng et al. (2014). As per Deng et al. (2014), the values of AVE-square roots must be greater than outcome values of subsequent inter-correlation of latent factors. This technique is consistent with past studies where experts used these tools to examine the validity and reliability of the variables in CSR and consumers-related research (e.g., Ashfaq et al., 2021; Cham and Easvaralingam, 2012; Deng et al., 2014; Waheed and Zhang, 2020). The correlation matrix is shown in Table 4, demonstrating the

Table 2
Description of the constructs.

Construct	Type of model	Indicators	Predefined reliability
L-CSR	Factor	36	1.00
L-GT	Factor	04	1.00
L-GS	Factor	03	1.00
L-GPV	Factor	04	1.00
L-GPI	Factor	06	1.00

Note. L-CSR = corporate social responsibility; L-GT = green trust; L-GS = green satisfaction; L-GPV = green perceive value; L-GPI = green purchase intention.

Table 3
Overall description of the constructs.

Latent variables	Mean	SD	α	AVEs
L-CSR	3.985	0.963	0.795	0.685
L-GT	3.003	0.935	0.785	0.654
L-GS	3.658	0.975	0.801	0.699
L-GPV	3.245	0.365	0.784	0.604
L-GPI	3.420	0.345	0.840	0.541

Table 4
Discriminate validity.

Construct	PPV-C	PRC-C	CLT-C	IRL-C
L-CSR	0.887			
L-GT	0.685	0.896		
L-GS	0.354	0.548	0.865	
L-GPV	0.335	0.604	0.330	
L-GPI	0.245	0.354	0.650	0.892

Squared correlations; AVE in the diagonal.

Table 5
Correlation Matrix of the constructs.

Construct	PPV-C	PRC-C	CLT-C	IRL-C
L-CSR	1.000			
L-GT	0.458	1.000		
L-GS	0.664	0.540	1.000	
L-GPV	0.468	0.681	0.664	
L-GPI	0.641	0.221	0.542	1.000

Inter-correlations of the variables.

measurement's acceptable discriminant validity.

4.4. Correlation matrix

Pearson's correlations method was utilized to compute the link among the adopted variables. Pearson's correlation model was employed to identify correlations between latent variables, whereas Taylor (1991) offered a decisional criterion range of "-1" to "+1" for such an analytical approach. As per Taylor (1991), greater values validate a stronger positive effect, whereas lesser values show a weaker relationship (see Table 5).

4.5. Confirmatory factor analysis (CFA)

The outcomes of CFA are presented in Table 6, which includes the values of AVE, FL (Factor Loadings), and construct reliability as measured by composite reliability (CR). For AVE and FL, the outcome values for examining the correctness of the findings should be > 0.5, while for CR, they should be > 0.7 (Hair et al., 2017). The following are the FL, AVE values as well as the reliability and validity of constructs.

4.6. Structure equation modeling

Table 7 indicates values in response to applied approach of SEM which verifies the relationship orientation between specific variables such as hypotheses as assumed in this study. Structure equation modeling is a most effective method in social science research which supports to examine the path relationships among variables by showing a structural model of the variables (Hu and Bentler, 1999). In order to confirm the authenticity of SEM model, there are certain model fit indices that should be appropriate to consider SEM model as an accurate model in terms of applicability. According to Hu and Bentler (1999), values of SRMR should be less than 0.08 as criteria to consider SEM model appropriate whereas a present value of SRMR is 0.0442. This technique is used by various experts in their studies related to CSR and

Table 6
Confirmatory factor analysis (CFA).

Constructs/Items	Factor Loadings	AVEs	CR
CSR practices		0.837	0.839
CSR1	.665		
CSR2	.740		
CSR3	.640		
CSR4	.540		
CSR5	.658		
CSR6	.665		
CSR7	.740		
CSR8	.640		
CSR9	.710		
CSR10	.665		
CSR11	.740		
CSR12	.640		
CSR13	.665		
CSR14	.740		
CSR15	.640		
CSR16	.540		
CSR17	.658		
CSR18	.665		
CSR19	.740		
CSR20	.640		
CSR21	.540		
CSR22	.658		
CSR23	.665		
CSR24	.740		
CSR25	.640		
CSR26	.540		
CSR27	.658		
CSR28	.540		
CSR29	.658		
CSR30	.665		
CSR31	.640		
CSR32	.540		
CSR33	.658		
CSR34	.540		
CSR35	.658		
CSR36	.665		
		0.644	0.782
GT during Covid-19			
GT1	.640		
GT2	.540		
GT3	.658		
GT4	.540		
		0.542	0.769
GS during Covid-19			
GS1	.540		
GS2	.658		
GS3	.665		
		0.785	0.661
GPV during Covid-19			
GPV1	.658		
GPV2	.665		
GPV3	.640		
GPV4	.540		
		0.654	0.751
GPI during Covid-19			
GPI1	.540		
GPI2	.658		
GPI3	.665		
GPI4	.740		
GPI5	.640		
GPI6	.586		

consumer-related research (e.g., Ashfaq et al., 2021; Waheed and Zhang, 2020).

5. Discussion

Since the present study proposed ten hypotheses using direct and mediating directions to understand the insights into corporate social responsibility (CSR), green psychology (i.e., green trust, green satisfaction, and green perceived value), and green purchase intention (GPI). First, it proposed in H1 that CSR has a positive linkage with green trust

Table 7
Structure equation modeling and decision on hypotheses.

Factors and paths of relationships	DE	IDE	Decision
H ¹ : L-CSR → L-GT	0.354*	–	Supported
H ² : L-CSR → L-GS	0.215*	–	Supported
H ³ : L-CSR → L-GPV	0.358*	–	Supported
H ⁴ : L-CSR → L-GPI	0.098*	–	Supported
H ⁵ : L-GT → L-GPI	0.364*	–	Supported
H ⁶ : L-GS → L-GPI	0.05*	–	Supported
H ⁷ : L-GPV → L-GPI	0.210*	–	Supported
H ⁸ : L-CSR → L-GT → L-GPI**	–	0.245*	Supported
H ⁹ : L-CSR → L-GS → L-GPI**	–	0.200*	Supported
H ¹⁰ : L-CSR → L-GPV → L-GPI**	–	0.145*	Supported

Note. L-CSR = corporate social responsibility; L-GT = green trust; L-GS = green satisfaction; L-GPV = green perceive value; L-GPI = green purchase intention. DE = direct effect; IDE = indirect effect.

*Significant at <0.05; **mediation effect.

factor of green psychology whereby outcomes assured a positive path direction between CSR and GT at ($\beta = 0.354, p < 0.05$). Therefore, H1 is supported. Second, it proposed in H2 that CSR has a positive linkage with green satisfaction factor of green psychology whereby outcomes assured a positive path direction between CSR and GS at ($\beta = 0.215, p < 0.05$). Hence, H2 is supported. Third, it proposed in H3 that CSR has a positive linkage with green perceived value (GPV) factor of green psychology whereby outcomes assured a positive connection between CSR and GPV at ($\beta = 0.358, p < 0.05$). Therefore, H3 is supported. Then, it proposed in H4 that CSR has a positive linkage with green purchase intention (GPI) whereas outcomes assured a positive path direction between CSR and GPI at ($\beta = 0.098, p < 0.05$). Therefore, H4 is supported in the present instant.

Likewise, it proposed in H5 that GT has a positive linkage with GPI whereby outcomes assured a positive path direction between GT and GPI at ($\beta = 0.364, p < 0.05$). Therefore, H5 is supported. It proposed in H6 that GS has a positive linkage with GPI whereby outcomes assured a positive path direction of GS to GPI at ($\beta = 0.05, p < 0.05$). Therefore, H6 is accepted. It proposed in H7 that GPV has a positive linkage with GPI whereby outcomes assured a positive path direction between GPV and GPI at ($\beta = 0.210, p < 0.05$). Therefore, H6 is accepted.

Moreover, three hypotheses were carried out to affirm the mediating influence of green psychology factors (GP, GS, GPV) between the connection of CSR and GPI. It proposed in H8 that GP mediates the linkage between CSR and GPI whereby outcomes assured a positive mediating connection between CSR and GPI at ($\beta = 0.245, p < 0.05$). Hence, H8 is accepted. It proposed in H8 that GS mediates the connection between CSR and GPI whereby outcomes assured a positive mediating connection between CSR and GPI at ($\beta = 0.200, p < 0.05$). Hence, H9 is accepted. Finally, it assumed in H10 that GPV mediates the connection between CSR and GPI whereby outcomes assured a positive mediating connection between CSR and GPV at ($\beta = 0.145, p < 0.05$). Hence, H9 is accepted. As a result, employing CSR activities as a link between numerous business activities can strengthen customers' green buy intentions. The findings of this study are comparable with those of previous studies, which indicated that CSR efforts are extremely essential by demonstrating their significant impact on customers' attitudes, preferences, and green buy intentions throughout the world (García-Jiménez et al., 2017; Gupta et al., 2021; Sawicka and Marcinkowska, 2022; Waheed et al., 2020a). The fundamental aim of present research work was to analyze how CSR practices affect GT, GS, GPV, and GPI in China during the pandemic period.

This research emphasizes the role of customer green psychology in converting CSR efforts into positive economic outcomes as measured by GPI. The finding indicates that CSR activities will not have the expected impact if the organization is unable to deliver green products to its customers. The advice is to prioritize relationship building over CSR first and foremost or investigate the nature and forte of connection with

returning consumers before launching CSR initiatives. As a result of our research, we can conclude that implementing CSR policies in businesses geared toward meeting customer needs generates a competitive advantage. Achieving competitive edge is critical for the organizations to win over the consumers (Cham et al., 2021b). Explicitly, investing in CSR allow the business to positively affect society along with value addition for the consumers. As per the present findings, customers are aware of the companies that incorporate CSR activities. It enhances green trust, green consumer satisfaction, and the green perceived value of the consumer toward such a particular company.

These results are consistent with the previous research as follows. A study advocated the positive CSR influence on trust factor of consumers. There are other studies which affirmed the connections between perceived value and CSR. It is also claimed that most consumers often prefer those organizations that incorporate green or CSR-oriented activities in distinct business operations. Although many experts attempted to unfold the significance of CSR though, work could be considered from other themes and geographic regions, particularly contributing by supplying empirical confirmation worldwide. The presently given findings assure that CSR perception is warmth and gaining more consideration. While GPI makes the consumers more aware of the environment-friendly operations of the organizations. As consistent with certain theories which claimed the significant role of customers' satisfaction and CSR. Our outcomes infer that taking green initiative by the firm could enhance satisfaction of the stakeholders such as consumers. From an organizational perspective, creating green practices in the business operations could build a positive image of the firm in the mind of consumers and support to bring stronger association with the firms. Incorporating CSR activities into practices might be a source of satisfaction for various stakeholders such as both employees and customers. In the past, experts suggested the positive intervening impact of customer satisfaction (Su et al., 2017). Moreover, the positive correlation between GPI and CSR was also determined over the past decade by several research scholars (Bianchi et al., 2019). Finally, our results regarding control variables, i.e., firm size and age have been shown as insignificant at the present stage, therefore, we did not consider such variables as influential factors. Our findings relate to previous findings of the experts in which they assured insignificant influence of age and firm size within different themes and domains globally (Abbas and Sagsan, 2019; Shahzad et al., 2020).

Finally, these findings also furnish insights into a circular economy that how corporates may accomplish sustainable development by stressing distinct evolving factors such as CSR, GP, and circular economy in the present competitive era. Nowadays, organizations are highly concentrating on the circular economy since several experts have investigated the favorable tie of circular economy, worldwide (Liu et al., 2022; Pan et al., 2022; Walker et al., 2022). The direction is transforming from linear economy to circular economy therefore need more studies to understand the insights about circular economy across the world. The circular economy is a new, innovative, and emerging model of production that guarantee sustainable growth by maintaining and fruitfully managing available resources (Rejeb et al., 2022). Circular economy supports tackling distinct crises such as uncertain challenges like COVID-19 or environmental-related issues such as pollution or the rest of climate crises. It is the ultimate goal of the firms to achieve a level of sustainability to grab strong relationships with stakeholders, including consumers. Consumer's intention is also transforming to green activities where they prefer to shop those products which are being processed under green environmental conditions. A circular economy may help to achieve sustainable development since it reduces the need for raw resources and makes room for product reuse and recycling (Rejeb et al., 2022; Sinha, 2022). Circular economy supports the corporates to use the resources by implementing innovative and new economic models for sustainable development. The concept of the circular economy helps in economic growth by providing new models (Goncalves et al., 2022). Nowadays, authors have attempted to connect the

notion of circular economy with CSR whereas the foremost objective is to adopt both models in boosting sustainable development of the corporates as currently validated. Circular economy not only focuses on economic perspectives but also confers environmental concerns. Moreover, this study endows with several implications both theoretical and managerial for the concerned body showing the significance of CSR, GPI, GP, and circular economy, as follows.

6. Conclusions and Implications

From a theoretical standing, the study identified the primary aspects that may affect GPI on corporate and consumer attributes during the COVID-19 period. This study also presents an innovative and rigorous approach for testing and establishing the inter-relationship between CSR and GPI in the context of different green psychology mediators and how companies can efficiently foster and sustain stakeholder relationships during this COVID-19 period. The findings of this study add to the growing body of knowledge on CSR, green psychosomatic characteristics as mediators, and consumers' green purchasing intentions in developing countries. In a more sophisticated firm setting, CSR should be used as an effective and prestigious route between producers and consumers to increase green trust, contentment, and perceived value in order to increase GPI, especially during uncertain times and challenges. This research underlines the importance of corporate CSR to the green industry's long-term viability. Customers are more inclined to purchase a green product if they perceive the company's products provide greater CSR, and the even company can earn a bigger profit margin.

This research has crucial implications for business activities in China during uncertain times of COVID-19. Green production may now be used to differentiate and position a company. As a result, rather than merely advertising their products, businesses must include their environmental purpose in their corporate strategy. Compared to Western countries, China's green consumption level is still very low. Thus, decision-makers and manufacturers need to develop strategies to promote green consumption through effective communication (Jaiswal and Kant, 2018). Furthermore, CSR and eco-friendly education, as well as strict quality assurance through certifications such as ISO-certified products/services, might assist Chinese consumers in becoming more environmentally sensitive (Lai and Cheng, 2016).

Our research has shown that CSR might be an effective tool to promote the adoption of a circular economy, and that it is better for companies to begin with CSR and then be on the way to structuring circular economy models. As a result, companies that have already implemented CSR practices can recognize that they are prepared for the transition to a circular economy, as half of the practices should be in place. Furthermore, companies that have not yet begun the transition to a circular economy may be motivated to do so collaboratively because the costs of improving CSR will be useful in embracing circularity. We are confident that such a result will be extremely beneficial in spreading the adoption of circular economy and CSR among organizations.

Moreover, it delivers numerous comprehensions concerning the adoption of CSR to arouse the green purchase intention of customers in the current customer-focused era. Furthermore, corporate management should consider the succeeding inferences. Because many green consumers are more interested in companies that practice CSR, managers must create more appealing CSR programs for these customers. In addition, numerous researchers have revealed the positive impact of CSR and the setting on customer GPI (Gupta et al., 2021; Laroche et al., 2001; Lee and Yoon, 2018; Sharma et al., 2018; Su et al., 2017; Suki et al., 2016; Wang, 2020). Consequently, companies are encouraged to involve in CSR activities to attract the GT, GS, and GPV of consumers in a dynamic, energetic, and inclusive way. In addition, in the modern fierce competitive environment, sustainability is an important part of the survival of an organization (Baumgartner and Ebner, 2010; Behnam and Cagliano, 2017). In order to establish and maintain the connection with green consumers, companies must interact with them by adopting CSR

practices. Encourage managers to strengthen the intention of green procurement by acquiring innovative functions such as CSR, because customers who are environmentally conscious are worried about such activities in their daily lives. To maintain relations with consumers during the COVID-19 time, firms are advised to involve those using affluent methods or methods to reach the consumers in order to inform and ensure their presence during the COVID-19 challenge. It is very crucial to engage the consumers during such an era of COVID-19.

This study allows better insights into how CSR has interconnection with the circular economy that eventually could help policymakers to develop productive decision-making and action policies. The CSR and model of circular economy can be more productive for a firm's strategic plan as well as for limiting the use of resources required for the implementation of socially responsible policies. The strategic thinking process and competitive advantages are intimately connected to each other. Therefore, the incorporation of CSR plans raises the circular economy models of the organizations. It supports enhancing the benefits and perception for shaping a better society. Moreover, during this COVID-19 era, several other green policies could be adopted to engage the consumers to ensure that how organizations are following CSR practices and practices of circular economy model. Our findings are in line with some prior research in which world-renowned researchers proposed the CSR importance in the perspectives of customer (Abdelmoety et al., 2022; Shin et al., 2021). Current investigation has revealed the understanding by assuring the positive relationship among CSR, GT, GS, GPV, and GPI. In order to provide global insights into such phenomena, many investigations have endeavored to uncover the impact of different factors during the era of COVID-19 from different perspectives other than marketing outlooks (El Khoury et al., 2022; Vătămănescu et al., 2021).

7. Limitations and future research

CSR has become an essential engine of development in today's modern business environment, improving organizations' goodwill. Despite this, the study has several shortcomings that must be considered by researchers in forthcoming research endeavors. First, the sample size is limited because it was obtained from a single country, whereas a larger sample size obtained by approaching the remaining countries may be utilized in the future to give further evidence across economies. This research did not integrate any moderating variable between CSR and green purchase intention thus for future studies researchers may consider a specific moderator. Finally, because the present inquiry is still in its early stages, it is necessary to reveal more effects of CSR on green promotion and customers' green purchasing behavior in different countries using diverse methodologies and settings. A longitudinal investigation in other contexts, particularly in the industrial sector and the rest of developing countries should be explored to confirm the current findings and highlight the importance of CSR and green consumers from the rest of world.

CRedit authorship contribution statement

Wasim Ahmad: Conceptualization, Supervision, Writing – review & editing. **Rana Muhammad Sohail Jafar:** Data curation, Writing – original draft. **Abdul Waheed:** Methodology, Writing – review & editing. **Huaping Sun:** Supervision, Writing – review & editing. **Sayed Sibtain Ali Shah Kazmi:** Data curation, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

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