frontiers | Frontiers in Environmental Science

TYPE Original Research
PUBLISHED 30 September 2022
DOI 10.3389/fenvs.2022.1017557

OPEN ACCESS

EDITED BY
J. Abbas,
Shanghai Jiao Tong University, China

REVIEWED BY
Sayed Muhammad Fawad Sharif,
Northwestern Polytechnical University, China
Jawad Abbas,
Near East University, Cyprus

*CORRESPONDENCE
Sayed Kifayat Shah,
skifss_20@qq.com
Zhongjun Tang,
tangzhongjun@bjut.edu.cn
Judit Oláh,
olah.judit@econ.unideb.hu
Ángel Acevedo-Duque,
angel.acevedo@uautonoma.cl

SPECIALTY SECTION
This article was submitted to Environmental Economics and Management, a section of the journal Frontiers in Environmental Science

RECEIVED 12 August 2022
ACCEPTED 14 September 2022
PUBLISHED 30 September 2022

CITATION
Shah SK, Tang Z, Gavurova B, Oláh J and Acevedo-Duque Á (2022), Modeling consumer's innovativeness and purchase intention relationship regarding 5G technology in China. *Front. Environ. Sci.* 10:1017557. doi: 10.3389/fenvs.2022.1017557

Modeling consumer's innovativeness and purchase intention relationship regarding 5G technology in China

Sayed Kifayat Shah[1]*, Zhongjun Tang[1]*, Beata Gavurova[2], Judit Oláh[3,4]* and Ángel Acevedo-Duque[5]*

[1]College of Economics and Management, Beijing University of Technology, Beijing, China, [2]Faculty of Mining, Ecology, Process Control and Geotechnologies, Technical University of Kosice, Košice, Slovakia, [3]Faculty of Economics and Business, University of Debrecen, Debrecen, Hungary, [4]Department of Public Management and Governance, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa, [5]Public Policy Observatory, Universidad Autónoma de Chile, Santiago, Chile

Consumer innovativeness is a significant personality attribute that refers to a person's proclivity to acquire and utilize new items more rapidly and frequently than others. Although previous research has revealed a relationship between consumer innovativeness and the intention to buy new technology products, little is known about the determinants such as visibility and guidance affordances, environmental awareness, and safety concerns that underpin this relationship. Using the diffusion of innovation (DOI) theory through the PLS-SEM approach, this study analyzed the data of 341 Chinese consumers to explore the prospects mentioned above. The empirical results show that visibility and guidance affordances encourage consumer innovativeness. The results further reveal that environmental awareness and product safety concerns mediate the consumer innovativeness and purchase intention relationship. This model will contribute to the literature by improving predictive ability over previous models. Therefore, managers and policy-makers who wish to make constructive changes in the intentions of technology consumers are encouraged to ruminate on the extrapolations of this article.

KEYWORDS

5G Technology, consumer's innovativeness, environmental awareness, safety concerns, affordances

1 Introduction

With its cutting-edge features, technological advancement has altered consumer behavior during the hugely destructive COVID-19 epidemic that ravaged the whole planet, and high-performance work systems in the organization became a challenge (Asad et al., 2017; Shuja et al., 2020; Azadi et al., 2021; Al Halbusi et al., 2022; NeJhaddadgar et al., 2022). Vaccine availability is a global issue since COVID-19 spreads through

physical touch and human interaction, affecting all segments of society (Jaffar 2020; Shuja et al., 2020; Maqsood et al., 2021; Su et al., 2021). The Covid-19 crisis has led to mobility restrictions and community lockdowns, affecting human health behaviors (Jaffar 2020; Aqeel et al., 2021; Farzadfar et al., 2022; Geng et al., 2022; Zeidabadi et al., 2022). The ongoing Covid-19 crisis has affected business strategy and entrepreneurial activities that have influenced global business performance (Ge et al., 2022; Liu et al., 2022; Mubeen et al., 2022; Yu et al., 2022; Zhang et al., 2022). Social media has played a crucial role in crisis management, and firms have used technological applications and CSR practices to handle this challenging business environment (Aman et al., 2021; Wang et al., 2021; Zhou et al., 2021; Fu 2022; Mamirkulova and Mi. 2022). People have used the internet and technology, and some were addicted; however, the covid-19 crisis has posed social, economic and political challenges. Besides, health priority has become a top preference (Pouresmaeil et al., 2019; Fattahi et al., 2020; Khazaie et al., 2021; Mubeen et al., 2021; Yoosefi Lebni et al., 2021). Social media use increased for effective communication in the inequality of vaccine provision (Lebni et al., 2020; Moradi et al., 2020; Azizi et al., 2021; Local Burden of Disease 2021; Su et al., 2021; Su et al., 2021). In addition, psychological worry and anxiety affect the business environment for tourism and service firms, influencing emotions and lifestyle priorities (Hussain et al., 2017; Aman et al., 2019; Mamirkulova et al., 2020; Mubeen et al., 2020; Hussain et al., 2021). The situation has forced many to stay away from social events. The hotel, leisure, and tourist businesses suffered catastrophic psychological impacts because people chose to stay at home (Lebni et al., 2021; Mohammadi et al., 2021; Shoib et al., 2021; Su et al., 2021). Covid-19's effects on hospitality, travel and tourism operations worldwide have created challenges for users to overcome (Li et al., 2022; Li et al., 2022).

One of the main advantages of the modern period for combating the difficult COVID-19 outbreak situations is technological innovation (Rahmat et al., 2022). Technological advancements have greatly aided the ability of healthcare systems to treat patients. It aids in the reopening of other industries as well as the global economy, including social segregation, crowd control technology, and big data utilization for prompt and real-time decision-making (Li et al., 2021). During a pandemic, technology assists human-driven demands for standardizing monitoring to precisely and safely protect human health, collect data and evaluate individual data for quick decision-making. Information and communication technology may be extremely helpful in creating an environment that improves people's lives and the economy. With advanced technological standards and characteristics, 5G technology is anticipated to usher in new developments and opportunities for businesses and sectors other than telecommunication (Mavromoustakis et al., 2016; Cheng et al., 2021; Oinas-Kukkonen et al., 2021). Some of the products and services of 5G technology are mobile ticketing, mobile check-in processes, mobile payment methods, and online information services used by the airline, high-speed train, and public transit industries. As a result, firms focus further on quality products (Edinger-Schons et al., 2018; Shah and Tang 2022). Therefore, it is crucial to determine 5G technology users' intentions when commercialization of the technology is just beginning to explore. In this context, the 5G technology diffusion should be akin to that of other innovations; namely, early adopters of new technology should illustrate greater innovativeness (Rogers 2003; Butt et al., 2021). Earlier research has mainly focused on the direct impact of consumer innovativeness on intent and behavior (Bartels and Reinders 2010). However, focusing on the direct impact ignores the mechanism underlying this connection. It must be needed to examine the indirect relationship between consumer innovativeness and the purchasing intentions of new technology. Therefore, this study inspects the indirect connection between consumer innovativeness and purchasing intentions toward new 5G technology products and services.

Studies have also found that consumers make purchasing decisions depending on their habitual decision-making approach (Nieroda et al., 2018; Usman et al., 2021). We anticipate that innovative consumers will predominantly employ the cognitive decision-making process to make 5G product decisions. Therefore, the concept of affordances, such as visibility and guidance, can help us better comprehend the practical aspects of 5G technology and the perspectives of users who engage with these aspects (Tuncer 2021). This is because 5G technology will not only inspire consumers to connect but will also provide additional novel and complicated services. Therefore, the concept of affordances helps investigate consumer innovativeness.

Further, we label factors such as product safety concerns and environmental awareness, which can influence the purchasing intention of 5G technology items by modifying the consumer innovativeness and purchasing intention relationship. The reason is that 5G's electromagnetic fields (EMF) and radiofrequency (RF) radiations have been identified as a new form of environmental pollution that has long been recognized to cause physiological and psychological health implications (Russell 2018; Shah et al., 2021a). Chinese people's environmental consciousness has remained constant and is presently at a high level (Shah et al., 2021b). As a result, it is worthwhile to inspect the impact of environmental awareness and product safety concerns on consumer technology-related purchase intent in China. Therefore, this study offers a theoretical model grounded on the diffusion of innovation theory. Following are the main objectives of this study:

- To create a comprehensive model that would illuminate consumers' intentions to use 5G products and services.
- To find novel factors influencing consumers' intents to acquire 5G products and services.

- To extend 5G technology purchasing intention research by providing empirical evidence.

These results may prompt manufacturers to alter their marketing campaigns to attract more consumers to their products and services.

The remaining article is designed as follows. The next part offers a theoretical foundation, which leads to the formation of hypotheses. The methodology part comes after that. Finally, the study closes with a discussion of its findings, limitations, and future research prospects.

2 Literature review

2.1 Diffusion innovation theory

The Paradigm for exploring user acceptance of novel technologies/products is drawn from the diffusion of innovation research. Diffusion is an approach by which an innovation is conveyed to adherents of a social system through specific routes. Diffusion is connected to another notion known as "adoption," which is a sequence of phases in which the user progresses from first notice of an innovation (recognition) to developing an attitude toward it (concern, appraisal, trial) and to making an acceptance decision. For this purpose, the DOI theory analyzes what, how, and why novel technologies expand among users (Robertson 1967). The DOI's ideas also explain the quality of innovation contributes to the choice of adopting that particular technology (Karahanna et al., 1999; Hooks et al., 2022). According to Heidenreich et al. (2017), early adopters often have greater consumer innovativeness. As a result, such ingenuity should have a favorable effect on the willingness of consumers to accept new technologies. Many scholars have characterized consumer adoption intention of technological products and consider various purposeful indicators, such as readiness to pay and consumer preferences, to be the key proxy factors for adoption (Noppers et al., 2019; Li et al., 2021). Some other researchers presented conceptual models by incorporating mediators to examine consumer intention (Belk 1975; Cop et al., 2020; Shah and Zhongjun 2021).

The Corona Virus, which is responsible for the infectious acute respiratory illness known as COVID-19 disease, first appeared in a few instances of pneumonia in Wuhan, China, in late 2019 and then spread throughout the rest of the world (Yu et al., 2022). Businesses have reached new markets during the epidemic by extensively utilizing technological platforms to engage potential clients through social marketing. The COVID-19 epidemic has lately caused a shift in consumer behavior (Mason et al., 2021; Yu et al., 2022). As a result, companies have found new opportunities in the ability to emerge technologies to reach many people. This pandemic has opened up new opportunities to access marketplaces that adhere to supply chains and demand and all other pandemic-related difficulties.

Therefore, it is critically necessary to use emerging technology to increase the effectiveness of worldwide efforts in pandemic monitoring, prevention, control, treatment, and outbreak prediction (Thimbleby 2013). Currently, contaminated countries rely on testing, active case discovery, individual quarantining, and contact tracking. Emerging technology can therefore assist in addressing COVID-19 and lessen these difficulties. In other words, the market does not respond to innovation in the same way, and not everyone in society accepts the innovation simultaneously. The adoption rate is the pace at which adherents of a social system accept innovations, and it reflects the reality that some people adapt innovations quicker and more swiftly than others. As a result, consumers can be early adopters, innovators, and laggards.

2.2 Personal factors (affordances, environmental awareness, and safety concerns)

Affordance theory has also been extensively utilized in the perspective of different research in recent years to investigate the impact of technological items on people's cognitive views and behavioral reactions (Dong and Wang 2018; Sun et al., 2019). Earlier research assessed the characteristics of affordance, demonstrating that affordances may differ in different contexts (Koroleva and Kane 2017; Shao et al., 2020). Tuncer (2021) explained technological affordance as "the possibilities and opportunities for action that arise when players interact with a focused technology." We believe it may influence an individual's cognitive and emotional reactions and enhance consumer innovativeness. The reason is that people are also more prone to avoid ambiguity in their surroundings because of uncertain conditions. Safari et al. (2018) consistently used the term environmental awareness while discussing the primary factors of responsible behavior. According to Amyx et al. (1994), people with a solid understanding of the environment are more prepared to pay for environmentally friendly items. Therefore, environmental awareness is a broad notion that encompasses perspectives, sensitivities, and concerns about issues, along with attitudes about how to solve problems, cope and uphold the link between the environment and folks to enhance the environmental quality (Hopwood et al., 2005; Chen and Wang 2016; Mustafa et al., 2022). For the happiness of the whole society, it is essential to spread environmental consciousness to the population. Scholars have recently fixated on the link between consumer purchase intention and environmental awareness (Paul et al., 2016; Shao et al., 2020; Shah et al., 2021).

Similarly, product safety reduces the dangers that jeopardize consumers' health by manufacturing products in a specific manner. Product safety concern, according to Spink et al. (2019), indicates that a product will not damage consumers

when shaped and used. Consumers' awareness of product safety and unfavorable word of mouth may significantly impact their purchase behavior (Kaaviya et al., 2019). According to Michaelidou and Hassan (2008), safety issue does not directly impact buyers' intentions but relatively have an indirect link. Therefore, we'll look at the indirect impact of environmental awareness and safety concerns on consumer innovativeness and the 5G product purchase intention relationship.

3 Research framework and hypotheses

3.1 Research framework

Previous studies have shown that innovation combines the need for uniqueness and excitement because it shows a willingness to absorb innovation more quickly (Heidenreich et al., 2017). As a result, consumer innovativeness might be seen as a motivating element to a certain degree. Furthermore, Rogers et al. (2005) put forward that the three key innovation adoption stages are information, persuasion, and choice, which show consumers' intention of the psychosomatic change and are guided by motivational factors. Especially people with strong innovation ability are more willing to interact with novelty, so they actively seek information to expand their understanding of innovation (Lin and Filieri 2015). In the persuasion stage, consumers form an innovative attitude based on *a priori* knowledge and understanding (Rogers 2003). They apply this information to measure ethical requirements, other folks' views, and expected difficulties (Li et al., 2021). Thus, they might not make an early choice, as the ultimate choice to accept innovations can only be made after thoroughly examining these aspects (Rogers 2003). A realistic strategy to theorize many components in the persuasion stage is to rely on environmental awareness and safety concerns. This is because studies have revealed that pollution may elicit nasty feelings *via* its harmful consequences on health (Griffitt 1970; Shah et al., 2021). Therefore, consumers who comprehend environmental and health risks are happy with environmentally friendly technology products and services.

Similarly, technology affordance in the 5G context refers to an opportunity provided to the buyer (Dong and Wang 2018; Tuncer 2021). In the present study, consistent with previous studies (Tuncer, 2021), affordance includes visibility and guidance. These elements give a thorough acquaintance of the processes that relate consumer innovativeness to 5G product purchase intentions.

3.2 Hypothesis development

According to Neal et al. (2004), purchases involves four phases: need identification, search information, evaluating alternatives, and making a buying decision. As innovative users accept innovation faster and more frequently, they will trigger the demand for distinctiveness and inspiration to a certain level (Heidenreich et al., 2017). Driven by such demands, buyers collect information about technology items and shape their understanding consequently. Consumers form their views regarding items by assessing several alternatives depending on the knowledge gained. Consumer innovativeness is the most crucial motivator determining the desire to embrace innovative technologies (Rogers 2003). In the context of 5G technology, consumer innovativeness reveals the requisite for uniqueness and simulations to get constructive emotional experiences. Previous research has demonstrated a favorable association between buyer innovativeness and intention to embrace technology products (He et al., 2018; Tuncer 2021). Therefore buyers may meet their desires for novelty and pleasure by acquiring 5G products. As a result, we offer the following hypotheses:

H1: Consumer innovativeness (CI) positively influences 5G technology consumers' purchasing intentions (CPI).

The term "visibility affordance" relates to the provision of simple access and visibility of item information associated with consumer action. As users require additional product knowledge before making a choice, concentrating on the product details can give the buyer a sense of immersion. Consumers are drawn to highly superior products that may support them by showing their riches and boosting their social standing (Chan et al., 2015; Meijani et al., 2021). This choice of superior products indicates a drive to improve social worth, comparable to the notion of conspicuous consumerism, which is associated with purchasing things to better one's social status (He et al., 2012; Kunkel et al., 2019). From the perspective of this study, giving information about 5G technology products and services improve product credibility, consumer innovativeness, and purchasing intentions. Therefore we hypothesized that:

H2a: Visibility affordance (VA) towards 5G technology positively relates to consumer innovativeness (CI).

Similarly, the unfavorable public impression of the possible danger of a new technology product or service is referred to as technological stigma. The stigma may be caused by real or imagined dangers fuelled by bad images from many sources. Technology stigmas may cause uncertainty and misconceptions about the influence of technological activities on public health and safety. Therefore, guidance affordability offers a customized service infrastructure that allows consumers to quickly discover relevant and genuine product information based on their preferences and requirements (Dong and Wang 2018; Tuncer 2021). On the other hand, the growth in information capacity makes it harder for consumers to locate the genuine product information they need (Arazy et al., 2010). To address this issue, marketers must build a technological infrastructure that allows them to provide goods that fit the tastes and demands of each consumer. In the context of this study, guidance affordance can enable consumers to plunge themselves into this customized service process completely. It can offer genuine

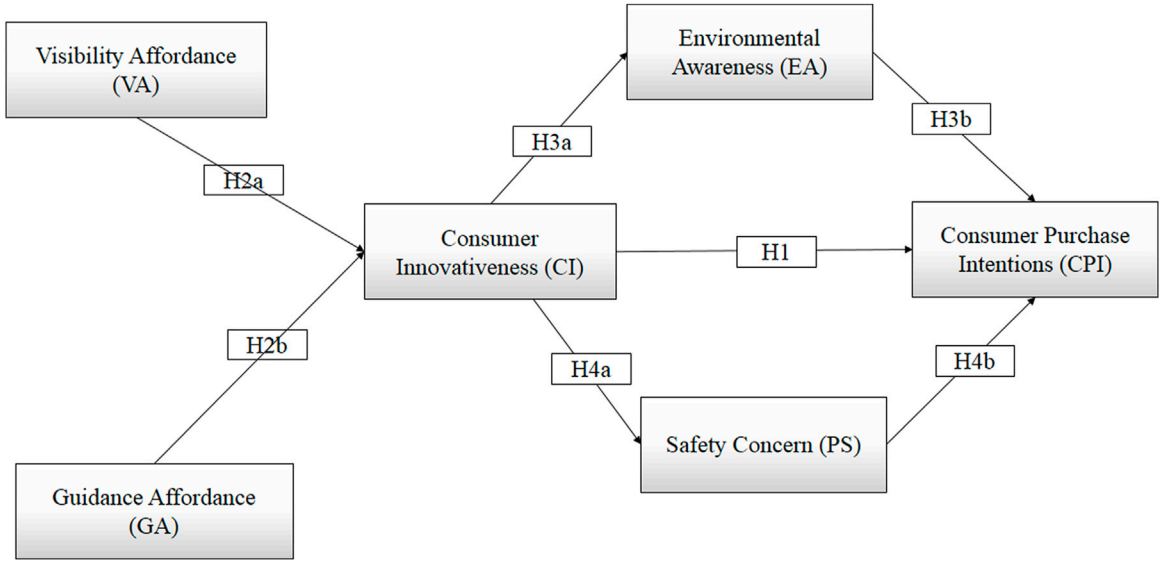

FIGURE 1
Proposed model.

information to enhance consumer confidence, trust, and innovativeness. Therefore, we offer the following hypothesis:

H2b: Guidance affordance (GA) towards 5G technology is positively related to consumer innovativeness (CI).

Furthermore, environmental awareness refers to consumers' comprehensive analysis of environmental problems and is critical in motivating individuals to move from their existing behavior to more environmentally friendly behavior (Daziano and Bolduc 2013; Shah et al., 2021). Consumers who are more environmentally concerned are more inclined to spend money than consumers who are less environmentally conscientious. According to Amyx et al. (1994), persons knowledgeable about environmental concerns are more inclined to pay for ecologically friendly items. As a result, increasing environmental awareness and understanding equates to increasing environmentally responsible behavior. In the framework of this study, the spread of 5G technology products may be sluggish, showing that buyers will be worried about the environment regardless of whatever sorts of 5G things they purchase. Therefore, we recommend the following hypothesis:

H3 a,b: Environmental awareness (EA) positively mediates the relationship between consumer innovativeness (CI) and purchase intentions (CPI) of 5G technology products.

According to (Maziriri and Chuchu 2017), consumers are usually risk-averse; therefore, a lack of knowledge will increase consumers' perceived risk of purchasing products. As a result, their desire to buy products decreases. Based on the research of Kai-Ineman and Tversky (1979), this study believes that consumers' understanding or experience of physical hazards may lead to developing negative intentions towards new technology products. The health consciousness attitude is related to self-awareness and how health concerns are integrated into everyday actions (Kulsuma 2018; Wang et al., 2019). People with health awareness pay more attention to and worry about their health. They maintain and improve their life quality by participating in healthy activities (Newsom et al., 2005). Such consumers consistently favor a better environment and goods. According to this study, consumers' understanding of the negative repercussions of 5G hazard encounters may alter their perception of the severity of consuming 5G technology, resulting in a shift in their purchase intentions. As a result, the product safety concern influences consumer intentions by raising their perception of the severity of 5G goods. The following hypotheses are presented based on the previous evaluation of the literature:

H4 a,b: Product safety concern (SC) positively mediates the association between consumer innovativeness (CI) and purchase intentions (CPI) of 5G technology products.

Our research framework is shown in Figure 1. Next, we will construct a few hypotheses founded on the background presented.

4 Methodology

4.1 The test region: Beijing, China

Usually, people in developing countries believe that one of the barriers to technology adoption is inadequate infrastructure (Shah et al., 2021). But, infrastructure would not be an issue for emerging economies such as China since government and

telecom companies have spent heavily to guarantee that infrastructure can handle 5G operations. Therefore, China is the world's largest mobile phone market with 5G technology. According to (Shah et al., 2021), Beijing currently has 45,700 5G base stations with over 12 million 5G users. It expects to use 5G technology in 28% of mobile networks by 2025 (Shah et al., 2021). The author expected to get the maximum number of 5G users from Beijing because the installation of 5G is more in Beijing than in other parts of China.

Similarly, according to the World data atlas report, China's adult literacy rate is expanding at a 10.52 % yearly pace. It climbed from 65.5 % in 1982 to 96.8% in 2018. Environmental awareness is positively correlated with the improvement of education levels. Therefore, Chinese users are more concerned about the environment and health than ever. That is why China has piqued the interest of scholars and practitioners. This article selected Beijing for data collection since it is the best place to obtain a good sample for this research.

TABLE 1 Demographics information.

Measures	Classifications	Frequency	Percentage
Location	Beijing	281	82.4%
	Wuhan	0	0
	Shanghai	1	0.29%
	Other	59	17.30%
Education	Primary	0	0
	Bachelor	206	60.41%
	Master	133	39%
	Other	2	0.59%
Age	Below 20 years	0	0
	Above 20 years	139	40.76%
	Above 30 years	162	47.51%
	Above 40 years	40	11.73%
Technology User	User 4G	189	55.43%
	User5G	152	44.57%
Gender	Male	151	44.21%
	Female	190	55.72%

4.2 Questionnaire design

Based on the study's purpose, data on the use of technology can be acquired through a series of techniques. Numerous techniques are utilized to enhance the data validity and reliability to produce quality outcomes. We adjusted each component from previous studies to fit our study scenario. The cross-sectional survey approach is the primary method employed in this study. The consumer purchase intention items were derived from (Moghavvemi et al., 2015; Li et al., 2021; Shah et al., 2021), while the innovativeness constructs were adjusted from (Heidenreich et al., 2017; Adnan et al., 2018). Items were taken for environmental awareness from the studies (Han and Ryu 2009; Hsu and Lin 2018; Shan et al., 2020), while the product safety concern items were adopted from the research of Omar et al. (2021).

Similarly, the affordances items were adjusted from the research article (Tuncer 2021). A few of these items' text was slightly changed to anticipate purchase intentions. The five-point Likert scale was used for evaluation. The objectives of the survey were made known to each participant. A pilot research was done to evaluate the questionnaire's quality to protect the content validity. We requested two doctorate candidates in similar domains to spot any potential uncertainty. The doctorate scholars also completed the card sorting assignment to categorize all the items based on their perceived semantics. Items with different structures were changed or eliminated before the testing procedure. The questionnaire was completed in Chinese and English based on the respondent's demographics.

4.3 Sampling

We polled 4G and 5G consumers to test the given assumptions. The questionnaire was divided into demographic characteristics and a collection of measuring items designed to represent our study model. Data was acquired by SO JUMP (www.wjx.cn) from Chinese users in Beijing through a survey from 15 December 2021, to 5 January 2022. The questionnaires were randomly distributed, and respondents were asked to answer questions about their socio-demographic characteristics. A total of 370 responses were received, with 29 incomplete ones not included in the analysis. The demographic characteristics of the 341 responses of the participants are summarized in Table 1. It was revealed that the ratio of male (44.21%) and female (55.72%) participants, with over 80% being between the ages of 20 and 40. Around 99% of respondents were educated. In terms of use, 152 individuals (44.57%) and 189 people (55.43%) reported utilizing 4G and 5G services, respectively. Around 75% of the respondents were from Beijing, while the rest were from other parts of China.

5 Data analysis

For confirmatory factor analysis, we used a model created in Smartpls3.00 to assess the data validity and reliability. At least a minimum of three related items define all variables. We first conducted a collinearity test to eliminate concerns about multi-correlation. We confirmed that the variance inflation factor (VIF) of independent factors was less than 3, significantly lower than the key limit of 10 (Hu et al., 2017). Based on the two-step approach in PLS-SEM, the results of the factor loadings were analyzed to determine the relationships between the latent variables and reflecting indicators (Fernandes 2012; Qalati et al., 2021). Structural equation modelling (SEM) is a

TABLE 2 Constructs with outer loading values (OL).

Environmental awareness (EA)	N	Mean	Std. D	OL
EA1	341	3.24	1.03	0.79
EA2	341	3.25	1.05	0.87
EA4	341	3.13	1.02	0.78
Product Safety Concern (PS)				
SC2	341	3.16	0.92	0.86
SC3	341	3.35	1.01	0.76
SC4	341	3.36	0.86	0.58
Consumer Innovativeness (CI)				
CI1	341	3.80	0.93	0.71
CI3	341	3.89	0.88	0.82
CI4	341	4.18	0.72	0.80
Consumer Purchase Intentions (CPI)				
CPI2	341	3.25	0.91	0.85
CPI3	341	3.79	0.83	0.64
CPI4	341	3.34	0.94	0.74
Visibility Affordances (VA)				
VA1	341	3.36	0.86	0.79
VA2	341	3.23	0.82	0.81
VA3	341	3.29	0.92	0.73
Guidance Affordances (GA)				
GA1	341	3.34	0.94	0.75
GA2	341	3.80	0.93	0.81
GA3	341	3.89	0.88	0.83

statistical framework that explains the variables relationship and precisely illustrates the suggested model (Hair et al., 2016; Sharif et al., 2022). The Partial least square (PLS) approach is also a valuable option for developing theories and doing causal analysis because it does not call for any assumptions regarding the distributions of sample data (Hair et al., 2016; Shah et al., 2021). As per the "ten times rule," the minimal sample size (N = 341) for PLS-SEM examination must be more than ten times the number of pathways in the model (Kelloway 1998; Marcoulides et al., 2009; Hair et al., 2012). Therefore, PLS-SEM is applied to assess the planned model in this study.

5.1 Measurement model assessment

The external loading values were examined to determine the relationship between latent variables and reflective indicators. On a five-point scale, the mean score varied from (3.13) to (4.18), indicating that most consumers were happy with the 5G products. The standard deviations (SD) varied from (0.829) to (1.05), indicating that the results were satisfactory. Items with an external factor load greater than 0.6 are retained, and items with an external factor load less than 0.6 are deleted from the scale (as shown in Table 2 and Figure 2). The only cause to remove such values is to upsurge the composite reliability and average variance extracted (AVE) (Fornell and Larcker 1981; Hair et al., 2016). This research practiced construct validity, which included convergence validity and discriminant validity. The term convergence validity denotes the extent to which a measure interacts with or is connected to other measures of a comparable construct (Hair et al., 2016). The convergence efficiency is demonstrated when the predicted constructs value of the AVE is greater or equal to 0.5. All constructs had an acceptable AVE value, thus meeting the condition for achieving convergent validity (Table 3). Composite reliability (CR) can also be used to assess convergent validity. All constructs demonstrate satisfactory high CR ratings above the 0.60 thresholds. The reliability assessments must be greater than 0.70 when calculating Cronbach's alpha to observe internal consistency. The 0.70 level is often believed to be frequently acknowledged in social science research (Hair et al., 2016; Shah and Zhongjun 2021). All values demonstrated an acceptable Cronbach's coefficient alpha level (0.70) of reliability (Table 3). Generally, the proposed standards are appropriate for investigating the significance of the routes. Discriminant validity is also employed to test the variance among variables. A prominent strategy for assessing discriminant validity was to probe the correlation matrix of variables (Chin 1998; Hair et al., 2016; Shah et al., 2021). According to Table 4, all the model constructs meet this requirement since no off-diagonal component surpasses the corresponding diagonal item. As a result, it demonstrated discriminant validity.

Furthermore, The PLS technique is used to analyze the theoretical framework to identify the significance of the route and the proposed model's predicting capacity. The bootstrap procedure is then used to determine the level of significance of the route parameters. To begin, the path coefficient significance of the structural model is carefully judged using the T statistic and p values (Hair et al., 2016; Shah et al., 2021). Table 5 highlights the study hypotheses and depicts the latent variable correlation coefficients and bootstrapping critical ratio. The T statistic determines the consistency; a 95% confidence interval greater than 1.96 is regarded as satisfactory. As a consequence, all of our study assumptions were confirmed.

Further, we discover favorable direct and indirect connections (Table 6 and Table 7) of the variables between CI and CPI in the proposed model. Consequently, our findings back H1, H2a, H2b, H3a, H3b, H4a, and H4b. These findings serve as the foundation for the discussion in the next section.

6 Discussion

Businesses have penetrated new markets during the epidemic because of their aggressive use of modern technologies (Rashid et al., 2020; Yu et al., 2022). Many issues have arisen for businesses because of various COVID-19 concerns (Kanwal

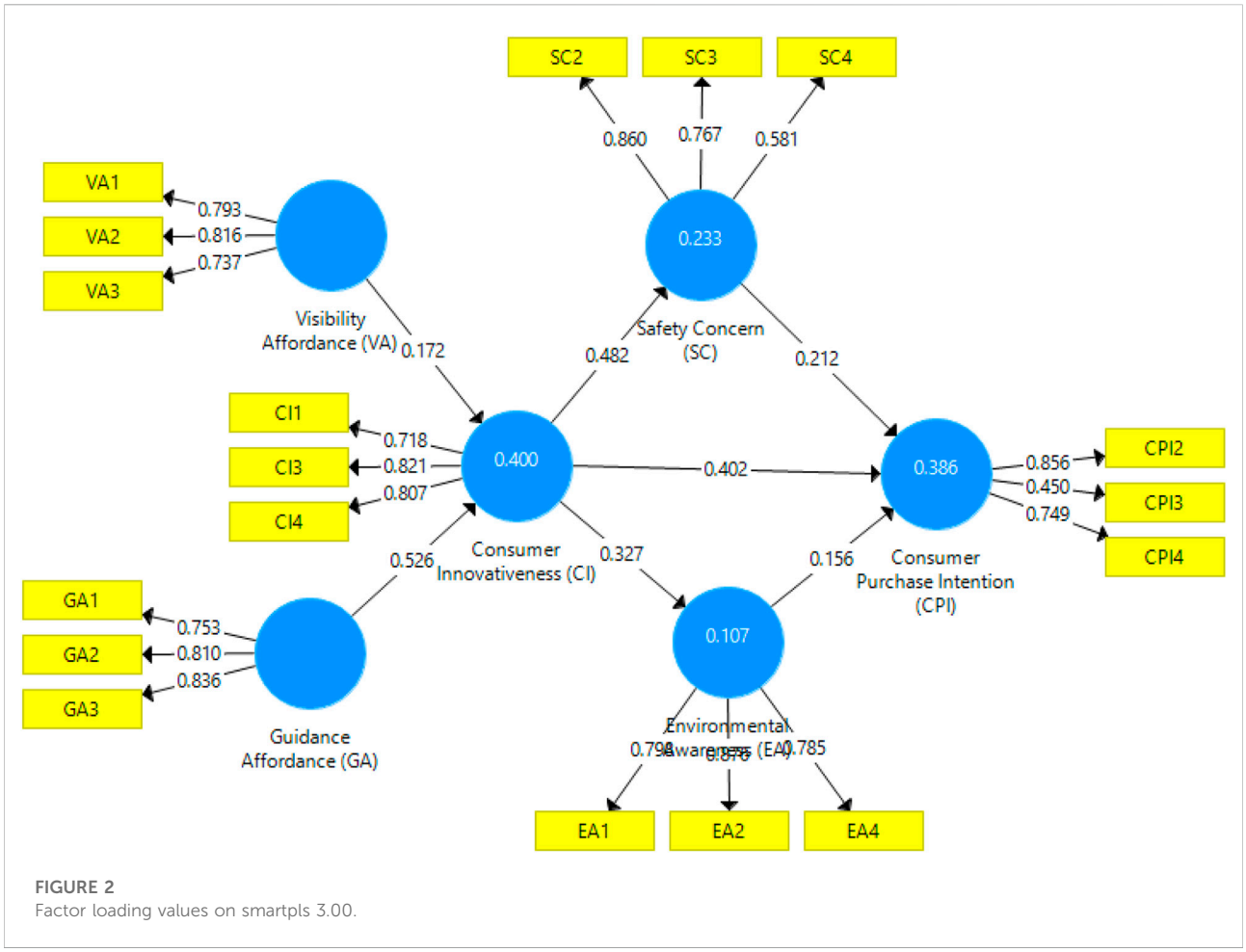

FIGURE 2
Factor loading values on smartpls 3.00.

TABLE 3 Construct reliability and validity.

	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted (AVE)
Consumer Innovativeness (CI)	0.68	0.68	0.82	0.61
Consumer Purchase Intention (CPI)	0.49	0.59	0.73	0.49
Environmental Awareness (EA)	0.75	0.76	0.86	0.67
Guidance Affordance (GA)	0.72	0.72	0.84	0.64
Safety Concern (SC)	0.62	0.71	0.78	0.55
Visibility Affordance (VA)	0.68	0.68	0.82	0.61

et al., 2019; Hamza Shuja et al., 2020). Existing client loss, delays in supply chains, modifications to export orders, and shortages of raw materials are some of these issues (Kanwal et al., 2019; Yu et al., 2022). As a result, businesses at all levels have discovered new ways to connect with consumers on a large scale (Islm et al., 2021). The appearance of the virus (COVID-19) has affected all sectors and companies, including banking, tourism, and cultural organizations (Abaalzamat et al., 2021). Business firms have faced many challenges, such as energy issues, and tackled environmental and CSR issues amid the COVID-19 crisis (Sattar et al., 2020; Xu and Sattar 2020; Latief et al., 2021; Latief et al., 2022; Sattar 2022). To access new markets that conform to supply chains, transportation, supply-demand meet-ups, and other challenges experienced in the pandemic, COVID-

TABLE 4 Discriminant validity through heterotrait-monotrait ratio (HTMT).

	(CI)	(CPI)	(EA)	(GA)	(SC)	(VA)
Consumer Innovativeness (CI)	0.78					
Consumer Purchase Intention (CPI)	0.55	0.70				
Environmental Awareness (EA)	0.32	0.39	0.82			
Guidance Affordance (GA)	0.61	0.44	0.35	0.80		
Safety Concern (SC)	0.48	0.48	0.48	0.40	0.74	
Visibility Affordance (VA)	0.44	0.45	0.29	0.52	0.54	0.78

TABLE 5 Path coefficient through Smartpls Bootstrapping.

	Original sample	Sample mean	Standard deviation	T statistics	*p* values
Consumer Innovativeness (CI) → Consumer Purchase Intention (CPI)	0.39	0.38	0.06	6.53	0.00
Consumer Innovativeness (CI) → Environmental Awareness (EA)	0.24	0.24	0.06	4.11	0.00
Consumer Innovativeness (CI) → Safety Concern (SC)	0.44	0.45	0.04	9.14	0.00
Environmental Awareness (EA) →Consumer Purchase Intention (CPI)	0.14	0.14	0.06	2.03	0.04
Guidance Affordance (GA) →Consumer Innovativeness (CI)	0.45	0.45	0.06	7.40	0.00
Safety Concern (SC) →Consumer Purchase Intention (CPI)	0.16	0.16	0.06	2.51	0.01
Visibility Affordance (VA) →Consumer Innovativeness (CI)	0.203	0.207	0.06	3.401	0.001

TABLE 6 Direct effects through SmartPLS bootstrapping.

	Original sample	Sample mean	Standard deviation	T statistics	*p* values
Consumer Innovativeness (CI) →Consumer Purchase Intention (CPI)	0.49	0.49	0.05	9.66	0.00
Consumer Innovativeness (CI) →Environmental Awareness (EA)	0.24	0.24	0.06	4.11	0.00
Consumer Innovativeness (CI) → Safety Concern (SC)	0.44	0.45	0.04	9.14	0.00
Environmental Awareness (EA) →Consumer Purchase Intention (CPI)	0.14	0.14	0.06	2.03	0.04
Guidance Affordance (GA) → Consumer Innovativeness (CI)	0.45	0.45	0.06	7.40	0.00
Guidance Affordance (GA) → Consumer Purchase Intention (CPI)	0.22	0.22	0.04	5.5	0.00
Guidance Affordance (GA) →Environmental Awareness (EA)	0.11	0.11	0.03	3.37	0.00
Guidance Affordance (GA) → Safety Concern (SC)	0.20	0.20	0.03	5.42	0.00
Safety Concern (SC) → Consumer Purchase Intention (CPI)	0.16	0.16	0.06	2.51	0.01
Visibility Affordance (VA) → Consumer Innovativeness (CI)	0.20	0.20	0.06	3.40	0.00
Visibility Affordance (VA) →Consumer Purchase Intention (CPI)	0.10	0.10	0.03	3.10	0.00
Visibility Affordance (VA) →Environmental Awareness (EA)	0.05	0.05	0.02	2.40	0.01
Visibility Affordance (VA) → Safety Concern (SC)	0.09	0.09	0.03	3.06	0.00

19 has provided a novel perspective to marketing (Yu et al., 2022). Due to these market shifts, it is now crucial to comprehend customer willingness as well. This article's objective was to look at the influence of affordances on innovativeness and further environmental awareness and safety concerns on consumer innovativeness and purchase intentions relationship. Therefore, a structured questionnaire was designed, backed by existing research, and performed in the capital of China. Four hypotheses were developed and evaluated using PLS-SEM to discuss the study aims. The data, structural, and measurement

TABLE 7 Indirect effect through SmartPLS bootstrapping.

	Original sample	Sample mean	Standard deviation	T statistics	*p* values
Guidance Affordance (GA) → Consumer Innovativeness (CI) → Environmental Awareness (EA) → Consumer Purchase Intention (CPI)	0.01	0.01	0.01	1.56	0.03
Visibility Affordance (VA) → Consumer Innovativeness (CI) → Environmental Awareness (EA) → Consumer Purchase Intention (CPI)	0.03	0.03	0.02	1.67	0.04
Guidance Affordance (GA) → Consumer Innovativeness (CI) →Safety Concern (SC) →Consumer Purchase Intention (CPI)	0.05	0.05	0.02	2.40	0.01
Visibility Affordance (VA) → Consumer Innovativeness (CI) → Safety Concern (SC) → Consumer Purchase Intention (CPI)	0.07	0.07	0.03	2.27	0.02

models all fit well, and the consistency was high for various structures. Compared with the previous one-dimensional comprehensive framework for consumer innovation (He et al., 2018; Li et al., 2021), it directly and indirectly, impacts consumer innovation and purchase intention.

We found that visibility and guidance affordances directly impact consumer innovativeness towards 5G technology products. As a result, this highlights the need to supply personalized goods and provide counsel within the context of the consumer's preferences and needs. This also demonstrates that allowing consumers to see and guide what they are about to purchase can foster confidence. Since the adoption of 5G goods is delayed, regardless of which categories of 5G items consumers purchase, VA and GA play essential roles in shaping consumer innovativeness. We further reveal that environmental awareness and safety concerns mediate the associations between consumer innovativeness (CI) and intention (CPI) of 5G technology items. The potential explanations for the mediating effect of environmental awareness (EA) and safety concerns are that, due to China's fast economic development, the Chinese people's spending power has expanded significantly. They are inspired to purchase environmentally friendly technology to improve their quality of life and health.

6.1 Theoretical implications

The outcomes of this article provide better acumens of the impact of innovativeness in boosting the 5G technology adoption intentions. Though previous research has studied the influence of user innovativeness on product adoption intentions (Heidenreich et al., 2017), they have disregarded 5G technology goods. We supplement the current research by analyzing the innovativeness effect on the espousal of 5G goods. We suggest that more attention should be paid to consumers' innovation, awareness, safety, and affordability of 5G products. Most studies adopt a comprehensive one-way framework for user innovation (Hong et al., 2017) while ignoring other consumer attributes. This study adds to our understanding of how and what factors can influence the acceptance of new goods, particularly from the perspective of 5G technology products. The findings support the judgments of Wang et al. (2016), which found that environmental awareness and safety concerns might considerably impact attitude and subsequent behavioral intentions. According to this study, consumers consider health concerns necessary when purchasing a product or service. Research shows that the level of consumption of 5G technology products in China positively correlates with buyer income levels (Shah et al., 2021). Though most users may have recognized no health problems with 5G technology, they still do not purchase it as they are lavish compared to the 4G technology that is inexpensive and easily available.

Furthermore, different disciplines have employed affordances as a theoretical foundation (Sun et al., 2019). In this study, 5G technology also adopts the affordances perspective because it helps to assess both the consumer perception and 5G technology features as a whole. As a result of the scarcity of research on this issue, the contribution of this work is significant. Although studies in the literature show that availability has a secondary impact on purchase intention, there is no research on the direct impact of availability on consumer innovation. Also, the mediating effect of environmental awareness and safety concerns on 5G item purchase intentions is an entirely novel and validated assumption. Therefore the current study results will significantly improve the existing body of knowledge.

6.2 Managerial and policy-making implications

Our research not only increases the literature but also has managerial implications for policy-makers interested in encouraging the use of 5G technology. First, we believe that marketing variables significantly impact consumers' innovativeness. As a result, businesses and policy-makers should increase the guidance and visibility of 5G goods to assist consumers in understanding the relative benefits of 5G products, resulting in favorable views toward 5G products. Second, environmental awareness and safety concern

significantly impact the purchasing intention of 5G products. To attract the attention of innovative consumers, enterprises should share information about the latest environmentally friendly technologies used to create 5G products. For this purpose, businesses should devise various marketing techniques depending on the qualities of their consumers. Marketers and manufacturers must remain vigilant to maintain the quality of 5G products, and they should also react accordingly to minimize buyers' risk perceptions if such issues arise. Third, based on our empirical investigations and innovation diffusion theory, consumers perceived 5G technology as innovative, which will increase users' practical proficiencies. The health issue is the crucial factor that hurts consumption. As a result, aggressive marketing practices can be introduced to raise consumer awareness of the health and other environmental benefits of 5G technology, influencing purchase intent. For instance, they can cooperate with prominent medical professionals to provide testimony about 5G products and persuade people that this technology will not harm health.

Furthermore, practitioners have emphasized that this technology is a disruptive breakthrough that will alter user behavior and industrial patterns. This disparity between consumer and producer views of 5G is unfavorable for promoting the 5G market spread and activating consumer demand. As a result, businesses and governments should concentrate on changing consumer views of 5G technology and supporting creative 5G services and applications. 5G innovation can boost the market, develop strategic prospects, and reshape the competitive landscape. Users usually like novel technology products but use them less commonly. As a result, designers or pioneers of 5G technology products must be aware of the factors that may influence consumers' decisions to acknowledge them. This study provides evidence for the role of these variables in encouraging users to accept 5G technology. The outcomes of the current study give valuable suggestions through which administrators can boost user trust by optimizing affordances. Furthermore, before consumer purchases a product, there is an assessment period. At this level, enhancing the availability of relevant information and guidance to consumers will raise their intent. A good association between various characteristics of affordance was discovered in the current investigation. As a result, practitioners' investments in 5G technology can boost affordance. The primary goal of this study is to inspire and motivate academics and professionals to investigate and take responsibility for the Covid-19 epidemic as a transformative opportunity for innovative product creation and management. According to Rahmat et al. (2022), they must rewire their thoughts to create and carry out research. Innovative products and services are beneficial to address the global situation. Institutions should reevaluate and restructure their criteria and standards to drive and assess the research goal, function, and consequences.

Additionally, crises present chances for faster technical development, transformation, and innovation. The development and use of new technologies are key factors in the stability and expansion of the economy (Li et al., 2021). Information and communication technologies (ICTs) play a significant role in the growth of the global economy. ICTs are the main driver of economic growth and competitiveness in emerging economies. Research on the growth of information technology frequently concentrates on a select few developed countries. If a country lacks capital and raw materials, this article's findings will help policy-makers realize that active 5G development is the best method to promote social welfare. Consequently, ICT clustering may be seen as a new form of human capital-based rivalry.

7 Conclusions, limitations, and future research directions

This article fills in the literature gap by exploring the impact of visibility and guidance availability on innovativeness. Further environmental awareness and safety concerns are correlated with consumer innovativeness and purchase intention. We examine the process of tying VA, GA, EA, SC, and CI to 5G product CPI to transform as many users as possible into early adopters of 5G goods. We found that the visibility and guidance affordances characteristics enhance consumer innovativeness. Similarly, the environmental awareness and safety concern variables mediate the relationship between innovativeness and intention for 5G items. Our results contribute to a deeper understanding of consumer ingenuity's role in driving 5G adoption. In our opinion, policy-makers and managers should alter their marketing tactics initiatives to speed up the adoption of 5G goods. In the framework of COVID-19, the countries are re-opening the economy so that people may restore their usual way of life because they now have control systems in place to reduce the growth of COVID19. Each nation's healthcare system needs to be armed with cutting-edge solutions to properly handle any new issues to avoid future "re-emergence" of the illness. 5G technologies are significant in this regard. Despite its significant contributions, our research contains a few limitations. First and foremost, the link between innovativeness and intention is the subject of our article. However, there is often a disconnect between intentions and actions. Because of this constraint, future studies can assess our results in real-life situations. Second, our conclusions are grounded on cross-sectional data, even though we used a marker variable to evaluate common method bias. The mediation analysis suggests possible causation, and we may test our model using longitudinal data in the future. Furthermore, this study is based on 5G technology in China; many other developed and developing countries have not yet installed this technology as most economies are still using 4G. Therefore a comparative study between 4G and 5G economies should be done in the future.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: The data that support the findings of this study are available from the corresponding author upon reasonable request. Requests to access these datasets should be directed to skifss_20@qq.com.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Funding

This research was supported by the National Nature Science Foundation of China under grant No. 71672004 and the Scientific Grant Agency of the Ministry of Education, Science, Research, and Sport of the Slovak Republic and the Slovak Academy Sciences as part of the research project VEGA No. 1/0590/22.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

Abaalzamat, K. H., Al-Sulaiti, K. I., Alzboun, N. M., and Khawaldah, H. A. (2021). The role of Katara cultural village in enhancing and marketing the image of Qatar: Evidence from TripAdvisor. *SAGE Open* 11 (2), 21582440211022737.

Adnan, N., Nordin, S. M., Amini, M. H., and Langove, N. (2018). What make consumer sign up to PHEVs? Predicting Malaysian consumer behavior in adoption of PHEVs. *Transp. Res. Part A Policy Pract.* 113, 259–278. doi:10.1016/j.tra.2018.04.007

Al Halbusi, H., Al-Sulaiti, K., and Al-Sulaiti, I. (2022). Assessing factors influencing technology adoption for online purchasing amid COVID-19 in Qatar: Moderating role of word of mouth. *Front. Environ. Sci.* 10, 942527. doi:10.3389/fenvs.2022.942527

Aman, J., Lela, U., and Shi, G. (2021). Religious affiliation, daily spirituals, and private religious factors promote marital commitment among married couples: Does religiosity help people amid the COVID-19 crisis? *Front. Psychol.* 12, 657400. doi:10.3389/fpsyg.2021.657400

Aman, J., Mahmood, S., Nurunnabi, M., and Bano, S. (2019). The influence of islamic religiosity on the perceived socio-cultural impact of sustainable tourism development in Pakistan: A structural equation modeling approach. *Sustainability* 11 (11), 3039. doi:10.3390/su11113039

Amyx, D. A., DeJong, P. F., Lin, X., Chakraborty, G., and Wiener, J. L. (1994). "Influencers of purchase intentions for ecologically safe products: An exploratory study," in Proceedings of the 1994 American Marketing Association Winter Educators Conference, Chicago III. Paper presented at the Marketing Theory and Applications.

Aqeel, M., Raza, S., and Aman, J. (2021). Portraying the multifaceted interplay between sexual harassment, job stress, social support and employees turnover intension amid COVID-19: A multilevel moderating model. *Found. Univ. J. Bus. Econ.* 6 (2), 1–17.

Arazy, O., Kumar, N., and Shapira, B. (2010). A theory-driven design framework for social recommender systems. *J. Assoc. Inf. Syst.* 11 (9), 455–490. doi:10.17705/1jais.00237

Asad, A., Irfan, M., and Raza, H. M. A. (2017). The impact of HPWS in organizational performance: A mediating role of servant leadership. *J. Manag. Sci.* 11, 25–48.

Azadi, N. A., Ziapour, A., Lebni, J. Y., Irandoost, S. F., and Chaboksavar, F. (2021). The effect of education based on health belief model on promoting preventive behaviors of hypertensive disease in staff of the Iran University of Medical Sciences. *Arch. Public Health* 79 (1), 69. doi:10.1186/s13690-021-00594-4

Azizi, M. R., Atlasi, R., Ziapour, A., and Naemi, R. (2021). Innovative human resource management strategies during the COVID-19 pandemic: A systematic narrative review approach. *Heliyon* 7 (6), e07233. doi:10.1016/j.heliyon.2021.e07233

Bartels, J., and Reinders, M. J. (2010). Social identification, social representations, and consumer innovativeness in an organic food context: A cross-national comparison. *Food Qual. Prefer.* 21 (4), 347–352. doi:10.1016/j.foodqual.2009.08.016

Belk, R. W. (1975). Situational variables and consumer behavior. *J. Consumer Res.* 2 (3), 157–164. doi:10.1086/208627

Butt, A. A., Chughta, G. R., Kabir, A., Mahmood, Z., and Oláh, J. (2021). Analysis of key establishment techniques for secure D2D communication in emerging 5G cellular networks. *Acta Montan. Slovaca* 26 (3), 395. doi:10.46544/AMS.v26i3.01

Chan, W. Y., To, C. K., and Chu, W. C. (2015). Materialistic consumers who seek unique products: How does their need for status and their affective response facilitate the repurchase intention of luxury goods? *J. Retail. Consumer Serv.* 27, 1–10. doi:10.1016/j.jretconser.2015.07.001

Chen, C.-F., and Wang, J.-P. (2016). Customer participation, value co-creation and customer loyalty–A case of airline online check-in system. *Comput. Hum. Behav.* 62, 346–352. doi:10.1016/j.chb.2016.04.010

Cheng, L.-K., Huang, H.-L., and Yang, S.-Y. (2021). Attitude toward 5G: The moderating effect of regulatory focus. *Technol. Soc.* 67, 101795. doi:10.1016/j.techsoc.2021.101795

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Mod. methods Bus. Res.* 295 (2), 295–336.

Cop, S., Alola, U. V., and Alola, A. A. (2020). Perceived behavioral control as a mediator of hotels' green training, environmental commitment, and organizational citizenship behavior: A sustainable environmental practice. *Bus. Strategy Environ.* 29 (8), 3495–3508. doi:10.1002/bse.2592

Daziano, R. A., and Bolduc, D. (2013). Incorporating pro-environmental preferences towards green automobile technologies through a Bayesian hybrid choice model. *Transp. A Transp. Sci.* 9 (1), 74–106. doi:10.1080/18128602.2010.524173

Dong, X., and Wang, T. (2018). Social tie formation in Chinese online social commerce: The role of IT affordances. *Int. J. Inf. Manag.* 42, 49–64. doi:10.1016/j.ijinfomgt.2018.06.002

Edinger-Schons, L. M., Sipilä, J., Sen, S., Mende, G., Wieseke, J., Kirmani, A., et al. (2018). Are two reasons better than one? The role of appeal type in consumer responses to sustainable products. *J. Consum. Psychol.* 28 (4), 644–664. doi:10.1002/jcpy.1032

Farzadfar, F., Naghavi, M., Sepanlou, S. G., Saeedi Moghaddam, S., Dangel, W. J., Davis Weaver, N., et al. (2022). Health system performance in Iran: A systematic analysis for the global burden of disease study 2019. *Lancet* 399 (10335), 1625–1645. doi:10.1016/s0140-6736(21)02751-3

Fattahi, E., Solhi, M., Kasmaei, P., Rastaghi, S., Pouresmaeil, M., Gilan, H. D., et al. (2020). Prioritization of needs among students of university of medical sciences: A needs assessment. *J. Educ. Health Promot.* 9, 57. doi:10.4103/0445-7706.281641

Fernandes, V. (2012). En quoi l'approche PLS est-elle une méthode a (re)-découvrir pour les chercheurs en management? *M@n@gement* 15 (1), 102–123. doi:10.3917/mana.151.0102

Fornell, C., and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* 18 (1), 39–50. doi:10.2307/3151312

Fu, Q. (2022). Reset the industry redux through corporate social responsibility: The COVID-19 tourism impact on hospitality firms through business model innovation. *Front. Psychol.* 12, 795345. doi:10.3389/fpsyg.2021.795345

Ge, T., Ullah, R., Abbas, A., Sadiq, I., and Zhang, R. (2022). Women's entrepreneurial contribution to family income: Innovative technologies promote females' entrepreneurship amid COVID-19 crisis. *Front. Psychol.* 13, 828040. doi:10.3389/fpsyg.2022.828040

Geng, J., Ul Haq, S., Ye, H., Shahbaz, P., Abbas, A., Cai, Y., et al. (2022). Survival in pandemic times: Managing energy efficiency, food diversity, and sustainable practices of nutrient intake amid COVID-19 crisis. *Front. Environ. Sci.* 13, 945774. doi:10.3389/fenvs.2022.945774

Griffitt, W. (1970). Environmental effects on interpersonal affective behavior: Ambient effective temperature and attraction. *J. Personality Soc. Psychol.* 15 (3), 240–244. doi:10.1037/h0029432

Hair, J. F., Jr, Sarstedt, M., Matthews, L. M., and Ringle, C. M. (2016). *Identifying and treating unobserved heterogeneity with FIMIX-PLS: Part I–method*. London, England: European Business Review.

Hair, J. F., Sarstedt, M., Pieper, T. M., and Ringle, C. M. (2012). The use of partial least squares structural equation modeling in strategic management research: A review of past practices and recommendations for future applications. *Long. range Plan.* 45 (5-6), 320–340. doi:10.1016/j.lrp.2012.09.008

Hamza Shuja, K., Aqeel, M., Jaffar, A., and Ahmed, A. (2020). COVID-19 pandemic and impending global mental health implications. *Psychiatr. Danub.* 32 (1), 32–35. doi:10.24869/psyd.2020.32

Han, H., and Ryu, K. (2009). The roles of the physical environment, price perception, and customer satisfaction in determining customer loyalty in the restaurant industry. *J. Hosp. Tour. Res.* 33 (4), 487–510. doi:10.1177/1096348009344212

He, H., Li, Y., and Harris, L. (2012). Social identity perspective on brand loyalty. *J. Bus. Res.* 65 (5), 648–657. doi:10.1016/j.jbusres.2011.03.007

He, X., Zhan, W., and Hu, Y. (2018). Consumer purchase intention of electric vehicles in China: The roles of perception and personality. *J. Clean. Prod.* 204, 1060–1069. doi:10.1016/j.jclepro.2018.08.260

Heidenreich, S., Spieth, P., and Petschnig, M. (2017). Ready, steady, green: Examining the effectiveness of external policies to enhance the adoption of eco-friendly innovations. *J. Prod. Innov. Manage.* 34 (3), 343–359. doi:10.1111/jpim.12364

Hong, J.-C., Lin, P.-H., and Hsieh, P.-C. (2017). The effect of consumer innovativeness on perceived value and continuance intention to use smartwatch. *Comput. Hum. Behav.* 67, 264–272. doi:10.1016/j.chb.2016.11.001

Hooks, D., Davis, Z., Agrawal, V., and Li, Z. (2022). Exploring factors influencing technology adoption rate at the macro level: A predictive model. *Technol. Soc.* 68, 101826. doi:10.1016/j.techsoc.2021.101826

Hopwood, B., Mellor, M., and O'Brien, G. (2005). Sustainable development: Mapping different approaches. *Sust. Dev.* 13 (1), 38–52. doi:10.1002/sd.244

Hsu, C.-L., and Lin, J. C.-C. (2018). Exploring factors affecting the adoption of internet of things services. *J. Comput. Inf. Syst.* 58 (1), 49–57. doi:10.1080/08874417.2016.1186524

Hu, Y., McNamara, P., and Piaskowska, D. (2017). Project suspensions and failures in new product development: Returns for entrepreneurial firms in co-development alliances. *J. Prod. Innov. Manage.* 34 (1), 35–59. doi:10.1111/jpim.12322

Hussain, T., Li, B., Aman, J., and Ali, S. (2017). Natural resource management for the world's highest park: Community attitudes on sustainability for central karakoram national park, Pakistan. *Sustainability* 9 (6), 972. doi:10.3390/su9060972

Hussain, T., Wei, Z., Ahmad, S., Xuehao, B., and Gaoli, Z. (2021). Impact of urban village disamenity on neighboring residential properties: Empirical evidence from nanjing through hedonic pricing model appraisal. *J. Urban Plan. Dev.* 147 (1), 04020055. doi:10.1061/(asce)up.1943-5444.0000645

Islm, T., Meng, H., Pitafi, A. H., Zafar, A. U., Sheikh, Z., Mubarik, M. S., et al. (2021). Why do citizens engage in government social media accounts during COVID-19 pandemic? A comparative study. *Telematics Inf.* 62, 101619. doi:10.1016/j.tele.2021.101619

Jaffar, A. (2020). The impact of coronavirus (SARS-CoV2) epidemic on individuals mental health: The protective measures of Pakistan in managing and sustaining transmissible disease. *Psychiatr. Danub.* 32 (3-4), 472–477. doi:10.24869/psyd.2020.472

Jaffar, A. (2020). The role of interventions to manage and reduce covid-19 mortality rate of the COVID-19 patients worldwide. *Found. Univ. J. Psychol.* 4 (2), 33–36. doi:10.33897/fujp.v4i2.158

Kaaviya, C., Lavanya, S. M., and Krishnakumare, B. (2019). Consumers' opinion towards food product recall. *Eur. J. Nutr. Food Saf.*, 208–215. doi:10.9734/ejnfs/2019/v10i330114

Kai-Ineman, D., and Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica* 47 (2), 363–391.

Kanwal, S., Pitafi, A. H., Pitafi, A., Nadeem, M. A., Younis, A., and Chong, R. (2019). China–Pakistan Economic Corridor (CPEC) development projects and entrepreneurial potential of locals. *J. Public Aff.* 19 (4), e1954. doi:10.1002/pa.1954

Karahanna, E., Straub, D. W., and Chervany, N. L. (1999). Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS Q.* 23, 183–213. doi:10.2307/249751

Kelloway, E. K. (1998). *Using lisrel for structural equation modeling: A researcher's guide*. California, United States: Sage.

Khazaie, H., Lebni, J. Y., Mahaki, B., Chaboksavar, F., Kianipour, N., Ziapour, A., et al. (2021). Internet addiction status and related factors among medical students: A cross-sectional study in western Iran. *Int. Q. Community Health Educ.* 2021, 272684X211025438. doi:10.1177/0272684X211025438

Koroleva, K., and Kane, G. C. (2017). Relational affordances of information processing on Facebook. *Inf. Manag.* 54 (5), 560–572. doi:10.1016/j.im.2016.11.007

Kulsuma, N. (2018). Determinants of consumers' intention and their behaviour in buying liquid milk. *Asian Profile* 46, 295–310.

Kunkel, T., Walker, M., and Hodge, C. M. (2019). The influence of advertising appeals on consumer perceptions of athlete endorser brand image. *Eur. Sport Manag. Q.* 19 (3), 373–395. doi:10.1080/16184742.2018.1530688

Latief, R., Kong, Y., Javeed, S. A., and Sattar, U. (2021). Carbon emissions in the SAARC countries with causal effects of FDI, economic growth and other economic factors: Evidence from dynamic simultaneous equation models. *Int. J. Environ. Res. Public Health* 18 (9), 4605. doi:10.3390/ijerph18094605

Latief, R., Sattar, U., Javeed, S. A., Gull, A. A., and Pei, Y. (2022). The environmental effects of urbanization, education, and green innovation in the union for mediterranean countries: Evidence from quantile regression model. *Energies* 15 (15), 5456. doi:10.3390/en15155456

Lebni, J. Y., Toghroli, R., Kianipour, N., NeJhaddadgar, N., Salahshoor, M. R., and Ziapour, A. (2021). Nurses' work-related quality of life and its influencing demographic factors at a public hospital in western Iran: A cross-sectional study. *Int. Q. Community Health Educ.* 42 (1), 37–45. doi:10.1177/0272684X20972838

Lebni, J. Y., Toghroli, R., NeJhaddadgar, N., Salahshoor, M. R., Mansourian, M., Ziapour, A., et al. (2020). A study of internet addiction and its effects on mental health: A study based on Iranian university StudentsA study of internet addiction and its effects on mental health: A study based on Iranian university students. *J. Educ. Health Promot.* 9 (1), 205. doi:10.4103/jehp.jehp_148_20

Li, L., Wang, Z., Li, Y., and Liao, A. (2021). Impacts of consumer innovativeness on the intention to purchase sustainable products. *Sustain. Prod. Consum.* 27, 774–786. doi:10.1016/j.spc.2021.02.002

Li, X., Dongling, W., Baig, N. U. A., and Zhang, R. (2022). From cultural tourism to social entrepreneurship: Role of social value creation for environmental sustainability. *Front. Psychol.* 13, 925768. doi:10.3389/fpsyg.2022.925768

Li, Y., Al-Sulaiti, K., Dongling, W., and Al-Sulaiti, I. (2022). Tax avoidance culture and employees' behavior affect sustainable business performance: The moderating

role of corporate social responsibility. *Front. Environ. Sci.* 10, 964410. doi:10.3389/fenvs.2022.964410

Li, Z., Wang, D., Hassan, S., and Mubeen, R. (2021). Tourists' health risk threats amid COVID-19 era: Role of technology innovation, transformation, and recovery implications for sustainable tourism. *Front. Psychol.* 12, 769175. doi:10.3389/fpsyg.2021.769175

Lin, Z., and Filieri, R. (2015). Airline passengers' continuance intention towards online check-in services: The role of personal innovativeness and subjective knowledge. *Transp. Res. Part E Logist. Transp. Rev.* 81, 158–168. doi:10.1016/j.tre.2015.07.001

Liu, Q., Qu, X., Wang, D., and Mubeen, R. (2022). Product market competition and firm performance: Business survival through innovation and entrepreneurial orientation amid COVID-19 financial crisis. *Front. Psychol.* 12, 790923. doi:10.3389/fpsyg.2021.790923

Local Burden of Disease, H. I. V. C. (2021). Mapping subnational HIV mortality in six Latin American countries with incomplete vital registration systems. *BMC Med.* 19 (1), 4. doi:10.1186/s12916-020-01876-4

Mamirkulova, G., and Mi, J. (2022). Economic Corridor and tourism sustainability amid unpredictable COVID-19 challenges: Assessing community well-being in the World Heritage Sites. *Front. Psychol.* 12, 797568. doi:10.3389/fpsyg.2022.797568

Mamirkulova, G., Mi, J., Mahmood, S., Mubeen, R., and Ziapour, A. (2020). New Silk Road infrastructure opportunities in developing tourism environment for residents better quality of life. *Glob. Ecol. Conservation* 24, e01194. doi:10.1016/j.gecco.2020.e01194

Maqsood, A., Rehman, G., and Mubeen, R. (2021). The paradigm shift for educational system continuance in the advent of COVID-19 pandemic: Mental health challenges and reflections. *Curr. Res. Behav. Sci.* 2, 100011. doi:10.1016/j.crbeha.2020.100011

Marcoulides, G. A., Chin, W. W., and Saunders, C. (2009). A critical look at partial least squares modeling. *MIS Q.* 33 (1), 171–175. doi:10.2307/20650283

Mason, A. N., Narcum, J., and Mason, K. (2021). Social media marketing gains importance after Covid-19. *Cogent Bus. Manag.* 8 (1), 1870797. doi:10.1080/23311975.2020.1870797

Mavromoustakis, C. X., Mastorakis, G., and Batalla, J. M. (2016). *Internet of things (IoT) in 5G mobile technologies*, 8. Chram: Springer.

Maziriri, E. T., and Chuchu, T. (2017). The conception of consumer perceived risk towards online purchases of apparel and an idiosyncratic scrutiny of perceived social risk: A review of literature. *Int. Rev. Manag. Mark.* 7 (3), 257–265.

Meijani, M., Rousta, A., and Jamshidi, D. (2021). Employing the creative approach of brand addiction to develop a model of repurchasing luxury products. *J. Innovation Creativity Hum. Sci.* 10 (4), 113–142.

Michaelidou, N., and Hassan, L. M. (2008). The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. *Int. J. Consum. Stud.* 32 (2), 163–170. doi:10.1111/j.1470-6431.2007.00619.x

Moghavvemi, S., Salleh, N. A. M., Sulaiman, A., and Abessi, M. (2015). Effect of external factors on intention–behaviour gap. *Behav. Inf. Technol.* 34 (12), 1171–1185. doi:10.1080/0144929x.2015.1055801

Mohammadi, A., Pishgar, E., Firouraghi, N., Bagheri, N., Shamsoddini, A., Kiani, B., et al. (2021). A geodatabase of blood pressure level and the associated factors including lifestyle, nutritional, air pollution, and urban greenspace. *BMC Res. Notes* 14 (1), 416. doi:10.1186/s13104-021-05830-2

Moradi, F., Tourani, S., Ziapour, A., Hematti, M., Moghadam, E. J., and Soroush, A. (2020). Emotional intelligence and quality of life in elderly diabetic patients. *Int. Q. Community Health Educ.* 42, 15–20. 272684X20965811. doi:10.1177/0272684X20965811

Mubeen, R., Han, D., Alvarez-Otero, S., and Sial, M. S. (2021). The relationship between CEO duality and business firms' performance: The moderating role of firm size and corporate social responsibility. *Front. Psychol.* 12, 669715. doi:10.3389/fpsyg.2021.669715

Mubeen, R., Han, D., and Hussain, I. (2020). The effects of market competition, capital structure, and ceo duality on firm performance: A mediation analysis by incorporating the gmm model technique. *Sustainability* 12 (8), 3480. doi:10.3390/su12083480

Mubeen, R., Han, D., Raza, S., and Bodian, W. (2022). Examining the relationship between product market competition and Chinese firms performance: The mediating impact of capital structure and moderating influence of firm size. *Front. Psychol.* 12, 709678. doi:10.3389/fpsyg.2021.709678

Mustafa, S., Zhang, W., Shehzad, M. U., Anwar, A., and Rubakula, G. (2022). Does health consciousness matter to adopt new technology? An integrated model of UTAUT2 with SEM-fsQCA approach. *Front. Psychol.* 13, 836194. doi:10.3389/fpsyg.2022.836194

Neal, C. M., Quester, P. G., and Hawkins, D. I. (2004). *Consumer behaviour: Implications for marketing strategy*. United States: McGraw-Hill Irwin.

NeJhaddadgar, N., Ziapour, A., Zakkipour, G., Abolfathi, M., and Shabani, M. (2022). Effectiveness of telephone-based screening and triage during COVID-19 outbreak in the promoted primary healthcare system: A case study in ardabil province, Iran. *J. Public Health* 30 (5), 1301–1306. doi:10.1007/s10389-020-01407-8

Newsom, J. T., McFarland, B. H., Kaplan, M. S., Huguet, N., and Zani, B. (2005). The health consciousness myth: Implications of the near independence of major health behaviors in the north American population. *Soc. Sci. Med.* 60 (2), 433–437. doi:10.1016/j.socscimed.2004.05.015

Nieroda, M. E., Mrad, M., and Solomon, M. R. (2018). How do consumers think about hybrid products? Computer wearables have an identity problem. *J. Bus. Res.* 89, 159–170. doi:10.1016/j.jbusres.2018.04.024

Noppers, E., Keizer, K., Milovanovic, M., and Steg, L. (2019). The role of adoption norms and perceived product attributes in the adoption of Dutch electric vehicles and smart energy systems. *Energy Res. Soc. Sci.* 57, 101237. doi:10.1016/j.erss.2019.101237

Oinas-Kukkonen, H., Karppinen, P., and Kekkonen, M. (2021). 5G and 6G broadband cellular network technologies as enablers of new avenues for behavioral influence with examples from reduced rural-urban digital divide. *Urban Sci.* 5 (3), 60. doi:10.3390/urbansci5030060

Omar, N. A., Abdullah, N. L., Zainol, Z., and Nazri, M. A. (2021). Consumers' responsiveness towards contaminated canned sardine in Malaysia: Does perceived severity matter? *Food control.* 123, 107780. doi:10.1016/j.foodcont.2020.107780

Paul, J., Modi, A., and Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *J. Retail. Consumer Serv.* 29, 123–134. doi:10.1016/j.jretconser.2015.11.006

Pouresmaeil, M., Solhi, M., Ziapour, A., and Fattahi, E. (2019). Prioritizing health promotion lifestyle domains in students of Qazvin University of Medical Sciences from the students and professors' perspective. *J. Educ. Health Promot.* 8, 228. doi:10.4103/jehp.jehp_250_19

Qalati, S. A., Yuan, L. W., Khan, M. A. S., and Anwar, F. (2021). A mediated model on the adoption of social media and SMEs' performance in developing countries. *Technol. Soc.* 64, 101513. doi:10.1016/j.techsoc.2020.101513

Rahmat, T. E., Raza, S., Zahid, H., Sobri, F. A. M., and Sidiki, S. N. (2022). Nexus between integrating technology readiness 2.0 index and students'e-library services adoption amid the COVID-19 challenges: Implications based on the theory of planned behavior. *J. Educ. Health Promot.* 11, 50. doi:10.4103/jehp.jehp_508_21

Rashid, R. M., Rashid, Q. u. A., and Pitafi, A. H. (2020). Examining the role of social factors and mooring effects as moderators on consumers' shopping intentions in social commerce environments. *SAGE Open* 10 (3), 215824402095207. doi:10.1177/2158244020952073

Robertson, T. S. (1967). The process of innovation and the diffusion of innovation. *J. Mark.* 31 (1), 14–19. doi:10.1177/002224296703100104

Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press, 551.

Rogers, E. M., Medina, U. E., Rivera, M. A., and Wiley, C. J. (2005). Complex adaptive systems and the diffusion of innovations. *Innovation J. Public Sect. Innovation J.* 10 (3), 1–26.

Russell, C. L. (2018). 5 G wireless telecommunications expansion: Public health and environmental implications. *Environ. Res.* 165, 484–495. doi:10.1016/j.envres.2018.01.016

Safari, A., Salehzadeh, R., Panahi, R., and Abolghasemian, S. (2018). Multiple pathways linking environmental knowledge and awareness to employees' green behavior. *Corp. Gov. Int. J. Bus. Soc.* 18, 81–103. doi:10.1108/cg-08-2016-0168

Sattar, U. (2022). A conceptual framework of climate action needs of the least developed party countries of the paris agreement. *Int. J. Environ. Res. Public Health* 19 (16), 9941. doi:10.3390/ijerph19169941

Sattar, U., Javeed, S. A., and Latief, R. (2020). How audit quality affects the firm performance with the moderating role of the product market competition: Empirical evidence from Pakistani manufacturing firms. *Sustainability* 12 (10), 4153. doi:10.3390/su12104153

Shah, S. K., Tang, Z., Sharif, S. M. F., and Tanveer, A. (2021a). An empirical study of Chinese students' behavioral intentions to adopt 5G for smart-learning in Covid-19. *Smart Learn. Environ.* 8 (1), 25–17. doi:10.1186/s40561-021-00172-9

Shah, S. K., Tang, Z., Sharif, S. M. F., and Tanveer, A. (2021b). An empirical study of Chinese students' behavioral intentions to adopt 5G for smart-learning in Covid-19. *Smart Learn. Environ.* 8 (1), 25. doi:10.1186/s40561-021-00172-9

Shah, S. K., and Tang, Z. (2022). Understanding the mediating effect of anchoring price in extant mature 4G and market-creating 5G technology products. *Int. J. Innov. Technol. Manag.* 0 (0), 2250038. doi:10.1142/s0219877022500389

Shah, S. K., and Zhongjun, T. (2021). Elaborating on the consumer's intention–behavior gap regarding 5G technology: The moderating role of the product market-creation ability. *Technol. Soc.* 66, 101657. doi:10.1016/j.techsoc.2021.101657

Shah, S. K., Zhongjun, T., Sattar, A., and XinHao, Z. (2021). Consumer's intention to purchase 5G: Do environmental awareness, environmental knowledge and health consciousness attitude matter? *Technol. Soc.* 65, 101563. doi:10.1016/j.techsoc.2021.101563

Shan, L., Diao, H., and Wu, L. (2020). Influence of the framing effect, anchoring effect, and knowledge on consumers' attitude and purchase intention of organic food. *Front. Psychol.* 11, 2022. doi:10.3389/fpsyg.2020.02022

Shao, Z., Zhang, L., Chen, K., and Zhang, C. (2020). Examining user satisfaction and stickiness in social networking sites from a technology affordance lens: Uncovering the moderating effect of user experience. *Industrial Manag. Data Syst.* 120, 1331–1360. doi:10.1108/IMDS-11-2019-0614

Sharif, S. M. F., Naiding, Y., and Shah, S. K. (2022). Restraining knowledge leakage in collaborative projects through HRM. *VINE J. Inf. Knowl. Manag. Syst.*

Shoib, S., Gaitan Buitrago, J. E. T., Shuja, K. H., Aqeel, M., de Filippis, R., Abbas, J., et al. (2021). Suicidal behavior sociocultural factors in developing countries during COVID-19. *L'Encephale.* 47, 78–82. doi:10.1016/j.encep.2021.06.011

Shuja, K. H., Aqeel, M., and Ahmed, A. (2020). COVID-19 pandemic and impending global mental health implications. *Psychiatr. Danub.* 32 (1), 32–35. doi:10.24869/psyd.2020.32

Shuja, K. H., ShahidullahAqeel, M., Khan, E. A., and Abbas, J. (2020). Letter to highlight the effects of isolation on elderly during COVID-19 outbreak. *Int. J. Geriatr. Psychiatry* 35 (12), 1477–1478. doi:10.1002/gps.5423

Spink, J., Bedard, B., Keogh, J., Moyer, D. C., Scimeca, J., and Vasan, A. (2019). International survey of food fraud and related terminology: Preliminary results and discussion. *J. food Sci.* 84 (10), 2705–2718. doi:10.1111/1750-3841.14705

Su, Z., McDonnell, D., Cheshmehzangi, A., Li, X., and Cai, Y. (2021). The promise and perils of Unit 731 data to advance COVID-19 research. *BMJ Glob. Health* 6 (5), e004772. doi:10.1136/bmjgh-2020-004772

Su, Z., McDonnell, D., Li, X., Bennett, B., Segalo, S., Xiang, Y. T., et al. (2021). COVID-19 vaccine donations-vaccine empathy or vaccine diplomacy? A narrative literature review. *Vaccines (Basel)* 9 (9), 1024. doi:10.3390/vaccines9091024

Su, Z., McDonnell, D., Shi, L., Cai, Y., and Yang, L. (2021). Secondhand smoke exposure of expectant mothers in China: Factoring in the role of culture in data collection. *JMIR Cancer* 7 (4), e24984. doi:10.2196/24984

Su, Z., McDonnell, D., Wen, J., Kozak, M., Segalo, S., Xiang, Y. T., et al. (2021). Mental health consequences of COVID-19 media coverage: The need for effective crisis communication practices. *Glob. Health* 17 (1), 4. doi:10.1186/s12992-020-00654-4

Sun, Y., Shao, X., Li, X., Guo, Y., and Nie, K. (2019). How live streaming influences purchase intentions in social commerce: An IT affordance perspective. *Electron. Commer. Res. Appl.* 37, 100886. doi:10.1016/j.elerap.2019.100886

Thimbleby, H. (2013). Technology and the future of healthcare. *J. Public Health Res.* 2 (3), e2028. doi:10.4081/jphr.2013.e28)

Tuncer, İ. (2021). The relationship between IT affordance, flow experience, trust, and social commerce intention: An exploration using the SOR paradigm. *Technol. Soc.* 65, 101567. doi:10.1016/j.techsoc.2021.101567

Usman, H., Chairy, C., and Projo, N. W. K. (2021). Impact of Muslim decision-making style and religiosity on intention to purchasing certified halal food. *J. Islamic Mark.* doi:10.1108/jima-01-2021-0027

Wang, C., Wang, D., Duan, K., and Mubeen, R. (2021). Global financial crisis, smart lockdown strategies, and the COVID-19 spillover impacts: A global perspective implications from southeast asia. *Front. Psychiatry* 12 (1099), 643783. doi:10.3389/fpsyt.2021.643783

Wang, S., Fan, J., Zhao, D., Yang, S., and Fu, Y. (2016). Predicting consumers' intention to adopt hybrid electric vehicles: Using an extended version of the theory of planned behavior model. *Transportation* 43 (1), 123–143. doi:10.1007/s11116-014-9567-9

Wang, S., Wang, J., Lin, S., and Li, J. (2019). Public perceptions and acceptance of nuclear energy in China: The role of public knowledge, perceived benefit, perceived risk and public engagement. *Energy Policy* 126, 352–360. doi:10.1016/j.enpol.2018.11.040

Xu, T., and Sattar, U. (2020). Conceptualizing COVID-19 and public panic with the moderating role of media use and uncertainty in China: An empirical framework. *Healthc. (Basel)* 8 (3), 249. doi:10.3390/healthcare8030249

Yoosefi Lebni, J., Moradi, F., Salahshoor, M. R., Chaboksavar, F., Irandoost, S. F., and Ziapour, A. (2021). How the COVID-19 pandemic effected economic, social, political, and cultural factors: A lesson from Iran. *Int. J. Soc. Psychiatry* 67 (3), 298–300. doi:10.1177/0020764020939984

Yu, S., Draghici, A., Negulescu, O. H., and Ain, N. U. (2022). Social media application as a new paradigm for business communication: The role of COVID-19 knowledge, social distancing, and preventive attitudes. *Front. Psychol.* 13, 903082. doi:10.3389/fpsyg.2022.903082

Zeidabadi, S., Mangolian Shahrbabaki, P., and Dehghan, M. (2022). The effect of foot reflexology on the quality of sexual life in hemodialysis patients: A randomized controlled clinical trial. *Sex. Disabil.* 41 (1), 567–581. doi:10.1007/s11195-022-09747-x

Zhang, X., Husnain, M., Yang, H., Ullah, S., and Zhang, R. (2022). Corporate business strategy and tax avoidance culture: Moderating role of gender diversity in an emerging economy. *Front. Psychol.* 13, 827553. doi:10.3389/fpsyg.2022.827553

Zhou, Y., Draghici, A., Mubeen, R., Boatca, M. E., and Salam, M. A. (2021). Social media efficacy in crisis management: Effectiveness of non-pharmaceutical interventions to manage COVID-19 challenges. *Front. Psychiatry* 12, 626134. doi:10.3389/fpsyt.2021.626134