

Enticing attributes of consumers' purchase intention to use online food delivery applications (OFDAs) in a developing country

Consumers' purchase intention to use OFDAs

Muhammad Asif Zaheer

*University Institute of Management Sciences,
PMAS-Arid Agriculture University Rawalpindi, Rawalpindi, Pakistan and
Department of Management and Law, Faculty of Economics,
University of Rome Tor Vergata, Roma, Italy*

Tanveer Muhammad Anwar

*Department of Veterinary Medicine, College of Animal Sciences,
Institute of Preventive Veterinary Sciences, Zhejiang University, Hangzhou, China*

Laszlo Barna Iantovics

*George Emil Palade University of Medicine Pharmacy Science and
Technology of Targu Mures, Targu Mures, Romania*

Muhammad Ali Raza

*Department of Business Administration, Istanbul Aydin University,
Istanbul, Turkey, and*

Zoia Khan

*University Institute of Management Sciences,
PMAS-Arid Agriculture University Rawalpindi, Rawalpindi, Pakistan*

Received 24 October 2023
Revised 19 January 2024
Accepted 8 March 2024

Abstract

Purpose – Online food delivery applications (OFDAs) provide an expedient platform, and consumers' access to food has been drastically altered, especially during and after the COVID-19 pandemic. This study aimed to completely explore the attributes that influence consumers' purchase intention and how an app's aesthetics can evoke feelings that predict continuous usage intentions for OFDAs. The food industry, especially restaurants, heavily relies on mobile technology to facilitate critical online food delivery during the pandemic crisis.

Design/methodology/approach – The data for this study are gathered from 477 food consumers located in the federal capital territory (FCT) of Islamabad, Pakistan, through convenient sampling by developing a self-administrated online survey. SmartPLS is used for structural equation modeling to test the proposed research model and perform bootstrapping and algorithmic analysis.

Findings – Our findings revealed that perceived value positively predicted consumers' purchase intentions. Moreover, perceived value mediates the association of information quality, familiarity, time-saving, usability and reputation with purchase intentions and fear of COVID-19 moderates the relationship between perceived value and purchase intention.

© Muhammad Asif Zaheer, Tanveer Muhammad Anwar, Laszlo Barna Iantovics, Muhammad Ali Raza and Zoia Khan. Published in *Journal of Electronic Business & Digital Economics*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/legalcode>

Conflict of interest: The authors declare no conflict of interest.



Practical implications – This research work has significant implications for researchers, web developers, app designers, delivery services, restaurants and other enterprises as it demonstrates the importance of aesthetically pleasing OFDAs in eliciting positive emotions and bolstering consumers' intentions to continue using the app for efficient food delivery services.

Originality/value – This study expanded the application of the technology acceptance model (TAM) and attention, interest, desire and action (AIDA) by examining consumers' purchase intentions in the context of OFDAs. Further, the successful utilization of TAM enhanced the understanding of consumer perceptions and behavioral intentions about the usage of OFDAs.

Keywords Information quality, Perceived value, Purchase intention, COVID-19, OFDAs

Paper type Research paper

1. Introduction

Contagious viruses like the COVID-19 epidemic are still underway with different variants, restaurant owners are advised to stay well-informed of consumer trends to adapt their corporate plans and numerous mobile apps have linked clients with a variety of nearby restaurants (Cho, Bonn, & Li, 2019; Roh & Park, 2019; Wen, Pookulangara & Josiam, 2022). The growth of the information and communications technology (ICT) sector has rapidly increased and emerged as a benchmark for global economic growth with extensive use of mobile applications. Moreover, the enormous expansion of the digital market has contributed to the expansion of ICT, affecting both consumer expectations and government assistance (Goldstein, Jiang, & Karolyi, 2019; Hu, Ding, Li, Chen, & Yang, 2019; Al-Okaily *et al.*, 2022). From a practical standpoint, it is essential to comprehend the significance of performance expectation, information quality, habit and social inspiration in determining whether consumers to continue using delivery app services (Lee, Sung, & Jeon, 2019). The experience of pleasure intervenes in the association of arousal and the potential of continuing usage intentions but customer experience, restaurant search, ease-of-use and listing influenced the adoption of meal delivery applications (Ray, Dhir, Bala, & Kaur, 2019; Kumar & Shah, 2021).

Throughout the COVID-19 epidemic, the food-delivering firms' implementation and communication of safety measures have significantly impacted consumer purchasing decisions as well as the operators of delivery apps which need to give users precise and trustworthy information (Burlea-Schiopoiu, Puiu, & Dinu, 2022; Lee *et al.*, 2019). To attain this purpose, sellers should continuously make their menus and information regarding the fluctuation of prices up-to-date to avoid inconveniencing customers (Lee *et al.*, 2019). After COVID-19, the ramifications of the pandemic establish a chance to utilize financial technology advancements and consumer desire to embrace such services; therefore, make users aware of their reliability by providing comprehensive restaurant information (Lee *et al.*, 2019; Alkhwalidi *et al.*, 2022). Dsouza and Sharma (2021), believed that safety precautions had begun to affect the loyalty of consumers, the market participants who predicted as well as took proactive decision would retain their company value and cultivate a positive brand image for customers ensuring their continued relevance after COVID-19 era. The food supply process and the disclosure of the safety precautions adopted across the value chain should be a priority for managers (Burlea-Schiopoiu *et al.*, 2022). Regarding the design of the app, attention should be given to ensuring that the information is readable by users. Therefore, to gain customers' trust, it is recommended to utilize big data, a trending technology to provide statistics such as the number of sales in various food categories and the ranks of famous menus (Lee *et al.*, 2019). Organizations should customize the products for certain markets and target demographic segments but e-commerce vendors may leverage innovative technology to increase customer satisfaction (Mofokeng, 2021; Fernández-Bonilla, Gijón, & De la Vega, 2022). To increase consumers' performance expectations, online information regarding a variety of restaurants with different types of food needs to be offered so that customers can select from a variety of dishes (Lee *et al.*, 2019).

This research aims to examine the concepts of perceived value and purchase intention in online food delivery applications (OFDAs), with a particular focus on the characteristics of e-commerce such as informational quality, familiarity, reputation, usability and time-saving. During and post-COVID-19, usage of OFDAs has increased due to fear of different kinds of contagious diseases or forthcoming variants of COVID-19, especially in developing countries because of the high rate and dense population. In this scenario, consumers are facing several issues regarding OFDAs, and addressing these concerns is a great source of motivation behind this investigation. While the reputation of web applications is important, it is clear that users are primarily concerned with app qualities while using mobile applications that aim to increase perceived value and purchase intention in a crisis like the COVID-19 pandemic. Previously, insufficient research was conducted regarding neglected app attributes like information quality, familiarity, usability, reputation, etc. In a similar vein, the inclination of customers to utilize e-commerce applications for purchasing products online is contingent upon the application attributes that foster perceived value and purchase intention. Particularly, our research attempts to address the following research questions:

- RQ1.* What is the impact of perceived value on purchase intention during the crisis?
- RQ2.* How does perceived value mediate the association of information quality, familiarity, reputation, usability and time-saving with purchase intention?
- RQ3.* How does fear of COVID-19 moderate the relationship of perceived value with purchase intention?

Moreover, we propose an integrated model for OFDAs that is technically sound by introducing novel characteristics of e-commerce for long-term effectiveness, especially in developing regions. Consumers have more advantages of OFDAs compared to single restaurant apps or other online technology because a variety of food options from different restaurants are available on a single platform. The current research utilized two theories, namely the technology acceptance model (TAM) and the Attention-Interest-Desire-Action (AIDA) model, to gain insights into the process by which consumers accept an on-demand meal delivery application. In addition to this, previously these theories were employed by [Song, Zhang and Yu \(2021\)](#) in a similar kind of research.

Furthermore, the outline of the remaining sections is as follows: the second section examines the relevant background literature on OFDAs related to information quality, familiarity, reputation, usability, time-saving, perceived value, purchase intention and fear of COVID-19 pandemic with theoretical background and development of hypotheses based on extensive review. The third section is related to research methods and the fourth section provides a detailed analysis of the data with findings. Finally, the results, limitations and future recommendations of the study are discussed in the last section.

2. Literature review and hypotheses development

2.1 Theoretical background

Marketing communication can be described as AIDA and usually triggers consumer behavior that leads to the purchase of the product ([Strong, 1925](#)). The attention and interest in the AIDA model have a strong connection to the prominent behavioral beliefs of the TAM, perceived ease of use and perceived usefulness ([Song, 2021](#)). However, in the case of technology-based products, the behavior process is difficult to predict. The reason for this ambiguity is the complexity existing in consumer adoption of technology ([Kim, Choi, & Shin, 2019](#)). There is a belief that individuals would not feel uneasy in accepting the process of innovation and technology but will show a favorable attitude while gaining practical benefits from technology-based products which leads to a constructive impression on both the intention of

use and then actual consumption (Davis, 1989). Although the usage of mobile phones is common and people are involved in adopting technology and using new applications, they face more anxiety in case of new app adoption as compared to simply purchasing products and services. This behavior has been explained by Davis (1989) in TAM. However, the most effective model for predicting how people will use technology is known as TAM (Al-Okaily, Alqudah, Matar, Lutfi, & Taamneh, 2020; Chen, Fan, & Farn, 2007). According to TAM, individual usage attitude measures the overall technology usage behavior. Moreover, perceived usefulness and perceived ease of use both emerged as primary predictors of individual usage attitude (Al-Okaily *et al.*, 2020). Perceived ease of use is a person thinking while using technology whereas, perceived usefulness is about the use of technology in fostering their task performance (Davis, 1989). Additionally, perceived ease of use has an indirect influence on perceived usefulness.

In recent times, online food purchasing has become common practice, especially during the COVID-19 pandemic, therefore last year there was a focus on this subject. For example, Choe, Kim, and Hwang (2021) worked in the food and tourism industry, in which they merged two models, i.e. theory of planned behavior (TPB) and TAM and investigated the implication of drone food delivery usage. Similarly, Song, Ruan, and Jeon (2021) suggested that TAM model constructs have been linked with the model attention, interest, desire and action (AIDA) that enhances the interest of food delivery apps for providing delivery services. Preetha and Iswarya (2019) found that the app's quality is the extremely essential element for technology adoption in the extended TAM model. Lee, Lee, and Jeon (2017) also analyzed the food app and concluded that TAM constructs are triggered more with firm-generated content, user-generated content, app design quality and system quality. Zhao and Bacao (2020) proposed an extended TAM model for food delivery app usage during the COVID-19 pandemic. They found that performance expectancy, technology fit and satisfaction are the major constructs to influence app usage. Therefore, in this study, we used the TAM model for theoretical consideration of the perceived risk involved and purchase intention while adopting OFDAs.

2.2 Perceived value and purchase intention

Companies dealing with online business create perceived value for customers and increase their purchasing intentions (Sawitri, 2022). Risk is a consumer's impression of the product or purchase-related losses but users evaluate information and its quality with great attention (Forsythe & Shi, 2003). Regarding hedonic and utilitarian services, the size of the influence of brand credibility on purchase intent differs under various scenarios, although the risk does not affect customer attitudes about websites, it can prevent online purchases because it hurts consumer intent (Baek & King, 2011; Agag & El-Masry, 2017). Risk perception is a significant predictor of consumer purchase behavior; it evaluates an individual's apprehension about utilizing online sources that are notorious for cyber-attacks that place online users and businesses in serious jeopardy (Gong *et al.*, 2022). Intention to purchase is influenced by online trust and risk perception by boosting perceived value for money, information costs saved, perceived quality and brand credibility (Baek & King, 2011; Mansour, Kooli, & Utama, 2014). Therefore, we developed the hypothesis:

H1. Perceived value has a significant positive influence on purchase intention.

2.3 Perceived value as a mediator between information quality and purchase intention

The consumers might understand the products and services offered, access the genuine quality of information and endure decision-making and behavioral counseling (Song, Zhang, & Yu, 2021). Information quality relates to the total quality of user-evaluated online reviews,

whereas risk refers to the subjective impressions of any potential losses associated with the online purchase (Forsythe & Shi, 2003; Song *et al.*, 2021). Although inaccuracies, incompleteness and falseness of low-quality information influence the outcome of customers' perception and behavioral actions which might lead to undesirable conclusions but consumers' perception results and decisions were influenced by poor information quality (Song *et al.*, 2021). The purpose of website owners is to improve customer interactions by incorporating features that reduce consumers' uncertainties when buying or searching for product details, prompt chats may assist the customer and promote interaction between the consumer and the website of the organization, consequently lowering a consumers' mistrust of the website and the risk perception and increasing the likelihood that the website can provide the consumer with more timely and accurate information (Bebber *et al.*, 2017). Therefore, high information quality will avoid possible losses, minimize risk and increase the perceived value. Hence we proposed the following hypothesis:

H2. Perceived value mediates the relationship between information quality and purchase intention.

2.4 Perceived value as a mediator between reputation and purchase intention

Reputation is the degree to which purchasers perceive a selling company to be trustworthy and customer-focused and customers' perceptions of risk in business-to-customer relationships are mitigated by a company's reputation (Doney & Cannon, 1997; Van Den Poel & Leunis, 1999). Companies have enhanced their capacity to acquire, store and benefit from personal and financial information due to the rapid increase in internet shopping. Moreover, the transactional environment around buying online is characterized by elevated levels of risk but it is evident that a positive reputation possesses annuity worth (Rao & Monroe, 1996; Cardoso & Martinez, 2019). By knowing this, the confidence of customers increases positive behavior of companies with excellent reputations in future. So short-term misconduct may not provide as much profit for the seller comparatively to the long-term benefit of its reputational annuity but organizations with greater reputations prefer to behave ethically and customers have a high degree of certainty in the prospective proper behavior of enterprises with strong reputations (Clemons *et al.*, 2016; Rao & Monroe, 1996). The importance of customers on vendor image and accessibility is directly linked to perceived value and perceived risk and this ultimately influences the intention and attitude to buy reconconditioned goods (Agostini, Bigliardi, Filippelli, & Galati, 2021). Moreover, numerous payment mechanisms could be utilized to minimize customer perceptions of risk and boost levels of trust, however, new internet sellers might lessen the impact of these elements by putting money in a plan of payment that integrates the existence of internet seals of authorization logos with the availability of payment services through a weak reputation (Cardoso & Martinez, 2019). Therefore, we developed the hypothesis as:

H3. Perceived value mediates the relationship between reputation and purchase intention.

2.5 Perceived value as a mediator between usability and purchase intention

Perceived usefulness and perceived ease of usability are two particular precursors for establishing website trust and the consequences of a website that is well-designed in terms of online security, customer support, informational quality and usability are not necessarily the greatest in real terms, the ideal website excels in terms of short-term satisfaction with less risk (Vila & Kuster, 2011; Agag & El-Masry, 2017). Initial online customer trust and familiarity with buying online are strongly associated with e-commerce buying intention but a user-satisfying website is technically good, with strong internet security measures and an

abundance of informational content (Chen & Barnes, 2007; Vila & Kuster, 2011). Loyalty is most seriously influenced by comparative advantages, trust and satisfaction (Esmaeili, Haghgoo, Davidavičienė, & Meidutė-Kavaliauskienė, 2021). In contrast, this website does not generate greater degrees of intention to purchase (actions), trust (emotions), or attitudes toward long-term pleasure, whereas usability data and financial data were demonstrated to influence performance essentially, technical data were discovered to have the counter effect (Talke and O'Connor, 2011; Vila & Kuster, 2011). Therefore, we developed the hypothesis as:

H4. Perceived value mediates the relationship between usability and purchase intention.

2.6 Perceived value as a mediator between familiarity and purchase intention

Greater levels of initial online trust and familiarity with buying online motivate greater levels of clients' intention to buy; familiarity with buying online lessens customers' perceived risks, fosters favorable attitudes in customers' purchase intentions and facilitates purchase decisions (Chen & Barnes, 2007). Utilitarianism moderates the influence of brand credibility towards buying intention by lowering information cost and maximizing perceived value for money, although hedonism influences the significance of brand equity on buying intention by raising perceived quality but familiarity with electronic transactions is significantly associated with e-commerce purchasing intent (Chen & Barnes, 2007; Baek & King, 2011). Online initial trust as well as familiarity with online shopping influence purchase intent positively and the adverse impact of risk towards purchase intention is reduced when customers have a good amount of information and are familiar with the brand (Park & Stoel, 2005; Chen & Barnes, 2007). Perceived quality and brand credibility exhibit a powerful influence on purchase intention by decreasing perceived risk throughout numerous service types and by boosting perceived value for money (Baek & King, 2011). Therefore, we developed the hypothesis as:

H5. Perceived value mediates the relationship between familiarity and purchase intention.

2.7 Perceived value as a mediator between time-saving and purchase intention

Time stakes, performance constraints, security threats and social and financial uncertainty, can adversely affect consumer loyalty (Esmaeili *et al.*, 2021). Using online services for food delivery aids people in handling their time as they are trustworthy and convey reliable information (Muhammad, Mohd Razak, Ariffin, Abdul Manan, & Hamdan, 2021). Comfort, perceived benefits, promotional programs, time-saving, personal variables, perceived risk, purchase motivation and uncertainty are the most influential or inhibiting aspects of youth internet shopping; however, it does not ensure risk-free digital transactions in developing nations (Rahman, 2020; Sachdeva, 2016). Banking services have been revolutionized in today's technology-driven global economy, where clients compete for time-saving solutions. Moreover, perceived intensities can be reduced by strict rules and their implementation in which developed nations are ahead of developing nations but online food-delivering companies should implement customer loyalty strategies which can be formed by keeping the focus on pricing strategy (Burlea-Schiopoiu *et al.*, 2022; Rahman, 2020). Therefore, we developed the hypothesis as:

H6. Perceived value mediates the relationship between time-saving and purchase intention.

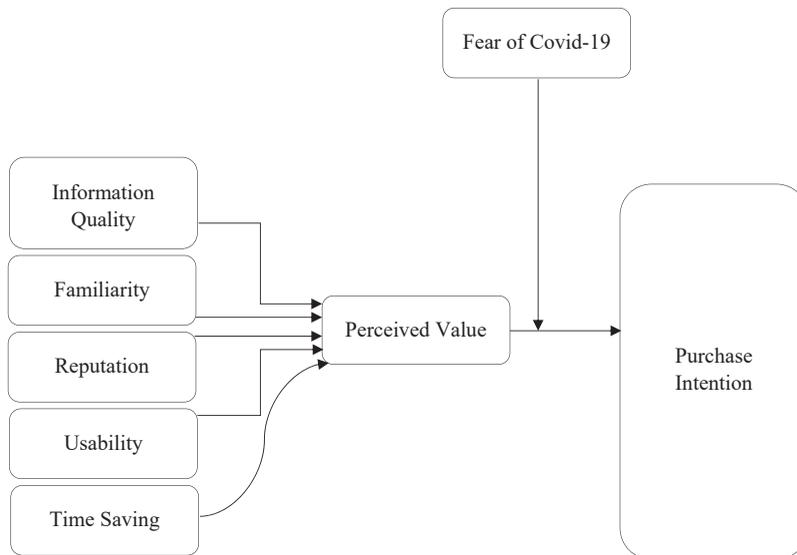
2.8 Fear of COVID-19 as a moderator between perceived value and purchase intention

Customer behavior analysis has taken into account perceived risk, which is thought to affect the decision-making procedure (Lusk & Coble, 2005; Bruwer & Cohen, 2019). Risk perception

and willingness to acquire digital delivery services during a global epidemic exhibited that purchase intention is adversely affected by perceived risk (Leung & Cai, 2021). Risk perception is a component that may be used to describe consumer purchasing behavior as customers are often motivated to avoid mistakes rather than to maximize the value of their purchases (Chang & Chen, 2008; Mathew & Mishra, 2014). The risk perception of online purchasing is possibly greater than that of conventional shopping but can affect a future online transaction (Cheung & Lee, 2000; Zhang *et al.*, 2012). Perceived risk refers to the trade-off between prices and benefits, i.e. the customers' entire judgment of the service or product's utility depending on what they obtained against what they paid (Chiu, Wang, Fang, & Huang, 2014). According to Ariff *et al.* (2014) perceived risk significantly impacts online buying intentions, whereas Almousa (2011) revealed that perceived risk negatively impacts the intent to acquire online products. In addition, Chiu *et al.* (2014) discovered a moderated influence of perceived risk among utilitarian value, hedonic and repetition of buying behavior among Yahoo-Kimo customers, whereas Chen and Huang (2017) discovered a favorable impact of perceived reputation, task technology fit and perceived navigation on online buying behavior. Wu and Chung (2007) conducted a study in Taiwan and discovered a favorable impact of risk attitude on online repurchase intention. Focusing on the intention to use a website, Belanche, Casaló and Guinalú (2012) observed the moderating influence of perceived risk between perceived usability, client happiness and using intention. Some researchers have also observed the direct relationship between perceived risk and trust (Hong & Cha, 2013; Kim, Han, & Lee, 2013). Therefore, the following hypothesis is proposed:

H7. Fear of COVID-19 moderates the relationship of perceived value with purchase intention.

The relationship of various variables is shown in Figure 1.



Source(s): Authors' own creation/work

Figure 1.
Research model

3. Methods

3.1 Sample and procedure

During and post-COVID-19 outbreak, consumers were more likely to buy food online also numerous businesses were pressured to offer these services to survive, and this sector has flourished in recent years. OFDAs is a consumer-focused market that strives to provide people with the ability to purchase their favorite foods at the best price and with the most convenience without leaving their homes. Moreover, convenience motive, price-saving orientation and time-saving orientation were the most influential determinants of consumers' attitudes regarding OFDAs during and after the COVID-19 epidemic, whereas, consumers with a favorable behavior and attitude toward OFDAs preferred to say positively regarding their intention to keep after COVID-19 (Tan, Lim, & Yeo, 2021). This research used a self-administered online survey and collected information through convenience sampling from 477 OFDAs consumers located in the federal capital territory (FCT) Islamabad, Pakistan. This technique is less expensive and more practical than other sample procedures since it entails choosing people who are regularly and easily available (Ackoff, 1953). Our sample's demographic characteristics are presented in the following pie charts. For example, Table 1 displays the gender characteristics of the final respondents, 46.3% of whom were female and 53.7% of whom were male. Moreover, from a qualification perspective, 47.0% of our participants were undergraduates whereas 23.3% of participants were graduates, 14.5% had completed college and 15.3% had completed their school. Furthermore, the majority of consumers 37.1% were between the ages of 18 to 25, whereas 26% were from 26 to 35 years and 24.1% were from 36 to 45 years, just 3.6% were less than 18 and 9.2% were more than 45 years. Finally, 20.5% of consumers had an income between Rupees 30,000 to 60,000, 14.9% were between Rupees 60,000 and 100,000, 32.5% had less than Rupees 30,000 and 32.1% had more than Rupees 100,000.

Characteristics	Frequency	(%)
<i>Gender</i>		
Female	221	46.3
Male	256	53.7
<i>Age Group</i>		
Less than 18	17	3.6
18–25 years	177	37.1
26–35 years	124	26.0
36–45 years	115	24.1
More than 45 years	44	9.2
<i>Qualification</i>		
Primary school/Middle school/High school	73	15.3
College/Diploma/Technical	69	14.4
Undergraduate	224	47.0
Graduate/Postgraduate	111	23.3
<i>Monthly Income</i>		
Less than 30,000 Rupees	155	32.5
30,000 to 60,000 Rupees	98	20.5
60,000 to 100,000 Rupees	71	14.9
More than 100,000 Rupees	153	32.1

Table 1.
Demographic
characteristics

Source(s): Authors' own creation/work

3.2 Scales measurement

Scales of former researchers were used for the assessment of various effects and details are given below in the [appendix](#). Seven items of information quality were adapted from (Doll & Torkzadeh, 1988; Kim, Ferrin, & Rao, 2008) with 0.891 of Cronbach's alpha reliability, four items of familiarity were adapted from (Gefen, 2000) with 0.708 of Cronbach's alpha reliability, three items of reputation were adapted (Jarvenpaa, Tractinsky & Vitale, 2000) with 0.748 of Cronbach's alpha reliability, seven items of usability were adapted from (Flavián, Guinaliú, & Gurrea, 2006; In Proceedings of the Fourth Conference on Human Factors & the Web.; Lin, Choong, & Salvendy, 1997; Roy, Dewit, & Aubert, 2001) with 0.861 of Cronbach's alpha reliability, three items of time-saving were adapted from (Parra-López, Bulchand-Gidumal, Gutiérrez-Taño, & Díaz-Armas, 2011; San Martín & Herrero, 2012) with 0.766 of Cronbach's alpha reliability, three items of perceived value were adapted from (Kim, Xu, & Gupta, 2012; Parra-López *et al.*, 2011; San Martín & Herrero, 2012) with 0.833 of Cronbach's alpha reliability, three items of purchase intentions were adapted from (Gefen, 2000; Jarvenpaa *et al.*, 2000) with 0.850 of Cronbach's alpha reliability and seven items of COVID-19 fear were taken from (Ahorsu *et al.*, 2022) with 0.926 of Cronbach's alpha reliability respectively. The seven-point Likert Scale was used for all items and details are given in the [Appendix](#).

3.3 Measurement model

3.3.1 Convergent validity. Smart-PLS is used for data analysis and confirmatory factor analysis (CFA) was carried out to ascertain the validity of the scales. For the scale to have sufficient convergent validity, it must have 0.5 factor loadings of items and average variance extracted (AVE). Similarly, composite reliability (CR) must be greater than 0.60, construct reliability must be greater than 0.70 and Cronbach alpha must be greater than 0.60 respectively (Fornell & Larcker, 1981). Except for USB5, the factor loadings of all items meet or exceed the minimum requirement. Therefore, this item was eliminated from the subsequent analysis due to its low factor loading. Details of measurement model estimates are shown in [Table 2](#), which met the criterion levels.

3.3.2 Discriminant validity. Utilizing discriminant validity ensures that each variable is unique from the other. It was calculated using both Fornell and Lacker's criterion and the heterotrait and monotrait (HTMT) ratio. In [Table 3](#), According to the standards set out by Fornell and Lacker, diagonal values are larger than non-diagonal values which supports the discriminant validity of the research variables.

Similarly, [Table 4](#) demonstrates the values of different variables that are less than 0.85, the minimum predetermined threshold value indicating an acceptable level of HTMT ratio as a criterion for determining discriminant validity.

4. Results and discussion

4.1 Correlation analysis

The correlation coefficients of the variables are given in [Table 5](#). Positive correlations exist between the consumers' familiarity with the website with their perceived value ($r = 0.509$, $p < 0.01$) and purchase intention ($r = 0.145$, $p < 0.01$). Moreover, a significant and positive association of usability with perceived value is found ($r = 0.465$, $p < 0.01$) and purchase intention ($r = 0.237$, $p < 0.01$). Similarly, information quality is positively correlated with perceived value ($r = 0.560$, $p < 0.01$) and with purchase intention ($r = 0.316$, $p < 0.01$). Furthermore, time-saving is positively linked with perceived value ($r = 0.562$, $p < 0.01$) and with purchase intention ($r = 0.314$, $p < 0.01$). Finally, reputation is positively associated with perceived value ($r = 0.518$, $p < 0.01$) and purchase intention ($r = 0.526$, $p < 0.01$).

JEBDE

Constructs	Items	Loadings	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
FAM	FAM1	0.731	0.708	0.819	0.532
	FAM2	0.722			
	FAM3	0.757			
	FAM4	0.705			
FCV	FCV1	0.869	0.926	0.940	0.693
	FCV2	0.798			
	FCV3	0.851			
	FCV4	0.800			
	FCV5	0.851			
	FCV6	0.797			
	FCV7	0.856			
IQ	IQ1	0.795	0.891	0.915	0.607
	IQ2	0.716			
	IQ3	0.713			
	IQ4	0.702			
	IQ5	0.890			
	IQ6	0.748			
	IQ7	0.869			
PI	PI1	0.893	0.850	0.909	0.770
	PI2	0.874			
	PI3	0.865			
PV	PV1	0.841	0.833	0.900	0.750
	PV2	0.859			
	PV3	0.897			
RP	RP1	0.790	0.748	0.856	0.664
	RP2	0.834			
	RP3	0.821			
TS	TS1	0.867	0.766	0.866	0.685
	TS2	0.725			
	TS3	0.882			
USB	USB1	0.771	0.861	0.896	0.590
	USB2	0.711			
	USB3	0.825			
	USB4	0.763			
	USB6	0.810			
	USB7	0.722			

Table 2. Measurement model (estimates)

Note(s): FAM=Familiarity, FCV=Fear of COVID, IQ=Information Quality, PI=Purchase Intention, PV=Perceived Value, RP=Reputation, TS=Time-Saving and USB=Usability
Source(s): Authors' own creation/work

Variable	1	2	3	4	5	6	7	8
FAM	0.729							
FCV	-0.034	0.832						
IQ	0.538	0.144	0.779					
PI	0.144	0.295	0.322	0.877				
PV	0.521	0.142	0.570	0.363	0.866			
RP	0.395	0.169	0.549	0.525	0.529	0.815		
TS	0.441	0.256	0.714	0.313	0.563	0.564	0.827	
USB	0.397	0.074	0.631	0.241	0.478	0.465	0.566	0.768

Table 3. Fornell and Lacker's criterion

Note(s): FAM=Familiarity, FCV=Fear of COVID, IQ=Information Quality, PI=Purchase Intention, PV=Perceived Value, RP=Reputation, TS=Time-Saving and USB=Usability
Source(s): Authors' own creation/work

Variable	1	2	3	4	5	6	7	8
FAM								
FCV	0.051							
IQ	0.669	0.159						
PI	0.186	0.331	0.364					
PV	0.667	0.160	0.650	0.429				
RP	0.540	0.203	0.662	0.660	0.659			
TS	0.591	0.310	0.838	0.389	0.702	0.751		
USB	0.501	0.081	0.705	0.278	0.552	0.571	0.689	

Note(s): FAM=Familiarity, FCV=Fear of COVID, IQ=Information Quality, PI=Purchase Intention, PV=Perceived Value, RP=Reputation, TS=Time-Saving and USB=Usability

Source(s): Authors' own creation/work

Consumers' purchase intention to use OFDAs

Table 4. HTMT ratio

Variable	1	2	3	4	5	6	7	8
IQ	1							
FAM	0.531**	1						
RP	0.540**	0.393**	1					
PV	0.560**	0.509**	0.518**	1				
PI	0.316**	0.145**	0.526**	0.360**	1			
TS	0.694**	0.434**	0.569**	0.562**	0.314**	1		
USB	0.615**	0.391**	0.456**	0.465**	0.237**	0.557**	1	
FCV	0.144**	-0.036	0.169**	0.141**	0.293**	0.259**	0.072	1

Note(s): **. Correlation is significant at the 0.01 level (2-tailed). FAM=Familiarity, FCV=Fear of COVID, IQ=Information Quality, PI=Purchase Intention, RP= Reputation, TS=Time-Saving and USB=Usability

Source(s): Authors' own creation/work

Table 5. Correlations coefficients of variables

4.2 Structural model

Employing the Smart-PLS (Hair, Sarstedt, Hopkins, & G. Kuppelwieser, 2014) and the assessment outer model was developed to evaluate the entire research model by examining direct and specific indirect paths. Figure 2 represents algorithmic analysis which depicts the beta values and R square.

Subsequently, path analysis was conducted using bootstrapping (5000) to evaluate the structural model and Figure 3 shows bootstrapping which demonstrates the results of the structural model. In Figure 3, *p* values and the outcomes of the bootstrapping test are presented.

4.3 Direct, mediation and moderation effects

For mediation analysis, it was necessary to determine the precise indirect effects resulting from a perceived value between the independent variables and purchase intention as reported in Table 6. Results reveal that perceived value has a significant positive influence on buying intention with ($\beta = 0.322, p < 0.001$) thus supporting H1, so, therefore, H1 was accepted and the indirect influence of information quality on purchase intention was observed with ($\beta = 0.04, p < 0.05$) via perceived value thus supporting H2, so, therefore, H2 was accepted. By raising the perceived quality of information to the client, the sense of risk is decreased and information quality refers to the information's relevance, veracity, accuracy and completeness because when the quality of information is available, the uncertainty and risk relating to online purchases are lowered (Nicolaou & McKnight, 2006; Yi, Yoon,

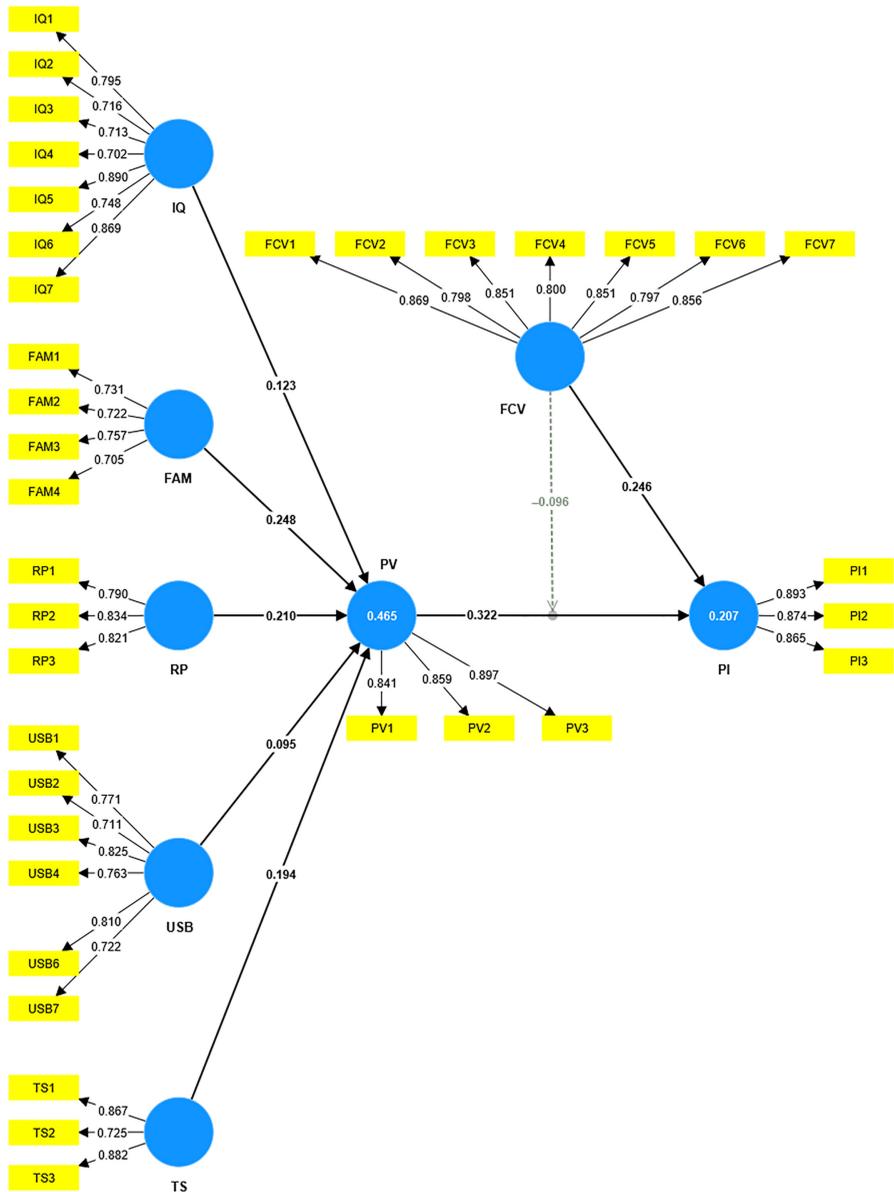
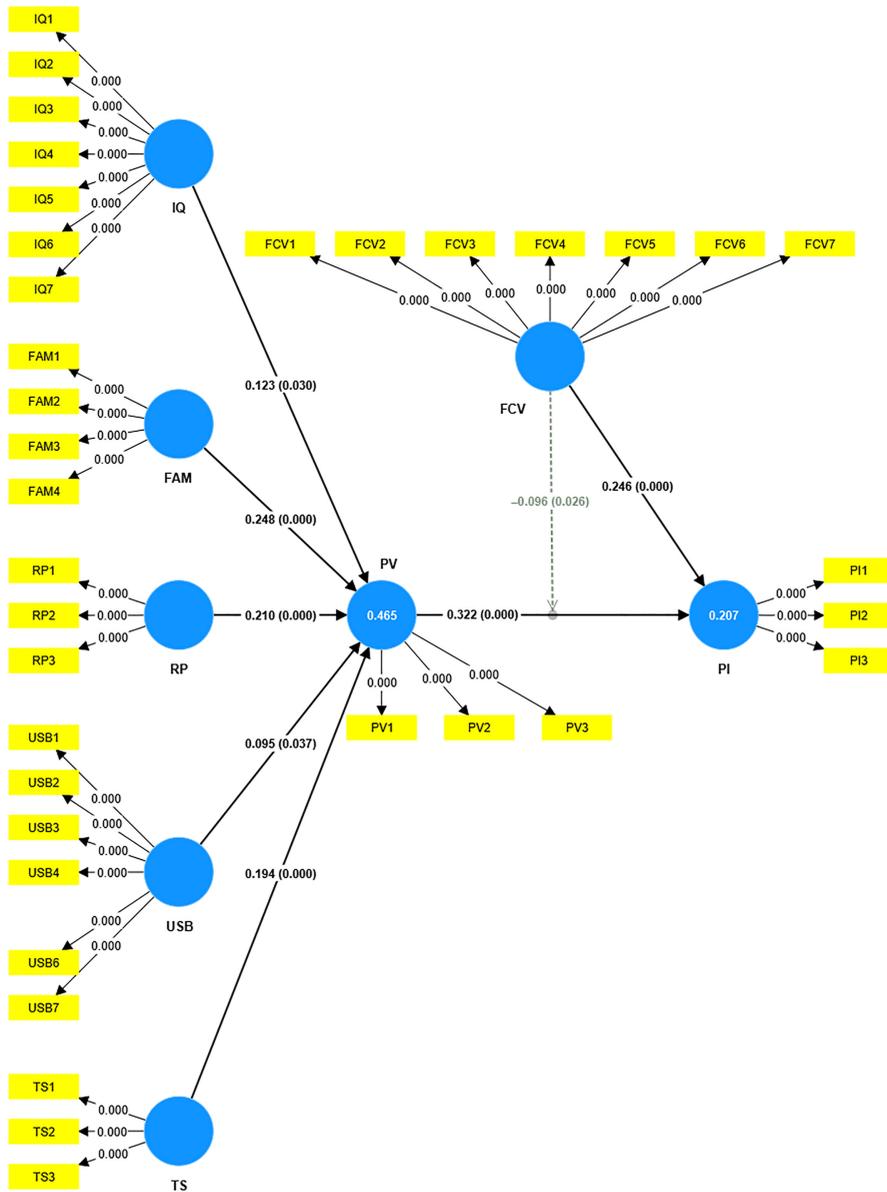


Figure 2. Structural model (algorithmic analysis)

Source(s): Authors' own creation/work

Davis, & Lee, 2013). Similarly, support has also been found for H3 as an indirect effect of familiarity on purchase intention was measured with ($\beta = 0.08, p < 0.001$) through perceived value, so, therefore, H3 is accepted. When customers have full online initial trust and are familiar with the process of online purchasing then their intention to do online purchasing is enhanced (Chen & Barnes, 2007). Reputation showed a significant indirect effect on purchase



Source(s): Authors' own creation/work

Figure 3. Structural model (bootstrapping)

intention ($\beta = 0.068, p < 0.005$) through perceived value, so therefore, H4 has been supported so H4 is accepted. Online retailers with strong reputations can benefit from warranties in terms of perceived product quality, perceived value and intention to purchase, (Lwin & Williams, 2006). Based on the significant indirect effect of usability on purchase intention is found with ($\beta = 0.03, p < 0.05$) through perceived value, hence, H5 has been supported so H5 is

Hypotheses	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	p values
H1	PV → PI	0.322	0.319	0.051	6.274	0.000
H2	IQ → PV → PI	0.040	0.039	0.020	2.001	0.045
H3	FAM → PV → PI	0.080	0.079	0.017	4.721	0.000
H4	RP → PV → PI	0.068	0.067	0.021	3.280	0.001
H5	USB → PV → PI	0.030	0.031	0.015	2.099	0.036
H6	TS → PV → PI	0.062	0.061	0.019	3.269	0.001
H7	FCV x PV → PI	-0.096	-0.096	0.043	2.222	0.026

Table 6.
Direct, mediation and moderation findings

Note(s): FAM=Familiarity, FCV=Fear of COVID, IQ=Information Quality, PI=Purchase Intention, PV=Perceived Value, RP=Reputation, TS=Time-Saving and USB=Usability
Source(s): Authors' own creation/work

accepted. For high-risk perceivers, the indirect influence of usability on the intention to use a website may be exacerbated, so therefore, when perceived value is large, observations imply that usability has a greater role in determining behavioral intentions (Belanche *et al.*, 2012). Likewise, time-saving has a significant indirect effect on purchase intention with ($\beta = 0.062$, $p < 0.005$) via perceived value thus supporting H6, so therefore H6 is accepted. Congested traffic and lengthier delivery times lower consumer satisfaction and the usage frequency of OFDAs but effective time-saving ideas for customers affect consumers' purchasing decisions, in this way, customers' perceived value can be reduced during the time of the COVID-19 pandemic (Correa *et al.*, 2019; Burlea-Schiopoiu *et al.*, 2022).

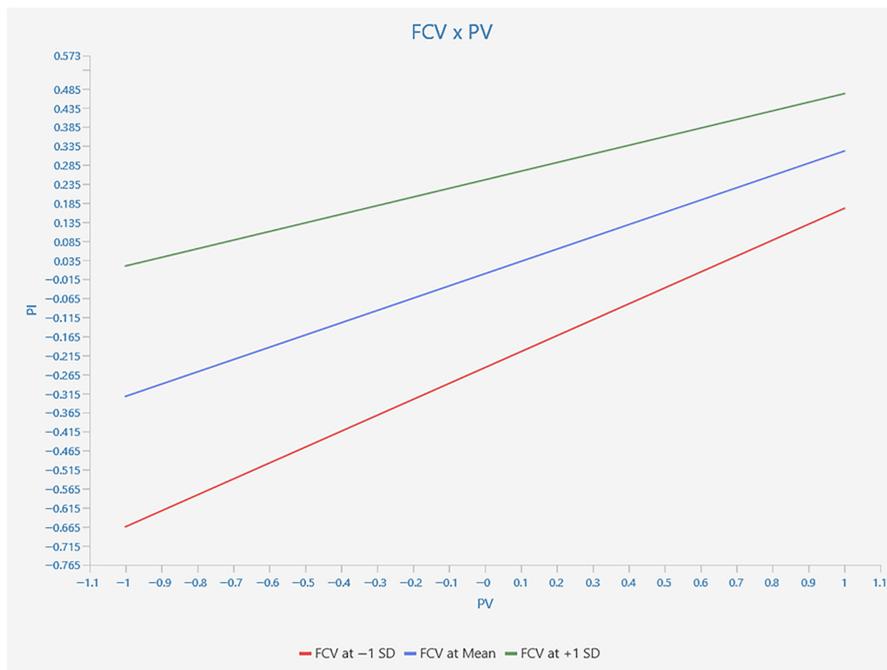
The interactive effect of fear of COVID-19 towards buying behavior through OFDAs and perceived value on purchase intention was adversely observed with ($\beta = -0.096$, $p < 0.05$), which showed that fear of COVID-19 still exists and weak the association of perceived value with purchase intention, thus confirming the moderation as shown in Table 5 which supported the H7. Therefore, OFDAs should be enhanced to minimize the consumer's fear related to contagious diseases. Perceived value has an adverse influence on consumers' willingness to utilize online food delivery services, whereas perceived physical risk and risk of COVID-19 have a detrimental effect on their intent to utilize online food delivery services (Poon & Tung, 2022).

Interaction terms are plotted and the results of the moderation graph are illustrated in Figure 4 which represents that COVID-19 fear negatively moderates the association of perceived value with purchase intention. The necessity of lowering perceived risks during the COVID-19 outbreak is emphasized by the importance of safety and accessibility as priorities for both consumers and organizations (Burlea-Schiopoiu *et al.*, 2022).

5. Conclusions and implications

5.1 Theoretical implications

TAM and AIDA models are used to give insight into the process of customers adopting an on-demand food delivery service and the result contributes to the body of knowledge on consumer behavior by showing that perceived value mediates the association of information quality, familiarity, time-saving, usability and reputation with purchase intention. Telecommuting is a source of social well-being and sustainability but food e-commerce



Source(s): Authors' own creation/work

Figure 4. Moderation graph

does not show similar outcomes as it does not offer exceptional convenience for those who have easy access to food while maintaining the status quo (Music, Charlebois, Toole, & Large, 2022). The idea of perceived value emphasizes that consumers evaluate online food delivery services holistically, it is not just about the particular features or advantages the platform provides, but also how customers see the whole value of utilizing the service.

Secondly, a previous study has been conducted in numerous contexts of mobile technology with consumer acceptance utilizing well-discussed models TAM and the AIDA but to attract and retain the customers' purchase intention and to run the business efficiently and effectively, the use of OFDAs should be maintained according to customer expectations (Mohamed *et al.*, 2022; Mohamed & Mohamed, 2022). Moreover, this research enhances and compensates for the shortcomings of the TAM and the AIDA models emphasizing how consumers make decisions in an integrated way instead of assessing several aspects separately to produce a single perception, consumers evaluate several attributes simultaneously.

Third, the theoretical understanding emphasizes the significance of taking into account a wide array of qualities and experiences that together affect customer behavior. The finding of COVID-19 fear as a moderator between perceived value and purchase intention provides important insights into how external circumstances, like the global pandemic, affect consumer decision-making. Businesses can better address consumers' safety concerns by adjusting their methods with an understanding of this moderating effect. Positive electronic word of mouth intervened OFDAs and customer satisfaction but effort expectancy, performance expectancy and price-saving orientation influence continuous usage intention (Mohamed *et al.*, 2022; Mohamed & Mahmoud, 2022; Ramos, 2022). Additionally, such initiatives should attempt to reduce the risk exposure of agri-food small and medium enterprises, improve their awareness

and preparedness to address risks and anticipate their ramifications (Abu Hatab, Lagerkvist, & Esmat, 2021).

5.2 Practical implications

The factors that affect perceived value and purchase intentions should be taken into account by businesses when developing their marketing strategy. In marketing efforts, highlighting convenience, reputation and safety precautions could bring in new customers and keep old ones. Customers have altered their purchasing behaviors as they browse websites online as well as offline, check physical locations, use smartphones to obtain information, evaluate items and costs and then determine the optimal buy option, so, therefore, need to assist managers in integrating communications networks in a digital world, thereby improving customer service and organizational performance (Marketing Science Institute, 2014).

Secondly, to set the platform apart from rivals and increase its perceived value overall, promotional efforts should highlight its distinctive features and qualities. User experience and perceived value should be prioritized by web developers and app designers. On platforms for online food delivery, they should concentrate on designing user-friendly user interfaces, intuitive navigation and transparent information display. A high-level internet risk may cause web users to exaggerate uncertainty on social networking sites and display excessive confidence in their decision, due to its substantial influence on consumers' attitudes concerning online purchases, the perception of risk associated with online buying has become a crucial area (Gong *et al.*, 2022).

Third, responding immediately and proactively to customer complaints may increase perceived value and foster long-term customer loyalty and confidence. Particularly during health catastrophes like COVID-19, accurate and transparent information might help to lessen uncertainty and panic, which increases buying intentions. Making sure staff members are properly trained in safety procedures and customer service may have a good effect on how customers see delivery services and restaurants.

5.3 Conclusion and future recommendations

Information quality, reputation, time-saving, familiarity and usability of OFDAs were influenced by perceived value while purchasing cooked food items through the platform of online delivery services. Nevertheless, fear of COVID-19 unenviably moderates the consumers' perceived value with their intention to buy through OFDAs. Although, fear of COVID-19 seems significant in buying intention of food items through OFDAs, may be due to avoiding physical dining or reducing physical contact with other people while buying uncooked food materials. A well-designed website may not have the most far-reaching effects, but it provides the highest levels of instant gratification with the least amount of apparent danger by adhering to standards for online security, customer service, information quality and usability; therefore, in online buying, consumer has perceived risk related to the information quality provided by the company (Forsythe & Shi, 2003; Vila & Kuster, 2011). Nowadays, time-saving, usability and familiarity are the main components of OFDAs for consumers. Similarly, the reliability of OFDAs and their influence on consumers' purchase decisions through perceived risk were determined by usability and familiarity of applications among customers including time-saving elements instead of information quality and reputation. The strength of food delivery services may be increased by decreasing the perceived risk in the context of usability, familiarity and time-saving. Food delivery services can take measures regarding food safety in perspective of contagious disease to ensure the precautionary measures and fulfillment of consumers' commitment. This study was limited to the FCT Islamabad, Pakistan, which has one of the highest positive rates among cities impacted by the Coronavirus. Future research can focus on a different region with other

jurisdictions locally or internationally with the most affected region by contagious viruses and the metropolitan cities of the world which are densely populated regions where time constituent matters to the accomplishment of office work.

Consumers'
purchase
intention to use
OFDAs

References

- Abu Hatab, A., Lagerkvist, C. J., & Esmat, A. (2021). Risk perception and determinants in small- and medium-sized agri-food enterprises amidst the COVID-19 pandemic: Evidence from Egypt. *Agribusiness*, 37(1), 187–212. doi: [10.1002/agr.21676](https://doi.org/10.1002/agr.21676).
- Ackoff, R. (1953). *The design of social research*. Russell L. Ackoff. Univ. of Chicago Press, Chicago, 1953. 420 pp. Illus. Science, 119(3102). doi: [10.1126/science.119.3102.837](https://doi.org/10.1126/science.119.3102.837).
- Agag, G. M., & El-Masry, A. A. (2017). Why do consumers trust online travel websites? Drivers and outcomes of consumer trust toward online travel websites. *Journal of Travel Research*, 56(3), 347–369. doi: [10.1177/0047287516643185](https://doi.org/10.1177/0047287516643185).
- Agostini, L., Bigliardi, B., Filippelli, S., & Galati, F. (2021). Seller reputation, distribution and intention to purchase refurbished products. *Journal of Cleaner Production*, 316, 128296. doi: [10.1016/j.jclepro.2021.128296](https://doi.org/10.1016/j.jclepro.2021.128296).
- Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2022). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction*, 20(3), 1537–1545. doi: [10.1007/s11469-020-00270-8](https://doi.org/10.1007/s11469-020-00270-8).
- Al-Okaily, M., Alqudah, H., Matar, A., Lutfi, A., & Taamneh, A. (2020). Dataset on the acceptance of e-learning system among universities students' under the COVID-19 pandemic conditions. *Data in Brief*, 32, 106176. doi: [10.1016/j.dib.2020.106176](https://doi.org/10.1016/j.dib.2020.106176).
- Al-Okaily, M., Alqudah, H., Matar, A., Lutfi, A., & Taamneh, A. (2020). Impact of COVID-19 pandemic on acceptance of e-learning system in Jordan: A case of transforming the traditional education systems. *Humanities & Social Sciences Reviews*, 8(4), 840–851. doi: [10.18510/hssr.2020.8483](https://doi.org/10.18510/hssr.2020.8483).
- Al-Okaily, M., Alalwan, A. A., Al-Fraihat, D., Alkhwaldi, A. F., Rehman, S. U., & Al-Okaily, A. (2022). Investigating antecedents of mobile payment systems' decision-making: A mediated model. *Global Knowledge, Memory and Communication*, 73(1/2), 45–66. doi: [10.1108/GKMC-10-2021-0171](https://doi.org/10.1108/GKMC-10-2021-0171), [Preprint].
- Alkhwaldi, A. F., Alharasis, E. E., Shehadeh, M., Abu-AlSondos, I. A., Oudat, M. S., & Bani Atta, A. A. (2022). Towards an understanding of FinTech users' adoption: Intention and e-loyalty post-COVID-19 from a developing country perspective. *Sustainability (Switzerland)*, 14(19), 12616. doi: [10.3390/su141912616](https://doi.org/10.3390/su141912616).
- Almoussa, M. (2011). Perceived risk in apparel online shopping: A multi dimensional perspective. *Canadian Social Science*, 7(2), 23.
- Ariff, M. S. M., Sylvester, M., Zakuan, N., Ismail, K., & Ali, K. M. (2014). Consumer perceived risk, attitude and online shopping behaviour; Empirical evidence from Malaysia. In *IOP Conference Series: Materials Science and Engineering*. Jakarta, Indonesia. doi: [10.1088/1757-899X/58/1/012007](https://doi.org/10.1088/1757-899X/58/1/012007).
- Baek, T. H., & King, K. W. (2011). Exploring the consequences of brand credibility in services. *Journal of Services Marketing*, 25(4), 260–272. doi: [10.1108/08876041111143096](https://doi.org/10.1108/08876041111143096).
- Bebber, S., Milan, G. S., De Toni, D., Eberle, L., & Slongo, L. A. (2017). Antecedents of purchase intention in the online context. *Journal of Relationship Marketing*, 16(1), 82–98. doi: [10.1080/15332667.2016.1242396](https://doi.org/10.1080/15332667.2016.1242396).
- Belanche, D., Casaló, L. V., & Guinalú, M. (2012). Website usability, consumer satisfaction and the intention to use a website: The moderating effect of perceived risk. *Journal of Retailing and Consumer Services*, 19(1), 124–132. doi: [10.1016/j.jretconser.2011.11.001](https://doi.org/10.1016/j.jretconser.2011.11.001).
- Bruwer, J., & Cohen, J. (2019). Restaurants and wine by-the-glass consumption: Motivational process model of risk perception, involvement and information-related behaviour. *International Journal of Hospitality Management*, 77, 270–280. doi: [10.1016/j.ijhm.2018.07.006](https://doi.org/10.1016/j.ijhm.2018.07.006).

- Burlea-Schiopoiu, A., Puiu, S., & Dinu, A. (2022). The impact of food delivery applications on Romanian consumers' behaviour during the COVID-19 pandemic. *Socio-Economic Planning Sciences*, 82, 101220. doi: [10.1016/j.seps.2021.101220](https://doi.org/10.1016/j.seps.2021.101220).
- Cardoso, S., & Martinez, L. F. (2019). 'Online payments strategy: How third-party internet seals of approval and payment provider reputation influence the millennials' online transactions. *Electronic Commerce Research*, 19(1), 189–209. doi: [10.1007/s10660-018-9295-x](https://doi.org/10.1007/s10660-018-9295-x).
- Chang, H. H., & Chen, S. W. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online Information Review*, 32(6), 818–841. doi: [10.1108/14684520810923953](https://doi.org/10.1108/14684520810923953).
- Chen, Y. H., & Barnes, S. (2007). Initial trust and online buyer behaviour. *Industrial Management and Data Systems*, 107(1), 21–36. doi: [10.1108/02635570710719034](https://doi.org/10.1108/02635570710719034).
- Chen, Y. S., & Huang, S. Y. B. (2017). The effect of task-technology fit on purchase intention: The moderating role of perceived risks. *Journal of Risk Research*, 20(11), 1418–1438. doi: [10.1080/13669877.2016.1165281](https://doi.org/10.1080/13669877.2016.1165281).
- Chen, C. D., Fan, Y. W., & Farn, C. K. (2007). Predicting electronic toll collection service adoption: An integration of the technology acceptance model and the theory of planned behavior. *Transportation Research Part C: Emerging Technologies*, 15(5), 300–311. doi: [10.1016/j.trc.2007.04.004](https://doi.org/10.1016/j.trc.2007.04.004).
- Cheung, C., & Lee, M. K. O. (2000). Trust in internet shopping: A proposed model and measurement instrument. *AMCIS 2000 Proceedings*, 406, 681–689.
- Chiu, C. M., Wang, E. T. G., Fang, Y., & Huang, H. (2014). Understanding customers' repeat purchase intentions in B2C e-commerce: The roles of utilitarian value, hedonic value and perceived risk. *Information Systems Journal*, 24(1), 85–114. doi: [10.1111/j.1365-2575.2012.00407.x](https://doi.org/10.1111/j.1365-2575.2012.00407.x).
- Cho, M., Bonn, M. A., & Li, J. (Justin) (2019). Differences in perceptions about food delivery apps between single-person and multi-person households. *International Journal of Hospitality Management*, 77, 108–116. doi: [10.1016/j.ijhm.2018.06.019](https://doi.org/10.1016/j.ijhm.2018.06.019).
- Choe, J. Y., Kim, J. J., & Hwang, J. (2021). Innovative marketing strategies for the successful construction of drone food delivery services: Merging TAM with TPB. *Journal of Travel and Tourism Marketing*, 38(1), 16–30. doi: [10.1080/10548408.2020.1862023](https://doi.org/10.1080/10548408.2020.1862023).
- Clemons, E. K., Wilson, J., Matt, C., Hess, T., Jin, F., & Koh, N. S. (2016). Global differences in online shopping behavior: Understanding factors leading to trust. *Journal of Management Information Systems*, 33(4), 1117–1148. doi: [10.1080/07421222.2016.1267531](https://doi.org/10.1080/07421222.2016.1267531).
- Correa, J. C., Garzón, W., Brooker, P., Sakarkar, G., Carranza, S. A., Yunado, L., & Rincón, A. (2019). Evaluation of collaborative consumption of food delivery services through web mining techniques. *Journal of Retailing and Consumer Services*, 46, 45–50. doi: [10.1016/j.jretconser.2018.05.002](https://doi.org/10.1016/j.jretconser.2018.05.002).
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, 13(3), 319. doi: [10.2307/249008](https://doi.org/10.2307/249008).
- Doll, W. J., & Torkzadeh, G. (1988). The measurement of end-user computing satisfaction. *MIS Quarterly: Management Information Systems*, 12(2), 259. doi: [10.2307/248851](https://doi.org/10.2307/248851).
- Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 61(2), 35. doi: [10.2307/1251829](https://doi.org/10.2307/1251829).
- Dsouza, D., & Sharma, D. (2021). Online food delivery portals during COVID-19 times: An analysis of changing consumer behavior and expectations. *International Journal of Innovation Science*, 13(2), 218–232. doi: [10.1108/IJIS-10-2020-0184](https://doi.org/10.1108/IJIS-10-2020-0184).
- Esmaili, A., Haghgoo, I., Davidavičienė, V., & Meidutė-Kavaliauskienė, I. (2021). Customer loyalty in mobile banking: Evaluation of perceived risk, relative advantages, and usability factors. *Engineering Economics*, 32(1), 70–81. doi: [10.5755/j01.ee.32.1.25286](https://doi.org/10.5755/j01.ee.32.1.25286).
- Fernández-Bonilla, F., Gijón, C., & De la Vega, B. (2022). E-commerce in Spain: Determining factors and the importance of the e-trust. *Telecommunications Policy*, 46(1), 102280. doi: [10.1016/j.telpol.2021.102280](https://doi.org/10.1016/j.telpol.2021.102280).

- Flavián, C., Guinalíu, M., & Gurrea, R. (2006). The role played by perceived usability, satisfaction and consumer trust on website loyalty. *Information and Management*, 43(1), 1–14. doi: [10.1016/j.im.2005.01.002](https://doi.org/10.1016/j.im.2005.01.002).
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39. doi: [10.2307/3151312](https://doi.org/10.2307/3151312).
- Forsythe, S. M., & Shi, B. (2003). Consumer patronage and risk perceptions in Internet shopping. *Journal of Business Research*, 56(11), 867–875. doi: [10.1016/S0148-2963\(01\)00273-9](https://doi.org/10.1016/S0148-2963(01)00273-9).
- Gefen, D. (2000). E-commerce: The role of familiarity and trust. *Omega*, 28(6), 725–737. doi: [10.1016/S0305-0483\(00\)00021-9](https://doi.org/10.1016/S0305-0483(00)00021-9).
- Goldstein, I., Jiang, W., & Karolyi, G. A. (2019). To FinTech and beyond. *Review of Financial Studies*, 32(5), 1647–1661. doi: [10.1093/rfs/hhz025](https://doi.org/10.1093/rfs/hhz025).
- Gong, J., Said, F., Ting, H., Firdaus, A., Aksar, I. A., & Xu, J. (2022). Do privacy stress and brand trust still matter? Implications on continuous online purchasing intention in China. *Current Psychology*, 42(18), 15515–15527. doi: [10.1007/s12144-022-02857-x](https://doi.org/10.1007/s12144-022-02857-x), [Preprint].
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, G. V. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121. doi: [10.1108/EBR-10-2013-0128](https://doi.org/10.1108/EBR-10-2013-0128).
- Hong, I. B., & Cha, H. S. (2013). The mediating role of consumer trust in an online merchant in predicting purchase intention. *International Journal of Information Management*, 33(6), 927–939. doi: [10.1016/j.ijinfomgt.2013.08.007](https://doi.org/10.1016/j.ijinfomgt.2013.08.007).
- Hu, Z., Ding, S., Li, S., Chen, L., & Yang, S. (2019). Adoption intention of fintech services for bank users: An empirical examination with an extended technology acceptance model. *Symmetry*, 11(3), 340. doi: [10.3390/sym11030340](https://doi.org/10.3390/sym11030340).
- Jarvenpaa, Tractinsky, N., & Vitale, M. S. L. (2000). Consumer trust in an Internet store. *Information Technology Management*, 1(1), 45–71. doi: [10.1023/a:1019104520776](https://doi.org/10.1023/a:1019104520776).
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44(2), 544–564. doi: [10.1016/j.dss.2007.07.001](https://doi.org/10.1016/j.dss.2007.07.001).
- Kim, H. W., Xu, Y., & Gupta, S. (2012). Which is more important in Internet shopping, perceived price or trust?. *Electronic Commerce Research and Applications*, 11(3), 241–252. doi: [10.1016/j.elerap.2011.06.003](https://doi.org/10.1016/j.elerap.2011.06.003).
- Kim, Y. J., Han, S. M., & Lee, E. (2013). The role of trust in online shopping malls: Different types of trust and how they affect consumer intention. *International Journal of Electronic Commerce Studies*, 4(2), 355–358. doi: [10.7903/ijecs.1127](https://doi.org/10.7903/ijecs.1127).
- Kim, H. S., Choi, Y. S., & Shin, C. S. (2019). Relationship among restaurant owner's SNS marketing, trust, purchase intention, and word of mouth intention. *Journal of Distribution Science*, 17(7), 27–38. doi: [10.15722/jds.17.07.201907.25](https://doi.org/10.15722/jds.17.07.201907.25).
- Kirakowski, J., Claridge, N., & Whitehand, R. (1998). Human centered measures of success in web site design. In *Proceedings of the Fourth Conference on Human Factors & the Web*.
- Kumar, S., & Shah, A. (2021). Revisiting food delivery apps during COVID-19 pandemic? Investigating the role of emotions. *Journal of Retailing and Consumer Services*, 62, 102595. doi: [10.1016/j.jretconser.2021.102595](https://doi.org/10.1016/j.jretconser.2021.102595).
- Lee, E. Y., Lee, S. B., & Jeon, Y. J. J. (2017). Factors influencing the behavioral intention to use food delivery apps. *Social Behavior and Personality*, 45(9), 1461–1473. doi: [10.22224/sbp.6185](https://doi.org/10.22224/sbp.6185).
- Lee, S. W., Sung, H. J., & Jeon, H. M. (2019). Determinants of continuous intention on food delivery apps: Extending UTAUT2 with information quality. *Sustainability (Switzerland)*, 11(11), 3141. doi: [10.3390/su11113141](https://doi.org/10.3390/su11113141).

-
- Leung, X. Y., & Cai, R. (2021). How pandemic severity moderates digital food ordering risks during COVID-19: An application of prospect theory and risk perception framework. *Journal of Hospitality and Tourism Management*, 47, 497–505. doi: [10.1016/j.jhtm.2021.05.002](https://doi.org/10.1016/j.jhtm.2021.05.002).
- Lin, H. X., Choong, Y. Y., & Salvendy, G. (1997). A proposed index of usability: A method for comparing the relative usability of different software systems. *Behaviour and Information Technology*, 16(4-5), 267–277. doi: [10.1080/014492997119833](https://doi.org/10.1080/014492997119833).
- Lusk, J. L., & Coble, K. H. (2005). Risk perceptions, risk preference, and acceptance of risky food. *American Journal of Agricultural Economics*, 87(2), 393–405. doi: [10.1111/j.1467-8276.2005.00730.x](https://doi.org/10.1111/j.1467-8276.2005.00730.x).
- Lwin, M. O., & Williams, J. D. (2006). Promises, promises: How consumers respond to warranties in internet retailing. *Journal of Consumer Affairs*, 40(2), 236–260. doi: [10.1111/j.1745-6606.2006.00057.x](https://doi.org/10.1111/j.1745-6606.2006.00057.x).
- Mansour, K. B., Kooli, K., & Utama, R. (2014). Online trust antecedents and their consequences on purchase intention: An integrative approach. *Journal of Customer Behaviour*, 13(1), 25–42. doi: [10.1362/147539214x14024779343677](https://doi.org/10.1362/147539214x14024779343677).
- Marketing Science Institute. (2014). Research priorities 2014–2016. *Marketing Science Institute (MSI)*.
- Mathew, P. M., & Mishra, S. (2014). Online retailing in India: Linking internet usage perceived risks website attributes and past online purchase behaviour. *Electronic Journal of Information Systems in Developing Countries*, 65(1), 1–17. doi: [10.1002/j.1681-4835.2014.tb00466.x](https://doi.org/10.1002/j.1681-4835.2014.tb00466.x).
- Mofokeng, T. E. (2021). The impact of online shopping attributes on customer satisfaction and loyalty: Moderating effects of e-commerce experience. *Cogent Business and Management*, 8(1). doi: [10.1080/23311975.2021.1968206](https://doi.org/10.1080/23311975.2021.1968206).
- Mohamed, H. E., & Mahmoud, S. W. (2022). The impact of Online Food Delivery Applications (FDAs) on Customer Satisfaction and Repurchasing Intentions: Mediating Role of Positive E-WOM. *Journal of Association of Arab Universities for Tourism and Hospitality*, 22(2), 89–110.
- Mohamed, R. N., Sawangchai, A., Rusli, M. S., & Borhan, H. (2022). Factors influencing the online food delivery services apps on purchase intention among customers in Klang Valley, Malaysia during COVID-19. *Journal of Marketing Management and Consumer Behavior*, 4(1), 23–34.
- Muhammad, N. S., Mohd Razak, M. R., Ariffin, S., Abdul Manan, H., & Hamdan, F. (2021). An exploratory study on the intention to use online food delivery among corporate workers. *Advances in Business Research International Journal*, 7(1), 13. doi: [10.24191/abrij.v7i1.11584](https://doi.org/10.24191/abrij.v7i1.11584).
- Music, J., Charlebois, S., Toole, V., & Large, C. (2022). Telecommuting and food E-commerce: Socially sustainable practices during the COVID-19 pandemic in Canada. *Transportation Research Interdisciplinary Perspectives*, 13, 100513. doi: [10.1016/j.trip.2021.100513](https://doi.org/10.1016/j.trip.2021.100513).
- Nicolaou, A. I., & McKnight, D. H. (2006). Perceived information quality in data exchanges: Effects on risk, trust, and intention to use. *Information Systems Research*, 17(4), 332–351. doi: [10.1287/isre.1060.0103](https://doi.org/10.1287/isre.1060.0103).
- Park, J., & Stoel, L. (2005). Effect of brand familiarity, experience and information on online apparel purchase. *International Journal of Retail and Distribution Management*, 33(2), 148–160. doi: [10.1108/09590550510581476](https://doi.org/10.1108/09590550510581476).
- Parra-López, E., Bulchand-Gidumal, J., Gutiérrez-Taño, D., & Díaz-Armas, R. (2011). Intentions to use social media in organizing and taking vacation trips. *Computers in Human Behavior*, 27(2), 640–654. doi: [10.1016/j.chb.2010.05.022](https://doi.org/10.1016/j.chb.2010.05.022).
- Poon, W. C., & Tung, S. E. H. (2022). Consumer risk perception of online food delivery during the COVID-19 Movement Control Order (MCO) in Malaysia. *Journal of Foodservice Business Research*, 26(2), 381–401. doi: [10.1080/15378020.2022.2054657](https://doi.org/10.1080/15378020.2022.2054657), [Preprint].
- Preetha, S., & Iswarya, S. (2019). Factors influencing the intension to use food online order and delivery appvia platforms-using tam(Technology acceptance model). *International Journal of Recent Technology and Engineering*, 7(6), 1141–6.

- Rahman, A. M. (2020). Bkash vs. Bank-led option: Factors influencing customer's preferences – does it warrant voluntary insurance-policy for rapid-growth digital-banking in Bangladesh-economy?. *SSRN Electronic Journal*, 1/2020(13), 51–69. doi: [10.2139/ssrn.3723599](https://doi.org/10.2139/ssrn.3723599), [Preprint].
- Ramos, K. (2022). Factors influencing customers' continuance usage intention of food delivery apps during COVID-19 quarantine in Mexico. *British Food Journal*, 124(3), 833–852. doi: [10.1108/BFJ-01-2021-0020](https://doi.org/10.1108/BFJ-01-2021-0020).
- Rao, A., & Monroe, K. B. (1996). Causes and consequences of price premiums. *Journal of Business*, 69(4), 511. doi: [10.1086/209703](https://doi.org/10.1086/209703).
- Ray, A., Dhir, A., Bala, P. K., & Kaur, P. (2019). Why do people use food delivery apps (FDA)? A uses and gratification theory perspective. *Journal of Retailing and Consumer Services*, 51, 221–230. doi: [10.1016/j.jretconser.2019.05.025](https://doi.org/10.1016/j.jretconser.2019.05.025).
- Roh, M., & Park, K. (2019). Adoption of O2O food delivery services in South Korea: The moderating role of moral obligation in meal preparation. *International Journal of Information Management*, 47, 262–273. doi: [10.1016/j.ijinfomgt.2018.09.017](https://doi.org/10.1016/j.ijinfomgt.2018.09.017).
- Roy, M. C., Dewit, O., & Aubert, B. A. (2001). The impact of interface usability on trust in Web retailers. *Internet Research*, 11(5), 388–398. doi: [10.1108/10662240110410165](https://doi.org/10.1108/10662240110410165).
- Sachdeva, G. (2016). Perceived benefits & risks towards E-shopping: Analyzing the youth attitude. *PRIMA: Practices and Research in Marketing*, 7(1&2), 41–48.
- San Martín, H., & Herrero, Á. (2012). Influence of the user's psychological factors on the online purchase intention in rural tourism: Integrating innovativeness to the UTAUT framework. *Tourism Management*, 33(2), 341–350. doi: [10.1016/j.tourman.2011.04.003](https://doi.org/10.1016/j.tourman.2011.04.003).
- Sawitri, S., & Alhasin, A. (2022). Research in Business & Social Science Online music business: The relationship between perceived benefit , perceived sacrifice , perceived value , and purchase intention. *International Journal of Research in Business and Social Science (2147- 4478)*, 11(5), 111–126. doi:[10.20525/ijrbs.v11i5.1900](https://doi.org/10.20525/ijrbs.v11i5.1900).
- Song, H. J., Ruan, W. J., & Jeon, Y. J. J. (2021). An integrated approach to the purchase decision making process of food-delivery apps: Focusing on the TAM and AIDA models. *International Journal of Hospitality Management*, 95, 102943. doi: [10.1016/j.ijhm.2021.102943](https://doi.org/10.1016/j.ijhm.2021.102943).
- Song, S., Zhang, Y., & Yu, B. (2021). Interventions to support consumer evaluation of online health information credibility: A scoping review. *International Journal of Medical Informatics*, 145, 104321. doi: [10.1016/j.ijmedinf.2020.104321](https://doi.org/10.1016/j.ijmedinf.2020.104321).
- Strong, E. K. (1925). *The psychology of selling and advertising*. Incorporated: McGraw-Hill book Company.
- Talke, K., & O'Connor, G. C. (2011). Conveying effective message content when launching new industrial products. *Journal of Product Innovation Management*, 28(6), 943–956. doi: [10.1111/j.1540-5885.2011.00852.x](https://doi.org/10.1111/j.1540-5885.2011.00852.x).
- Tan, S. Y., Lim, S. Y., & Yeo, S. F. (2021). Online food delivery services: Cross-sectional study of consumers' attitude in Malaysia during and after the COVID-19 pandemic. *F1000Research*, 10(972). doi: [10.12688/f1000research.73014.1](https://doi.org/10.12688/f1000research.73014.1).
- Van Den Poel, D., & Leunis, J. (1999). Consumer acceptance of the internet as a channel of distribution. *Journal of Business Research*, 45(3), 249–256. doi: [10.1016/S0148-2963\(97\)00236-1](https://doi.org/10.1016/S0148-2963(97)00236-1).
- Vila, N., & Kuster, I. (2011). Consumer feelings and behaviours towards well designed websites. *Information and Management*, 48(4-5), 166–177. doi: [10.1016/j.im.2011.04.003](https://doi.org/10.1016/j.im.2011.04.003).
- Wen, H., Pookulangara, S., & Josiam, B. M. (2022). A comprehensive examination of consumers' intentions to use food delivery apps. *British Food Journal*, 124(5), 1737–1754. doi: [10.1108/BFJ-06-2021-0655](https://doi.org/10.1108/BFJ-06-2021-0655).
- Wu, W. Y., & Chang, M. L. (2007). The role of risk attitude on online shopping: Experience, customer satisfaction, and repurchase intention. *Social Behavior and Personality*, 35(4), 453–468. doi: [10.2224/sbp.2007.35.4.453](https://doi.org/10.2224/sbp.2007.35.4.453).

- Yi, M. Y., Yoon, J. J., Davis, J. M., & Lee, T. (2013). Untangling the antecedents of initial trust in Web-based health information: The roles of argument quality, source expertise, and user perceptions of information quality and risk. *Decision Support Systems*, 55(1), 284–295. doi: [10.1016/j.dss.2013.01.029](https://doi.org/10.1016/j.dss.2013.01.029).
- Zhang, L., Tan, W., Xu, Y., & Tan, G. (2012). Dimensions of consumers' perceived risk and their influences on online consumers' purchasing behavior. *Communications in Information Science and Management Engineering*, 2(7).
- Zhao, Y., & Bacao, F. (2020). What factors determining customer continuingly using food delivery apps during 2019 novel coronavirus pandemic period?. *International Journal of Hospitality Management*, 91, 102683. doi: [10.1016/j.ijhm.2020.102683](https://doi.org/10.1016/j.ijhm.2020.102683).

Appendix

Information quality (IQ)

- IQ1 This website provides correct information about the item that I want to purchase.
- IQ2 Overall, I think this website provides useful information.
- IQ3 This website provides timely information on the item.
- IQ4 This website provides reliable information.
- IQ5 This website provides sufficient information when I try to make a transaction.
- IQ6 I am satisfied with the information that this website provides.
- IQ7 Overall, the information this website provides is of high quality.

Familiarity with the website (FAM)

- FAM1 Overall, I am familiar with this site.
- FAM2 I am familiar with searching for items on this site.
- FAM3 I am familiar with the process of purchasing from this site.
- FAM4 I am familiar with buying products from this site.

Reputation (RP)

- RP1 This store is well known.
- RP2 This store has a bad reputation in the market.
- RP3 This store has a good reputation.

Usability (USB)

- USB1 On this website, everything is easy to understand.
- USB2 This website is simple to use, even when using it for the first time.
- USB3 It is easy to find the information I need on this website.
- USB4 The structure and contents of this website are easy to understand.
- USB5 It is easy to move within this website.
- USB6 The organization of the contents of this site makes it easy for me to know where I am when navigating it.
- USB7 When I am navigating this site, I feel that I am in control of what I can do.

Time-saving (TS)

- TS1 Online shopping provides instant information about products.
- TS2 Searching for information about products online is very efficient.
- TS3 The results of online shopping are worth the time dedicated to it.

Perceived value (PV)

- PV1 Online shopping makes it easier to get complete information about products.
- PV2 Using online shopping platforms enhances the possibilities of finding products suitable for my needs.
- PV3 The benefits of online shopping justify the efforts made.

Consumers'
purchase
intention to use
OFDAs

Purchase intention (PI)

- PI1 I am likely to purchase the products on this site.
- PI2 I am likely to recommend this site to my friends.
- PI3 I am likely to make another purchase from this site if I need the products that I will buy.

Fear of coronavirus-19 (FCV)

- FCV1 I am most afraid of coronavirus-19.
- FCV2 It makes me uncomfortable to think about coronavirus-19.
- FCV3 My hands become clammy when I think about coronavirus-19.
- FCV4 I am afraid of losing my life because of coronavirus-19.
- FCV5 When watching news and stories about coronavirus-19 on social media, I become nervous or anxious.
- FCV6 I cannot sleep because I'm worried about getting coronavirus-19.
- FCV7 My heart races or palpitates when I think about getting coronavirus-19.

About the authors

Muhammad Asif Zaheer is working as Assistant Professor of Human Resource Management at the University Institute of Management Sciences, PMAS-Arid Agriculture University, Rawalpindi, Pakistan. He completed his Ph.D. and M.Sc. Business Administration from the School of Economics, Department of Management and Law, the University of Rome "Tor Vergata", Rome, Italy. He had experience in a USA-based multinational organization. His research focuses on different areas of human resource management, organizational behaviors, electronic commerce, total quality management practices and sustainability. Muhammad Asif Zaheer is the corresponding author and can be contacted at: dr.asif@uair.edu.pk

Tanveer Muhammad Anwar is Researcher at the Institute of Preventive Veterinary Sciences & Department of Veterinary Medicine, College of Animal Sciences, Zhejiang University, Hangzhou, China.

Laszlo Barna Iantovics is working as Professor at George Emil Palade University of Medicine, Pharmacy, Science and Technology of Targu Mures, Romania (Electrical Engineering and Information Technology, Research Center on Artificial Intelligence, Data Science and Smart Engineering [ARTEMIS]).

Muhammad Ali Raza is Researcher at the Institute of Graduate Programs, Department of Business Administration, Istanbul Aydin University, Istanbul, Turkey.

Zoia Khan is working as Lecturer at the University Institute of Management Sciences, PMAS-Arid Agriculture University, Rawalpindi, Pakistan.

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com