

The value proposition of food delivery apps from the perspective of theory of consumption value

Proposition of
food delivery
apps

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Abstract

Purpose – The theory of consumption values (TCV) has successfully explained much consumer choice behavior, but few studies have investigated the values that drive food-delivery application (FDA) use. This study aims to bridge this gap by extending the TCV to the FDA context to examine food consumption-related values and interpreting and rechristening generic consumption values to adapt the TCV to the FDA context.

Design/methodology/approach – An explorative mixed-method research approach was taken to conduct focus group discussions with 20 target users to develop the questionnaire and then administer it for a cross-sectional survey (pen and pencil) to FDA users aged 22–65 years; 423 complete responses so received were analyzed using structural equation modeling.

Findings – The findings show that epistemic value (“visibility”) is the chief driver of purchase intentions toward FDAs, followed by conditional (“affordances”), price (part of functional value) and social value (“prestige”). Food-safety concerns and health consciousness (proposed as part of functional value) did not share any statistically significant association with purchase intentions toward FDAs.

Research limitations/implications – The findings of this study are insightful for FDA service providers competing for higher shares in the market by helping them understand ways to influence consumer choices and purchase intentions.

Originality/value – It is the first study that combines FDAs 2014 and TCV which has continued to be one of the most relevant theories of consumer behavior. It extends the TCV by adapting it to the FDA context with food-consumption-related values. Thus,



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it adds to the relatively scant literature on FDAs on the whole which is essential, as FDAs represent the business model of new economy, i.e. online-to-offline (O2O). Finally, this study formulates a conceptual framework that may serve as the basis of future research.

Keywords Consumption value, Food-delivery applications, Food safety concern, Health consciousness, Online-to-offline, Visibility

Paper type Research paper

1. Introduction

Food delivery applications (FDAs), mobile apps used to order food from food-aggregator platforms, are a subset of online food delivery (OFD) platforms, which include both restaurant-to-consumer delivery and food-ordering platforms (aggregator-to-consumer delivery). Jointly, such platforms represent online-to-offline (O2O) services. One can estimate the growing popularity of FDAs from the fact that FDAs are used daily for 15 million food deliveries in China and 1 million food deliveries in India (Jindal, 2018). Notably, Statista (2019) projects the revenue from this platform to the consumer segment to grow globally at 9.8% from 2019 to 2024.

While online applications have revolutionized how people shop, even for food, it is necessary to understand how consumers perceive these services. Though scholars have shown increasing interest in studying various aspects of these applications, our extensive literature review reveals that accumulated knowledge on consumer behavior related to OFDs in general and FDAs in particular needs further enrichment. More academic research would better guide practice in an area showing remarkable growth in America, Asia, Europe, and the Middle East, with significant investments and valuations attached to it (Hirschberg *et al.*, 2016). Notably, much of the O2O literature focuses on consumer behavior toward online products and services in general; few studies address consumer attitudes and intentions toward OFDs. Topics covered in the existing literature include the influence of value systems on the decision to order from O2O food delivery services (Roh and Park, 2019), the impact of e-service and food quality on customer loyalty toward OFDs (Suhartanto *et al.*, 2019), the effect of drone food delivery on intentions (Hwang *et al.*, 2019a), the influence of traffic conditions on significant performance indicators of OFDs (Correa *et al.*, 2019), and evolutionary food quality (He *et al.*, 2019). One theory-led examination of consumer attitudes and behavioral intentions toward OFD services relied on information-system theories of technology acceptance, a contingency framework, and the extended model of IT continuance (Yeo *et al.*, 2017). The technology-adoption model and the elaboration likelihood model have been used to investigate consumers' decision-making while ordering food products through O2O commerce (Kang and Namkung, 2019a). Alagoz and Hekimoglu (2012) have also used the technology acceptance model to explore factors affecting the attitudes of Internet users toward OFDs. The unified theory of acceptance and use of technology (UTAUT) has been used to investigate the psychological factors that impact the use of mobile diet apps for ordering food online (Okumus *et al.*, 2018).

In the context of FDAs specifically, there is scarce theoretical research on consumer behavior, and the studies available are primarily based on the application of technology acceptance theories, such as UTAUT 2 (Alalwan, 2020; Lee *et al.*, 2019b), the technology acceptance model (Prabowo and Nugroho, 2019), and the extended technology acceptance model (Lee *et al.*, 2017). To the best of our knowledge, few studies have invoked any seminal consumer behavior theories to examine consumers' responses to FDAs. For instance, Ray *et al.* (2019) have used the uses and gratifications (U&G) theory to examine the behavioral disposition of consumers toward FDAs. Similarly, Kaur *et al.* (2020) examined the consumer resistance toward the use of FDAs. The shortage of broad consumer behavior research in

the area limits the insights available to practitioners and researchers, as most available findings illuminate only the technology-related aspects of OFDs and FDAs.

An essential aspect of consumer behavior is the extent to which consumption values drive it. The theory of consumption values (TCV) proposed by Sheth *et al.* (1991) provides a formal theoretical lens for examining consumption values. Since its formulation in 1991, many scholars have applied the TCV to investigate consumer choice behavior. For example, Long and Schiffman (2000) used functional, social, emotional, epistemic, and conditional values to examine consumer behavior in the context of frequent-flyer programs. Zolkepli (2016) identified the influence of four consumption values — social, emotional, epistemic and conditional — on consumers' behavior related to the use of mobile apps. Reiterating the continued relevance of the TCV, recent studies have also employed it to examine consumer choice behavior. For instance, scholars have examined consumption values concerning online travel agencies (Talwar *et al.*, 2020a); organic food consumption (Kushwah *et al.*, 2019), halal holidays (Rodrigo and Turnbull, 2019), travelers' local food consumption (Rousta and Jamshidi, 2019), and various products from both online and traditional domains.

In the case of OFDs, the prior literature has contended that consumers' motivation to use these services is driven not only by convenience (Saarijärvi *et al.*, 2014) but also by consumption values (Alavi *et al.*, 2016), which are both utilitarian and hedonic (Nejati and Moghaddam, 2013). Broadly, the extant literature has acknowledged the usefulness of consumption values in understanding consumer behavior in the areas of hospitality and tourism (Jamrozy and Lawonk, 2017; Kim and Lee, 2017). This implies that the use of TCV in the context of FDAs will yield useful insights into related consumer behavior.

This discussion sheds light on three gaps in the existing research related to FDAs:

- (1) Few studies have focused on consumer behavior toward OFDs in general and FDAs in particular.
- (2) There is a dearth of theory-driven investigations in the context of FDAs.
- (3) The choice behavior of consumers in terms of consumption values regarding FDAs has remained completely unexplored despite the established usefulness of the TCV in the hospitality literature.

The present study attempts to bridge these gaps by applying the TCV to understand consumer choice behavior in ordering food through mobile applications. The study examines three research questions (RQs):

RQ1. Which consumption values influence purchase intentions toward FDAs?

RQ2. Are there any consumption values that can model consumer choice behavior in the specific context of FDAs?

RQ3. Are there any moderating influences of age and gender on the association between consumption values and purchase intentions?

To answer these research questions, we take the following three steps:

- (1) undertaking a comprehensive literature review to understand prior research related to FDAs and TCV;
- (2) contextualizing generic consumption values and adapting the TCV to FDA via an explorative mixed-method research approach – focus group discussions (FGDs) – for qualitative data collection and self-reported survey for quantitative data collection; and
- (3) proposing and empirically testing research hypotheses on the association between consumption values and intentions.

The novelty of this study comes from the following:

- It is the first to combine FDAs – an online service that it is attracting a lot of investment – and the TCV, which has continued to be one of the most relevant theories of consumer behavior since its formulation.
- It extends the TCV by adapting it to the FDA context with food consumption-related values, thus adding to the relatively scant literature on FDAs on the whole, which is essential, as FDAs represent the business model of new economy (i.e. O2O).
- This study is based on sample data from India, which is a growing but under-researched market from the FDA perspective.
- Finally, this work formulates a conceptual framework, the O2O TCV model, as the basis of future research on consumption values that drive intentions toward O2O services in the hospitality sector.

The proposed model highlights that values driving the consumption of O2O services stem not only from the technical merits and affordances of the apps but also from the actual use of the ordered products and services in offline settings. Thus, by including both the app-related values and those derived from the consumption of delivered food, the present study offers a framework for future studies to incorporate both these aspects (digital and physical) of the O2O model within the broader domain of hospitality.

The rest of the article is structured as follows: Section 2 presents the background literature followed by details about how the TCV is extended to the FDA context in Section 3, model and hypotheses development in Section 4, and the methodology in Section 5. Section 6 presents the results of the analysis, Section 7 the discussion, and Section 8 the conclusion, implications, limitations and future research areas.

2. Background literature

2.1 Food delivery apps

FDAs enable consumers to search for and order food online to consume later in an offline location (Xiao and Dong, 2015). They help users conveniently see listed restaurants, menus and ratings, finalize and confirm orders via online payment, and track order statuses with no physical or telephonic interaction with restaurants. Research on what motivates consumers to order food through FDAs is vital for food retailers, particularly purchase intentions (Dodds *et al.*, 1991), continuation intentions (Guo *et al.*, 2018), dissatisfaction and satisfaction (Najmul Islam *et al.*, 2017) and loyalty (Polites and Karahanna, 2012) are of high interest to service providers aiming to increase their market shares.

The studies in this area have primarily discussed the motives and technology-related aspects of FDAs. For instance, Yeo *et al.* (2017) examined the association of external factors with intentions toward OFD services and found an influence of perceived usefulness and ease of use on attitude toward technology adoption. The study also revealed that the intention to use OFD increased with improvement in the perception of post-usage usefulness and convenience. Similarly, Gunden *et al.* (2020) extended UTAUT 2 by including the impulse-buying tendency, congruity with self-image, and mindfulness to reveal that performance expectancy was a key driver of intentions to use online food delivery. Kang and Namkung (2019a) found that consumers' attitudes and behavioral intentions to use O2O services for ordering food products are significantly impacted by information quality, perceived usefulness, perceived ease of use, source credibility, and customer trust. Lee *et al.* (2019b) extended UTAUT 2 to show that habit, performance expectancy, and social influence affect continuation intentions toward FDAs. Similarly, Lee *et al.* (2017) utilized an

extended technology acceptance model to reveal that perceived usefulness and ease of use influence consumers' attitudes toward FDAs.

Some studies have transcended the technology adoption lens and used seminal behavioral theories to examine consumers' responses to FDAs. For example, [Belanche et al. \(2020\)](#) used the theory of planned behavior to reveal that consumers' attitude, behavior and subjective norms influenced their intentions to use and recommend FDAs. Similarly, [Ray et al. \(2019\)](#) applied the U&G theory to reveal key gratifications associated with FDAs, such as delivery experience, convenience, customer experience and ease of use. The study found that customer experience, ease of use, and listing and searching for restaurants exerted significant influences on purchase intentions toward FDAs. [Roh and Park \(2019\)](#) confirmed the positive influence of usefulness and compatibility on the intention to use FDAs. In another recent study, [Alalwan \(2020\)](#) examined and confirmed that reviews, rating, and price influenced the intentions to reuse mobile food ordering apps. In a study linking the attributes of food-aggregator apps with consumers' purchase decisions, [Kapoor and Vij \(2018\)](#) examined four attributes: visual, navigational, information, and collaboration design. Single-person households were also more concerned about quality attributes represented by a variety of food choices, trustworthiness and price, while multi-person households were more concerned about convenience, trustworthiness and design ([Cho et al., 2019](#)).

Underscoring the geographical disparities in consumer behavior, [Lee \(2019\)](#) found that in Korea, the satisfaction of FDA consumers was driven by reliability, responsiveness, promptness, and food quality, whereas in China, cost-effectiveness, promptness, responsiveness, and food quality were more important. Also, for both countries, customer satisfaction positively correlated with repurchase intentions. Clearly, the consumer behavior research on FDAs and OFDs as a whole is still at an embryonic stage and is under-represented in the literature ([Correa et al., 2019](#)). Further research is needed to provide insights into the barriers to and stimulators of success for FDAs, which are rapidly becoming a normal part of life. Analyzing consumer behavior from the perspective of consumption values can yield such insights. Examining consumer behavior toward technology-based advances is important from the perspective of hospitality sector as well. Prior studies have noted that with advances in digitization, consumers' habit and hedonic motivations related to information system have become key considerations in the hospitality domain ([Morosan and DeFranco, 2019](#)). Particularly, the use of mobile devices to access hospitality apps for a variety of purposes has made understanding customers' technological based interactions all the more important from the perspective of hospitality marketing ([Litvin et al., 2018](#)).

2.2 Theory of consumption values

2.2.1 Consumption values and intentions. Proposed by [Sheth et al. \(1991\)](#), the TCV is an approach to understanding the behavior of consumers in choosing products and services. It postulates consumer choice behavior based on five consumption values: functional, emotional, social, epistemic, and conditional values ([Sheth et al., 1991](#), pp.160–163). Recently, scholars have utilized the TCV in the context of online products and services and in the hospitality sector to deepen insights into the association between consumers' intentions and consumption values.

Specifically, [Peng et al. \(2019\)](#) used the TCV to study the influence of perceived functional, hedonic, and symbolic/expressive values on consumers' satisfaction with restaurants at a travel destination, which subsequently affected consumers' attitudes and behavioral intentions toward the destination. [Williams et al. \(2017\)](#) examined the association between customer value, satisfaction and behavioral intentions among two culturally diverse groups

of adventure tourists, one from Japan and another from Western countries. The study revealed that tourists from Japan give more importance to novelty and emotional values, whereas the Western tourists focused more on price value. In their study, [Yang and Mattila \(2016\)](#) argued that in the case of luxury restaurants, hedonic, functional, and financial values influence the intentions of consumers. Similarly, [Kaur et al. \(2018\)](#) found that social and emotional values partially influenced the continued use of online social media brand communities. [Mäntymäki and Salo \(2015\)](#) revealed that social and emotional values were the main factors influencing how teens spent real money in virtual worlds. Thus, the existing literature has underscored the relevance of the TCV in the context of both online products and services as well as in the hospitality sector, thereby supporting our choice of theory to model the drivers of consumer choice behavior toward FDAs.

2.2.2 Relevance of theory of consumption value in the food delivery application context. We justify our choice of the TCV for this study as follows. First, the choice of FDA is a manifestation of consumer behavior when faced with options, and the TCV is a commonly invoked theory in research for such purposes. For example, it has been used to investigate consumer choice behavior regarding green products ([Lin and Huang, 2012](#)) and smartphones ([Bodker et al., 2009](#)). Second, the TCV offers a sound way of understanding consumer behavior, as it combines the time-honored views on value in consumer-behavior research. Traditionally, consumer value has been described as subjective ([Sinha and DeSarbo, 2006](#)), the outcome of a cost-benefit tradeoff, and related to consumption experience ([Holbrook, 1996](#)). TCV determinants also cover all these aspects. Third, the TCV has been successfully extended to the online context to acquire insights into the value derived by consumers in digital and virtual worlds ([Kaur et al., 2018](#); [Mäntymäki and Salo, 2015](#)). Finally, we have used the TCV to add to the research on consumer behavior in e-commerce, which is still evolving. This area is attracting a lot of attention, and recently, the focus of research has been online shopping experience to find ways to persuade customers to visit online shops and influence their intentions to purchase ([Ho and Bodoff, 2014](#)). Why customers prefer one outlet over another and what value they derive is not researched much in the contexts of e-commerce or m-commerce, particularly food apps. Hence, it is reasonable to presume that the TCV will be useful in understanding consumer value in the FDA context as well.

3. Extending theory of consumption value to the food delivery application context

3.1 Exploring relevant consumption values

Since the advent of the TCV, scholars have adapted its values to diverse contexts. For instance, [Sweeney and Soutar \(2001\)](#) expanded the theory by creating a measure named PERVAL to study the perceptions of consumers in the context of tangible products in retail. Further, while [Sweeney and Soutar \(2001\)](#) separated the functional value into quality and price, [Kim and Eves \(2012\)](#) measured functional value in terms of health in the hospitality and tourism sector. [Gonçalves et al. \(2016\)](#) and [Lin and Huang \(2012\)](#) revealed that in the context of green products, combinations of consumption values can be more relevant than a single generic value in explaining choice behavior. [Perrea et al. \(2015\)](#) adapted consumption values to incorporate the cross-cultural dimension and various gains and losses in the context of food products prepared using new food-processing technology. Similarly, [Yang and Mattila \(2016\)](#) identified hedonic, symbolic/expressive, and financial values as specific to the luxury segment of the hospitality industry. In consonance, the present study proposes to extend the TCV to the FDA context, considering not only app-related aspects but also aspects related to the actual product, that is, the food ordered using the app.

In consonance with the efforts of scholars to adapt the TCV to specific contexts and extend it by proposing new values commensurate with those contexts, we have also attempted to adapt and extend the TCV to develop FDA-specific values. In this context, we undertook an extensive review of the TCV and FDA literature, which helped us form a view about the kind of consumption values a consumer may derive from using FDAs. Thereafter, to obtain the perspectives of consumers, we conducted a qualitative study in the form of FGDs. This helped us identify the consumption values that may be pertinent to FDAs. Since the TCV was our referent theoretical lens, we attempted to identify and map the FDA-specific values to the five TCV values: functional, emotional, social, epistemic, and conditional.

Toward this end, our literature review revealed that the TCV framework should be extended by incorporating general food-consumption concerns with no direct linkage with ordering from FDAs *per se* but that may impact consumers' purchase intentions. Accordingly, we introduce the *cost* of ordering from FDAs to consumption value, which is an aspect that can erode value. Perrea *et al.* (2015) also discussed the issue of costs in the context of values associated with food products prepared by novel processing technology. Calling it "performance risk," they linked it to the psychological ambiguity related to how a new product would fare, and this uncertainty was found to diminish consumption values related to the product in the study.

With FDAs, the existing literature and the issues gaining prominence in the media indicate that value erosion is likely to occur because of the problems associated with available and delivered food. In the past few years, in the debate surrounding challenges related to OFDs and FDAs, the concerns that have featured most prominently are food safety and quality. Issues commonly discussed in research and media reports are inconsistency in food quality and packaging (Dua, 2017), a rise in foodborne illnesses and tampering (Wasserstrom, 2018), and the delivery of low-quality food (Tandon, 2018). Food quality and safety and their implications for health have emerged as a grave issue in India, where the Food Safety and Standards Authority of India (FSSAI) has instructed leading FDA service providers (e.g. Swiggy, Zomato and others) to stop listing unlicensed restaurants (Tandon, 2018).

Scholars have also discussed food safety concerns in the context of out-of-home consumption by scholars. For instance, Liu and Lee (2018) found that food safety determined via human, functional, mechanical, and cleanliness factors positively influenced the satisfaction of consumers and their intentions to revisit a restaurant. Food safety has also been discussed in other contexts, such as food-safety violations (Harris *et al.*, 2014), the food safety practices of food trucks (Okumus *et al.*, 2019), foodborne illness outbreaks (Mun, 2020), and the food safety behavior of restaurant employees (Clark *et al.*, 2019). A recent study underscored the issue of food safety concern by revealing the role of OFD platforms in transmitting foodborne diseases (Jiang *et al.*, 2020). As the existing literature underscores food safety as a critical concern in food hospitality, we identify *food-safety concerns* as a value that may decrease the purchase intention toward FDAs.

In addition to food safety, recent literature has also highlighted health consciousness as a critical concern in food consumption. For instance, the inclusion of healthy, nutritional items on the menu for children increases parents' intentions to revisit a restaurant (Lee *et al.*, 2016). Studies have discussed health consciousness in the context of improved food decision-making (Buhrau and Ozturk, 2018), the health halo effects of healthy foods (Her and Seo, 2017), and organic food choices (Shin and Mattila, 2019). Given that the existing literature supports health consciousness as a critical factor in food choice behavior, we also identify it as a value that may affect purchase intentions toward FDAs. Furthermore, we posit that it

has a negative value because public discussion and actions surrounding the safety of FDA-delivered food may dissuade health-conscious consumers from ordering food through these aggregators.

Given this background, in this study, health consciousness and food safety concerns have been identified as possible constructs that may better capture the multidimensional nature and undesirable aspects of the consumption values of FDAs. This is consistent with studies that have emphasized the importance of health benefits, hygiene, and safety issues in the context of food consumption by tourists (Choe and Kim, 2018) and their purchase intentions toward organic food (Shin *et al.*, 2018). The same also emerged from the discussions on the qualitative study, discussed below.

3.2 Focus group discussions

In the absence of a reference for adapting consumption values to FDAs or OFDs, we have used FGDs to identify relevant values, map them to the generic TCV framework, and adapt the existing scales to develop the relevant measures. This was necessary because there were none a priori, and the present study aims to extend the theory. FGDs were also used because we did not want our literature review or our views on FDAs to influence the study model or outcomes. The literature broadly acknowledges that FGDs are exploratory and yield themes beyond researchers' pre-determined concepts (Krueger and Casey, 2009). To summarize, we selected a focus group approach for the following reasons:

- This study presents the first extension of the TCV to FDA.
- While food-related concerns are theoretically meaningful and empirically supported in related contexts, they have not been tested with FDAs.
- Owing to cultural differences, consumer opinions in a specific region of study are important to contextualize the TCV scales to the FDA context.

3.2.1 Focus group discussion participant selection. Consistent with the objectives of the study, the FGD participants had to be active FDA users, with a relevant app installed on their phone and having used it at least once every two weeks in the six months preceding the FGD. We formed four focus groups (4–6 people per group) with 20 FDA users (14 male and 6 females) based in India. We also aimed to have at least one and not more than two female participants from among housewives aged 25–50 years (to cover young as well as full-nest households) in each group. At least one participant in each group was selected from among people with exposure to food-related concerns in a professional capacity (e.g. doctors, restaurant employees, academicians, etc.) aged 22–61 years. The rest were chosen to adequately represent young adults and adults to mix profiles based on other demographic factors, such as educational qualification, income, and gender. To ensure that all aspects were discussed, we introduced one additional recruitment criterion: at least one participant in each group had to have posted two negative reviews on their FDA's feedback page in the six months preceding the FGD to ensure that the groups also focuses on negative aspects and continued usage despite negative reviews.

The FGDs were conducted in October 2019, and the discussions lasted for 20–30 minutes each in both Hindi and English. Two researchers moderated the discussions and took notes. The participants were asked to discuss their experiences (both positive and negative), perceptions, and viewpoints about using FDAs. The discussions focused on participants' understanding of the possible inhibitors and motivators of using FDAs and the issues related to ordering food online, the use of mobile applications for ordering food, and concerns related to food consumption that could influence the retail food-ordering intentions

of consumers. We analyzed these qualitative insights using the grounded theory approach (Glaser and Strauss, 1967).

3.2.2 Mapping the theory of consumption values to food delivery applications. We used the insights obtained from the FGD to adapt the generic consumption values to the FDA context. First, functional value, which is defined as the utility that consumers perceive to derive from the features and physical performance of a product or service offering, was mapped to be measured through price value, health consciousness (which refers to health value), and food-safety concerns (which refer to quality value). This is consistent with prior TCV literature that has captured functional value through price, health, and quality (Gonçalves *et al.*, 2016; Kim and Eves, 2012).

In the generic context, social value is related to the image that an individual wants to present to social groups through his/her choice behavior. The participants of the FGDs conducted by the present study thought that the use of FDAs seemed to change how others perceived them. The discussion also revealed that using FDAs gave the users pleasant feelings and helped them stand out among their peers. Overall, the participants felt it “socially prestigious” to use FDAs. Drawing on the connections that emerged between social settings, self-image, and the prestige the users associated with using FDAs, we used the name “prestige value” to represent social value in the FDA context. This is also in consonance with the view expressed by Williams and Soutar (2009) that the prestige an individual gains from his/her travels is related to social value. Notably, social value is normally context-specific, implying that the study location may play a role in determining how social value is perceived. Perception can also be expected to depend on the economic development of an area.

With reference to the classical TCV proposition, conditional value is driven by certain extrinsic factors, such as the quality of life associated with a product or service that may influence the choice behavior toward it. During the FGDs conducted for the present study, the participants frequently mentioned that they would use a particular FDA if the delivery time was short, the cost was low, a competitive promotional incentive was offered, and if their preferred restaurants were listed on that FDA. Since these seem to be extrinsic factors that could improve FDA usage value for consumers, we mapped these to the generic conditional value and named it “affordances value” in the FDA context, borrowing the word *affordance* from the social media literature, where studies have used the term to denote the merits or advantages of social media platforms (Dhir *et al.*, 2017). By doing so, we wanted to capture and underscore how the consumption value derived from FDA use can be enhanced if they offer certain extrinsic advantages.

Epistemic value is related to the ability of a product or service to offer novelty and stimulate curiosity. During the FGDs, the participants referred to their curiosity about FDAs because they saw many people using them and found them novel. Since the participants felt that others were availing the benefits of FDAs, they searched for more information about them. Since these aspects are related to the classical conceptualization of epistemic value, we identified epistemic value as a consumption value associated with FDA use. Our review of literature and FGDs also revealed that visibility – use of the application by others and advertisements – was an important factor in the e-commerce domain that influenced intentions (Johnson *et al.*, 2018). In light of this description, we used the term “visibility,” which is a source of information for potential FDA users via advertisements and the usage behavior of other users to represent epistemic value in the FDA context.

Thus, in the present study, FDA-specific values represent the generic functional value: price, health consciousness, and food-safety concerns. Similarly, prestige captures social value, affordances capture conditional value, and visibility captures epistemic value. Table 1

Generic TCV values	FDA-specific values	Operational description
Functional value	Price	The value for money and benefits that FDA users perceive they derive by ordering food that is reasonably priced
	Health consciousness	The concerns that reduce health-conscious consumers' health value if they perceive that food ordered from FDAs is not healthy
	Food-safety concern	The erosion of quality value due to concerns about the safety of food ordered from FDAs
Social value	Prestige	The boost in self-image that consumers derive in their social settings by ordering food from FDAs
Conditional value	Affordances	The features, advantages, or merits that drive value derived by consumers when they order food from FDAs, which include certain conditions, such as listing of preferred restaurants, that may enhance consumption value derived from FDA use
Epistemic value	Visibility	The feeling of curiosity and novelty incited by seeing others use FDAs, which can increase the value derived from using FDAs

Table 1.
Variable descriptions

presents the operational descriptions of all the FDA-specific values identified and mapped to the TCV by the present study.

4. Model and hypotheses development

The proposed TCV-based framework examines the association between consumption values as the antecedents of purchase intentions toward buying food via FDAs (Figure 1). The independent variables are functional (price, health consciousness, and food safety concerns), social (prestige), conditional (affordances), and epistemic (visibility) values. The study also examines the moderating role of age and gender on the association between consumption values and purchase intentions. Economic background and educational qualifications are the control variables, as the prior literature suggests that budgetary constraints influence consumer decisions (Bernini and Cracolici, 2015) and because food-related behaviors are particularly affected by household income (Di Talia *et al.*, 2019).

4.1 Functional value (price, health consciousness, and food safety concerns)

Functional value is the utility that consumers perceive to derive from the features and physical performance of a product or service offering. Scholars have examined it in the context of intentions toward food choices as well as food tourism (Choe and Kim, 2018; Jamrozny and Lawonk, 2017). Scholars have found a positive association between functional value and use intentions (Kim *et al.*, 2018a, 2018b). Previous food-related studies have typically taken functional value to represent quality, price, and health (Kim and Eves, 2012; Perrea *et al.*, 2015). This study also uses these three aspects – price, health and quality – to capture functional value in the context of FDAs.

Some studies have discussed the key influence of functional features on consumers' intentions and attitudes. For instance, Yeo *et al.* (2017) suggested that the money-saving

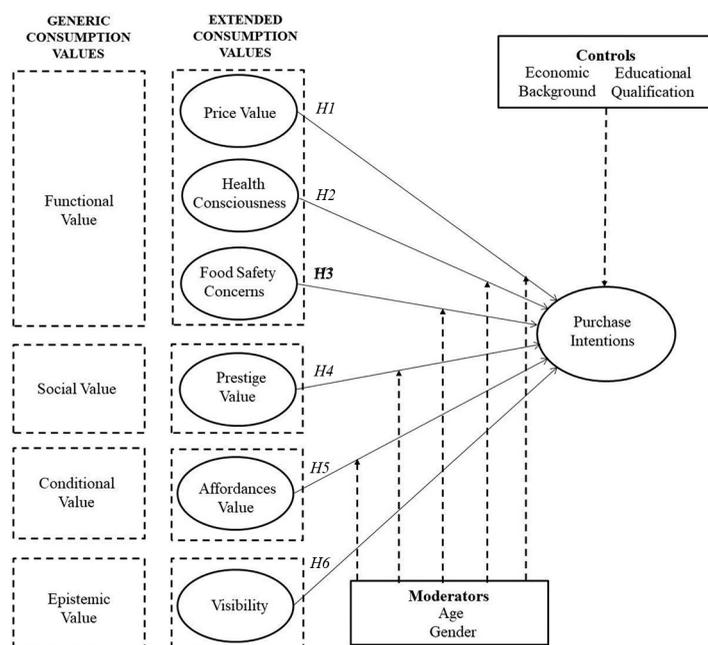


Figure 1.
Proposed research
model

aspect of OFDs influences customers' perceptions of usefulness and their continuation intentions. Other studies have identified price as important for intentions toward ordering food online (Alalwan, 2020; Cho et al., 2019). Even though the TCV has not been extended to study consumer behavior toward FDAs, functional value can be expected to have a strong impact on FDA usage through the price aspect, so we propose it as an antecedent of intentions. Drawing on published findings, we measure price value in the present study through benefits offered, price reasonability, and value for money. The price value should enhance purchase intentions toward FDAs. Hence, we propose the following hypothesis:

H1. Price value positively correlates with customers' intentions toward FDAs.

The second measure of functional value is health consciousness, which is related to health value. Health consciousness represents the willingness of individuals to make decisions and actions related to their health (Lee et al., 2014). The choice of the health aspect in this study is consistent with previous studies on the TCV and food choices (Choe and Kim, 2018), which have considered health value as a part of functional value. This choice is also supported by prior literature that has linked health with consumer food choices in general (Dubé et al., 2016).

As discussed previously, FDAs have been facing multiple food-related challenges (Wasserstrom, 2018), which might dissuade health-conscious consumers from ordering food through them. In other words, food delivered by FDAs arguably creates negative health value, as it may not be perceived as a healthy food choice. In line with the extant literature linking food choices to health consciousness, health-conscious consumers will likely derive negative health value from FDAs. Thus, it is likely that health consciousness will erode purchase intentions toward FDAs. Hence:

H2. Health consciousness, representing health value, negatively correlates with customers' intentions toward FDAs.

The third functional value is the quality that consumers can derive from ordering food using FDAs (Kim and Eves, 2012). Food quality is a key driver of loyalty toward OFDs (Suhartanto *et al.*, 2019), and the same can be expected for FDAs. Food safety is an important aspect of food quality. Food safety implies minimizing hazards that may lead to harm or illness when food is consumed (World Health Organization, 2015) or even death (Maberry, 2016). In fact, food safety culture has become an important aspect of the food supply chain (Nayak and Waterson, 2017), as poor safety culture can undermine brands (Hussain and Dawson, 2013). The present study measures quality in terms of food safety concerns, a term derived from prior literature on food (Liu and Ma, 2016). Since the outcome of FDA usage is food consumption, we anticipate that concern for food safety will play a key role in purchase intentions toward FDAs. Consumers with great concern for safety are likely to derive less quality value from FDAs, which often appear in the news for food safety concerns (Tandon, 2018). Thus, it is likely that concern for food quality and safety will dissuade consumers from using FDAs. Accordingly, we propose the following hypothesis:

H3. Food safety concern, representing quality value, negatively correlates with customers' intentions toward FDAs.

4.2 Social value (prestige)

Social value is associated with the image that consumers want to project among their social groups through their choice behavior (Elliot *et al.*, 2011). Though no one has discussed social value in the context of FDAs previously, studies have discussed the positive association between social value and intentions in the context of hospitality and tourism. For example, social value is associated with customer intention to use applications to book hotel stays (Morosan and DeFranco, 2016). It also represents the prestige and recognition that individuals gain from their travels (Williams and Soutar, 2009), from local food consumption at travel destinations (Mak *et al.*, 2012), and from sharing their travel experiences with their social groups (Chang *et al.*, 2010). Consumers also derive social value from the prestige they perceive in dining at a starred restaurant (Kim and Lee, 2017).

In the present study, social value represents the prestige and self-image boost consumers derive in social settings by using FDAs. In relation to FDA use, social value implies gaining social approval, making a positive impression, and appearing to be smart by using the latest technology, so we have christened it prestige value in the FDA context. We estimate that FDA users will derive prestige value from using FDAs, which will stimulate their purchase intentions. Thus, we propose the following:

H4. Prestige value, representing social value, positively correlates with customers' intentions toward FDAs.

4.3 Conditional value (affordances)

Conditional value is defined as the value that consumers derive from certain extrinsic factors, such as the quality of life offered by a chosen alternative (Gómez *et al.*, 2018). Like social value, no one has discussed conditional value in the context of FDAs. However, scholars investigating aspects of hospitality and tourism have found a relationship between conditional value and consumer choice behavior. For instance, conditional value positively

drives the choice of a vacation destination (Phau *et al.*, 2014). Furthermore, tourists tend to perceive conditional value as a key value in travel-related decision-making (Hur *et al.*, 2012). In the context of mobile apps, which are closely linked to FDAs, prior studies have reported a significant influence of conditional value on consumer decision-making (Zolkepli, 2016).

Based on these findings, the present study also anticipates a positive association between conditional value and intention toward FDAs. Here, conditional value is measured by the presence of conditions such as free delivery or at least reduced delivery charges, better promotional incentives, lower delivery time, and listing of preferred restaurants. It is likely that conditions such as free and fast delivery and promotional offers positively influence users' intentions to order from FDAs. As discussed before, these items represent affordances, that is, the advantages or merits available when FDAs are used to order food. In other words, they represent the conditions that may induce a user to have positive intentions toward FDAs. Thus, we rechristen this value as affordances value in the FDA context, and we propose that:

- H5. Affordances value, representing conditional value, positively correlates with customers' intentions toward FDAs.

4.4 Epistemic value (visibility)

Epistemic value denotes the ability of a product or service to incite curiosity, offer a sense of novelty, and/or satisfy information search instincts (Choe and Kim, 2019; Wong *et al.*, 2019). Studies have found a positive association between epistemic value and choice behavior in domains such as health food (Thomé *et al.*, 2019) and tourism destinations (Ashton, 2015). This study measures epistemic value in terms of visibility, which reflects the nature of mobile apps like FDAs. Research on information systems has shown that visibility—seeing others use an innovation—increases the adoption intention of the observer (Johnson *et al.*, 2018).

In this study, visibility is measured to represent informational aspects, such as promotional advertisements, the feeling of curiosity incited by seeing others use the FDA, and the sense of novelty of a technology-driven product whose benefits are being enjoyed by others. Thus, it arguably represents epistemic value. Based on prior studies, we anticipate that epistemic value (visibility) will enhance intentions to use FDAs. Hence, the present study proposes the following hypothesis:

- H6. Visibility, representing epistemic value, positively correlates with customers' intentions toward FDAs.

4.5 The moderating role of age and gender

Scholars have discussed the role of moderating variables to explain individual differences in consumer behavior (Meyers-Levy and Loken, 2015; Hwang *et al.*, 2019b). Scholars have examined demographic variables, particularly age and gender, as moderating variables in multiple contexts. For example, Tan and Ooi (2018) found that gender and age moderate the purchase decisions of tourism products through mobile apps. Similarly, Ye *et al.* (2017) identified the moderating influence of age on the association between premium price payment, social website, and intentions toward online travel agencies. Worsley *et al.* (2013) found gender-based differences in food safety concerns. Given the above discussion, we expect that the age and gender of the users will moderate the association between consumption values and intentions toward FDAs. Therefore, we propose the following:

H7. The relationship between consumption values and purchase intentions toward FDAs will be different for users in different age groups.

H8. The relationship between consumption values and purchase intentions toward FDAs will be different for males and females.

5. Methodology

5.1 Data collection

We developed the survey instrument used for data collection from the FGDs and existing validated scales, and we piloted the instrument among 20 FDA users in India. The results of the pilot survey helped introduce minor corrections in the wording of questions to ensure clarity. The final questionnaire was administered to FDA users using the mall intercept method, interviewers intercepting respondents at the entries and exits of malls, which [Yani-de-Soriano et al. \(2019\)](#) adopted to minimize sampling bias, reach out to a mixed profile of respondents, and select potential survey participants eligible per the screening criterion: that the respondents used an FDA at least once a week for three months preceding the FGD. Surveys occurred in malls in four metro cities in India from November–December 2019. A total of 423 valid responses were considered after discarding incomplete responses. Before administering the survey, the participants received briefing about the background of the project and assured of the anonymity of their information. The minimum age of participants was 18 years, and the maximum was 63, with a mean of 27.14. [Table 2](#) gives other demographic details of the participants.

No FDA sampling frame using the Indian population is available, so the non-probability judgmental sampling was used following prior studies ([Leong et al., 2020](#)). The use of FDAs has proliferated in India, with user penetration reaching 7.5% in 2020 and being expected to rise to 10.9% by 2024 ([Statista, 2020](#)).

5.2 Data analysis

We analyzed the data using a two-step approach in IBM SPSS and AMOS. First, confirmatory factor analysis (CFA) was performed to ascertain the reliability and validity of the measures. Thereafter, structural paths were analyzed to evaluate the hypotheses. We conducted moderation analysis in the Process macro. The choice of SEM as a data-analysis method is justified because the study tests hypotheses grounded in a strong theoretical framework, following [Hew et al. \(2019\)](#). Supporting the suitability of SEM, the collected data also meet the multivariate requirements for such an analysis, which implies that the

Variables	Category	Frequency	(%)
Gender	Female	156	36.9
	Male	267	63.1
Economic Background (Annual income in INR)	More than 2.5 million to 3.5 million	18	4.3
	More than 1.5 million to 2.5 million	210	49.6
	Half million to 1.5 million	163	38.5
	Less than half million	32	7.6
Educational Qualification	High school only	20	4.7
	Graduate degree	199	47.0
	Master's degree	188	44.4
	Doctoral degree	16	3.8

Table 2.
Demographic profiles
of participants

collected data are normally distributed and have no multicollinearity issues (Kock and Lynn, 2012). Due to the self-reported nature of data, common method bias (CMB) could be a concern (Podsakoff *et al.*, 2012), which was tested for using a Harman one-factor test.

6. Results

6.1 Multicollinearity

Before the CFA, data were tested for the presence of multicollinearity effects. Toward this end, we examined the variance inflation factors (VIFs) and tolerances. The results revealed that the values of VIFs were less than 10 and tolerances were greater than 0.10, which confirmed the absence of multicollinearity, as discussed by prior studies (Hew and Kadir, 2016).

6.2 Common method bias

Since the data from all the variables came through the same instrument, there is a risk of CMB. To check whether this problem existed in our data, we used Harman's single-factor test (Harman, 1976), consistent with prior studies (Talwar *et al.*, 2020b). The results revealed that a single factor explained 34.32% of the overall variance, which was less than 50%.

6.3 The measurement model

We conducted CFA to evaluate the validity and reliability of the measures. The results showed satisfactory goodness-of-fit indices ($\chi^2/df = 2.69$, $CFI = 0.94$, $NFI = 0.90$, $TLI = 0.93$, $RMSEA = 0.06$) (Anderson and Gerbing, 1988). Item reliability was also confirmed since all factor loadings were above 0.70, except four items whose loadings were in the range of 0.6, which is within the acceptable cutoff of 0.50 (Hair *et al.*, 2016) (Table 3).

The convergent validity criteria recommended by Fornell and Larcker (1981) – a composite reliability (CR) score greater than 0.7 and an average variance extracted (AVE) greater than 0.5 – were also supported by the model (Table 4). Finally, the square root of the AVE for each construct exceeded the correlations between the constructs, confirming discriminant validity. Additionally, the correlation between the investigated constructs was less than the suggested threshold value of 0.80, which further confirmed discriminant validity.

6.4 The structural model

Structural path analysis returned satisfactory model fit indices ($\chi^2/df = 2.65$, $CFI = 0.92$, $NFI = 0.87$, $TLI = 0.90$, $RMSEA = 0.06$), confirming the goodness of fit. Figure 2 summarizes the hypotheses testing, which supported $H1$, $H4$, $H5$, and $H6$; that is, price value ($\beta = 0.19$, $p < 0.001$), prestige value ($\beta = 0.13$, $p < 0.001$), affordances value ($\beta = 0.37$, $p < 0.001$), and visibility ($\beta = 0.47$, $p < 0.001$) were positively associated with the purchase intention toward FDA. Health consciousness ($\beta = -0.09$, $p > 0.05$) and food safety concern ($\beta = 0.02$, $p > 0.05$) were non-significant correlates. The developed model explained 76.7% of the variance in purchase intentions toward FDAs.

6.5 Moderation analysis

We conducted moderation analysis using the Process macro model 1. The results showed that age did not moderate the association of purchase intentions with price value ($PE_{\text{interaction}} = 0.004$, 95% CI $[-0.0079, 0.0161]$), prestige value ($PE_{\text{interaction}} = 0.01$, 95% CI $[-0.0339, 0.0187]$), health consciousness ($PE_{\text{interaction}} = -0.01$, 95% CI $[-0.0287, 0.0046]$), affordances value ($PE_{\text{interaction}} = 0.001$, 95% CI $[-0.0101, 0.0192]$), and visibility ($PE_{\text{interaction}} = -0.002$, 95% CI $[-0.0145, 0.0100]$). However, age negatively moderated the association of food-

Table 3.
Results of
confirmatory factory
analysis

Study measures	Measurement items	Standardized factor loadings
Price (FV) ^a	FDAs maintain a high level of benefits	0.59
	FDAs charge a reasonable price	0.77
	FDAs offer good value for money	0.82
Health Consciousness (HO) (Gould, 1988)	FDAs reflect about my health a lot	0.79
	I'm very self-conscious about my health	0.80
	I'm alert to changes in my health	0.84
	I'm usually aware of my health	0.86
	I take responsibility for the state of my health	0.87
Food-Safety Concern (FSC) ^a	The quality and safety of food nowadays concerns me	0.79
	I'm very particular about the quality and safety of food which I intend to consume	0.85
	Using FDAs enhances my self-image to others	0.85
	The use of FDAs helps me to gain social approval	0.85
	The use of FDAs helps to make a positive impression on other people	0.86
Prestige Value (Pr V) ^a	The use of FDAs changed the way that I am perceived by others	0.86
	The use of FDAs helps me to stand out among my peers	0.89
	After using FDAs, I feel like a smarter person	0.83
	After using FDAs, I feel like I made a personal contribution to advancing the role of technology in human life	0.63
Affordances Value (AV) ^a	I would use FDAs more often if they reduced the delivery charges	0.77
	I would use FDAs more often if they offered free delivery	0.81
	I would use FDAs more often if better promotional incentives were offered	0.78
	I would use FDAs more often if they reduced the delivery time	0.68
	I would use FDAs more often if more restaurants of my preference joined these platforms	0.66
Visibility (VIS) (Johnson <i>et al.</i> , 2018)	I have seen advertisements about FDAs	0.71
	It is common to find people who use FDAs	0.76
	I have seen others availing the benefits of FDAs	0.77
Purchase Intentions (PI) (Johnson <i>et al.</i> , 2018)	All my friends are using FDAs	0.83
	I'd be happy to use FDAs	0.82
	I plan to use FDAs in the future	0.76
	I intend to use FDAs soon	0.76
	I would like to reuse FDAs	0.83

Note: ^aMeasures developed based on the qualitative study

safety concerns and purchase intentions ($PE_{interaction} = -0.01$, 95% CI $[-0.0268, -0.0006]$). A deeper exploration of the moderating influence of age revealed that young users exhibited lower purchase intentions and older users higher intentions (Figure 3). However, in the case of high food-safety concerns, the older users exhibited lower purchase intentions and young users higher intentions (Figure 3).

In contrast, gender did not moderate the relationship of purchase intentions with any of the consumer values, that is, price value ($PE_{interaction} = 0.06$, 95% CI $[-0.1145, 0.2309]$), prestige value ($PE_{interaction} = -0.04$, 95% CI $[-0.1951, 0.1101]$), health consciousness ($PE_{interaction} = 0.15$, 95% CI $[-0.0533, 0.3450]$), food-safety concern ($PE_{interaction} = 0.13$, 95% CI $[-0.0464, 0.3052]$), affordances value ($PE_{interaction} = -0.05$, 95% CI $[-0.2026, 0.1100]$), or visibility ($PE_{interaction} = -0.10$, 95% CI $[-0.2512, 0.0605]$).

6.6 Control variables

Prior studies have found that control variables can improve the robustness of findings and have used various demographic variables as controls (Talwar et al., 2020c). Accordingly, the proposed model was controlled for two demographic variables – economic and educational backgrounds – both of which had no influence on purchase intentions toward FDAs (economic background: $\beta = 0.02$, $p > 0.05$; educational background: $\beta = 0.06$, $p > 0.05$). This implies that the economic and educational backgrounds of consumers do not confound the study variables significantly.

7. Discussion

The results of the study support *H1*, *H4*, *H5* and *H6*, revealing that price, prestige, conditional, and visibility values have significant positive associations with purchase intentions toward FDAs. The results of the data analysis confirmed the positive association between price value and purchase intentions toward FDAs (*H1*). *H1* proposed that FDAs must maintain a high level of benefits, charge reasonable prices, and offer good value for money to positively influence the purchase intentions of customers. The results imply that FDAs must maintain a steady flow of benefits, such as discounted membership, freebies for orders beyond a certain value, and special discounts for frequent users to enhance the price value derived from FDA use. Such increased price value, in turn, positively influences intentions toward FDA use. This finding is consistent with those of earlier studies (Alalwan, 2020; Cho et al., 2019). It has also been discussed anecdotally that consumers ordering through FDAs are mostly price-sensitive and are seeking a price advantage.

	CR	AVE	MSV	MaxR(H)	FSC	PV	PrV	AV	PI	VIS	HC
FSC	0.81	0.68	0.67	0.81	<i>0.82</i>						
PV	0.77	0.54	0.37	0.80	0.15	<i>0.73</i>					
PrV	0.94	0.69	0.18	0.95	0.04	0.43	<i>0.83</i>				
AV	0.86	0.55	0.51	0.87	0.45	0.42	0.28	<i>0.74</i>			
PI	0.88	0.65	0.51	0.88	0.31	0.61	0.38	0.72	<i>0.80</i>		
VIS	0.85	0.59	0.50	0.86	0.49	0.41	0.12	0.61	0.70	<i>0.77</i>	
HC	0.92	0.69	0.67	0.92	0.82	0.22	0.18	0.42	0.31	0.42	<i>0.83</i>

Notes: Composite reliability = CR, Average variance extracted = AVE, Maximum shared variance = MSV, Average shared variance = ASV, Price Value = PV, Prestige Value = PrV, Affordances Value = AV, Food Safety Concern = FSC, Health Consciousness = HC, Visibility = VIS, Purchase Intentions = PI; values in diagonal (and italic) are the square roots of AVE

Table 4. Validity and reliability analysis

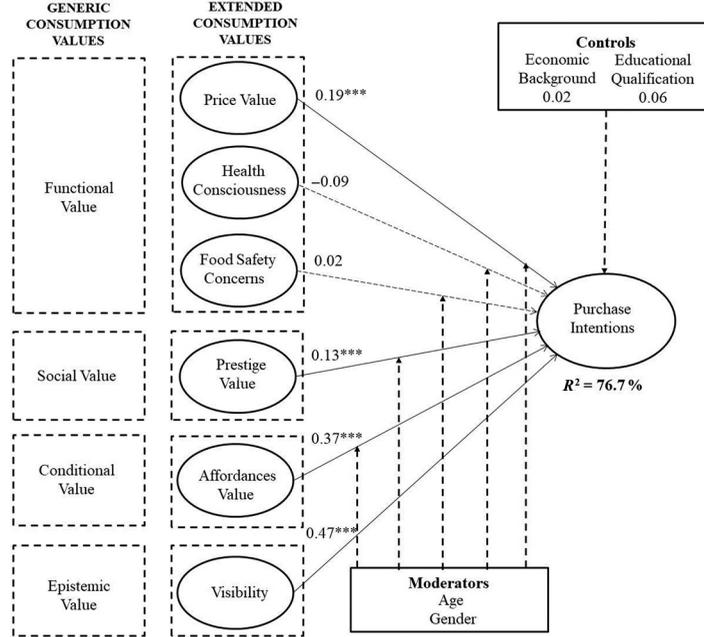


Figure 2.
Results of hypotheses testing

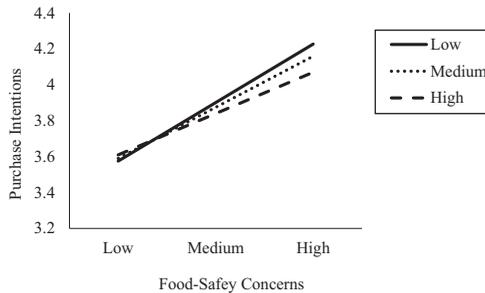


Figure 3.
Graphical representation of moderating influence of age

H2 and *H3*, which proposed the negative associations of health and quality values (parts of the generic functional value) with purchase intentions, found no support in the findings. This study measured health value through health consciousness and quality value through food-safety concerns. This finding was not anticipated based on past reports of health and food-safety concerns raised in the case of FDA-delivered food (Wasserstrom, 2018; Tandon, 2018). One possible reason for such a result is that users choose restaurants to order from on FDAs only after reading reviews and checking ratings. Studies have confirmed that online reviews influence online purchases (Casaló et al., 2015), so the contention that reviews may help FDA users choose restaurants known to deliver safe food is quite plausible. Another explanation is that food is ordered through FDAs for convenience, especially when the alternative of cooking at home is not possible because of time and facility constraints. In such situations, users may tend to overlook health and quality. Despite these arguments, no

firm conclusion can be drawn, and more studies are required to provide deeper insights into whether consumers think of health and food safety concerns while ordering food on FDAs. This is particularly important since health and food safety are key concerns and known to be key issues in food choices (Dubé *et al.*, 2016), and the latest studies have also linked online food delivery with the spread of foodborne diseases (Jiang *et al.*, 2020). In summary, since these variables have not been explored much in the context of FDAs and the present study is simply an initial attempt to consider these variables, further research with more diverse samples drawn from different geographies is required to confirm if this result is a function of the sample. Furthermore, considering various demographic influences, such as income level or food interest, may supply more insights into these findings.

H4, which proposed the positive influence of social value associated with purchase intentions from FDAs, found support. The results suggest that customers perceive prestige and enhanced self-image in ordering food from FDAs. This result agrees with that of earlier studies on food consumption, where individuals associate prestige with where they dine (Kim and Lee, 2017). The result also confirms that from the perspective of Indian consumers, FDAs serve as a source of enhancing social perception and making positive impressions by using the latest technology to order food, thereby increasing their consumption value measured as prestige value. The value so derived will, in turn, increase their intentions to use FDAs. The same behavior may not be shown by consumers in a different cultural setting. For instance, consumers in Western countries may derive social value from the use of FDAs as a quick, easy way to order preferred food items when friends are together, leaving them more time to bond, communicate, and have fun. More studies are necessary to examine the association between consumption values and intentions to use FDAs. Since our study is the first attempt to empirically examine social value in the context of FDAs, it provides a foundation for researchers to identify consumption values that consumers in different countries associate with FDAs.

H5, proposing the positive relationship of affordances value with purchase intentions toward FDAs, found support in the results of the data analysis. This finding conforms with the findings of other studies on consumption values that found conditional value to positively drive the choice behavior of consumers (Hur *et al.*, 2012; Phau *et al.*, 2014). Positive association implies that conditions such as free delivery or low delivery charges, promotional incentives, fast delivery, and listing of good restaurants are likely to increase the consumption value that users derive from FDAs and enhance their intentions to order food on them. Support for this hypothesis indicates that FDA consumers are more likely to order for food from FDAs that offer better deals in terms of not only delivery but also the quality and the type of restaurants listed.

H6 hypothesized a positive relation between epistemic value (measured as visibility) and purchase intention toward FDAs. In fact, visibility had the strongest influence on purchase intentions of food via FDAs, meaning that epistemic value is positively linked with purchase intentions toward FDAs. Thus, advertisements and curiosity stemming from observing others use FDAs can positively impact customers' intentions to order food on FDAs. A positive association between epistemic value and choice behavior was in fact confirmed by Thomé *et al.* (2019). Support for this hypothesis indicates that users are more likely to order food from FDAs if they see their friends and acquaintances do the same. The finding also suggests that advertising may lead to increased positive intentions to order food from FDAs and reinforces the fact that in e-commerce, external influences in the form of observing others using apps/sites to buy/order products or services motivates consumers and influences their choice behavior (Johnson *et al.*, 2018).

8. Conclusion, implications, limitations and future research areas

8.1 Conclusion

This study attempts to augment the research on consumer behavior in the context of intentions to order food via FDAs. Given its online context, the study is important from the perspective of hospitality sector, since scholars have argued that it is critical to understand varied aspects of consumer engagement during the online purchase of hospitality services and products (Morosan and Bowen, 2018). The study invoked the TCV, a longstanding theory of consumer choice behavior, to propose and answer three research questions. To address RQ1 and RQ2, which were related to the consumption values that influence purchase intentions toward FDAs, we undertook an extensive review of the literature and conducted a qualitative study using FGDs. This step helped us identify and map FDA-specific consumption values to the classical TCV framework. The identified FDA-specific values are health consciousness, food safety concerns (representing the generic functional value), prestige value (representing the generic social value), affordances value (representing the generic conditional value), and visibility (representing the generic epistemic value). The results of data analysis in SEM revealed that epistemic value (visibility) was the chief driver of purchase intentions toward FDAs, followed by conditional (affordances), price (part of the functional value), and social (prestige) values. Food-safety concerns and health consciousness (proposed as part of the functional value) did not seem to share any statistically significant associations with purchase intentions toward FDAs.

To address RQ3, we tested the moderating influence of age and gender on the association between consumption values and purchase intentions using the PROCESS macro. Both demographic variables had no moderating influence, except for age moderating the association of food-safety concerns with intentions. Likewise, both the control variables – economic and educational backgrounds – did not confound the proposed linkages in the study. The study thus offers several useful implications for theory and practice.

8.2 Theoretical implications

The five key theoretical contributions of this work are as follows. First, the main contribution of this work is the O2O TCV model, which is applicable in various contexts (Figure 4). The model suggests that in O2O contexts, consumption values must be bifurcated into two broad categories:

- (1) App-related features, such as listings and visibility; and
- (2) Consumption of the ordered product or service in the offline venue.

The model in Figure 4 comprises the following components:

- App-specific values: The model in Figure 4 includes the values based on our study and the scope of more values specific to the target O2O service (under the heading “miscellaneous”). For instance, some app-specific values in tourism-related O2Os can be derived from e-service quality, review authenticity, and source credibility. However, further qualitative studies are necessary to identify values specific to the contexts of particular O2O services.
- Product/service-specific values: These values are related to offline consumption or the use of a product/service ordered online. The model again provides a scope for the inclusion of values specific to the target O2O service under the heading “miscellaneous.” Some product/service-specific values in the context of tourism-related O2Os can be hedonic, safety, privacy, interaction, and emotional. However,

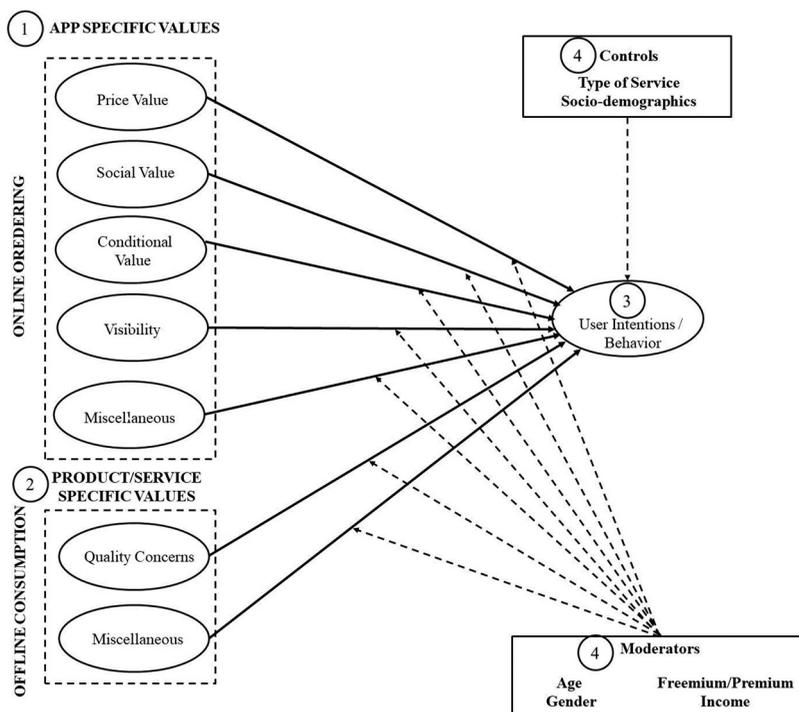


Figure 4.
Proposed O2O TCV model

further qualitative studies are necessary to identify values specific to the contexts of particular O2O services.

- **Dependent variables:** A salient feature of this model is that it considers both user intentions and actual use behavior as outcome variables because perceived values derived from O2O services may transcend influencing user intentions positively or negatively and influence actual buying behavior.
- **Controls and moderators:** We recommend that future researchers also consider control and moderating variables along with the antecedents and consequents discussed above. Socio-demographic factors have moderating effects on the strength of associations in consumer behavior models. Additionally, since this model targets O2O services, we encourage future researchers to consider freemium/premium subscriptions as sources of individual differences among users. Intuitively, the association of values with intentions toward O2O may vary with the type of service or product booked (e.g., budget or luxury hotels, leisure or business travel, adventure, health tourism, etc.). Hence, we recommend the use of variables that resemble moderating or control variables.

Second, this study responds to the call for more research on OFDs and FDAs (Correa *et al.*, 2019). An examination of the extant literature shows that studies on FDAs have largely focused on acceptance from a technology perspective, leaving other aspects of consumer behavior under-explored (Alalwan, 2020; Lee *et al.*, 2019b). Notably, despite the successful use of the TCV in the context of hospitality and tourism (Talwar *et al.*, 2020a;

Rodrigo and Turnbull, 2019), no empirical study has identified or examined the consumption values associated with the use of FDAs. Consistent with researchers such as Perrea *et al.* (2015), by adapting the pivotal propositions of the TCV to the FDA context, the present study paves the way for future researchers to extend the generic TCV values to various O2O services in the hospitality domain, such as online travel agencies (OTAs), cab sharing, and so on.

Third, the present study identifies health consciousness and food safety concerns as possibly negative consumption values that may reduce intentions to order food via FDAs. These two factors are key influencers of food choices (Dubé *et al.*, 2016). The inclusion of these variables in the context of FDAs is timely and important for two reasons:

- (1) The spread of COVID-19 and its highly contagious nature has caused many to take extreme precautions related to health and food. The revenues of FDAs may fall dramatically if they do not align their strategies with a renewed focus on health and food safety. In this context, inputs from academic research may prove valuable.
- (2) Recent studies have highlighted the role of OFD platforms in the transmission of foodborne diseases (Jiang *et al.*, 2020), so the present study makes a key theoretical contribution by focusing the academic community on these two concerns in connection with FDAs.

Fourth, from a conceptual perspective, this study's exploratory mixed-method approach to extend an existing theory to a new-economy business model (i.e. O2O) supports the use of the FGD method for adapting existing measures to new contexts (Krueger and Casey, 2009). This may aid future researchers in adapting seminal theories to the contexts of other digitally driven products and services, particularly in the hospitality sector.

Finally, this research provides information about the consumption values of Indian FDA users by investigating their choice behavior while ordering food for delivery. It is important for researchers to understand the behavior of Indian FDA users, as they represent a large segment of FDA customers worldwide. In fact, there are 1 million food deliveries daily in India (Jindal, 2018). This study's contribution becomes even more important in this context because prior studies have noted geographical disparities in consumer behavior toward FDAs (Lee, 2019), underscoring the need for studies that focus on different geographies and culture. This also makes practical sense because FDAs operating in any area must strategize according to local considerations, so research insights from geographically focused studies could be useful for them.

8.3 Practical implications

Service providers and marketers interested in strengthening intentions to order food from FDAs can benefit by manipulating the values this study has identified as significant. First, given that visibility ($\beta = 0.43$) is the chief driver of purchase intentions, FDAs can increase their customer base through advertising that focuses on existing users. Other channels, such as word of mouth, referrals, and endorsements, can also be effective. In fact, word of mouth is fast becoming a key tool of brand recommendation among consumers (Liu and Lopez, 2016), especially via social media (Mahapatra and Mishra, 2017).

Second, this study has shown that affordances value, measured in terms of free and fast delivery, improves purchase intentions toward FDAs. FDAs should therefore work on ways to accelerate food delivery and control delivery-related costs. For instance, food delivery through drones, which has been tested in Korea (Hwang *et al.*, 2019a), can help FDAs evade traffic congestion. Although the cost of acquiring drones may prove challenging, the long-term benefits, including the diminished need for delivery personnel, are likely to offset their high cost.

Third, price and prestige values have been identified as positive drivers of intentions to order food via FDAs, which implies that competitive prices and discounts should be offered to consumers. As offering discounts on food orders has its own limitations, other strategies may be employed, such as limited free subscriptions, free meals after a certain number of deliveries, or freebies through tie-ups with other firms. Furthermore, since users seem to attach prestige value to the use of these apps, FDAs can use strategies such as recognizing the most frequent user in a particular area within a fixed period on their Facebook page or Twitter handle.

8.4 Research limitations and future research areas

Despite its notable contributions, this study has some limitations that must be acknowledged. First, it focuses only on FDAs in the Indian market, so the findings may not be applicable to FDAs in other cultural contexts or to other mobile apps for booking or buying products and services. This limited generalizability can be addressed by future researchers trying to validate the findings of this study in other cultural backgrounds, geographies, and with other FDA service providers. Second, the study uses a cross-sectional design, so relies on self-reported data collected at one point in time, which introduces the possibility of biased findings. Scholars can use other research designs, such as longitudinal and experimental ones, to overcome this limitation and add credibility to future research findings. Third, we collected the data before the COVID-19 pandemic lockdown in India (The Lancet, 2020). Therefore, the findings are relevant under normal circumstances and do not represent outlier behavior during the coronavirus crisis. According to media reports, FDA deliveries are still taking place in India during the extended lockdown (Nandy and Mathur, 2020), and the findings of our study should be valid in the post-lockdown period. This is in consonance with experience of Delivery Hero SE, the Berlin-based food-delivery firm that has witnessed a rise in orders for delivery during lockdown and anticipates long-term benefits as more customers are willing to opt for food delivery from restaurants (Syed, 2020). We suggest that future researchers test our model by collecting data based on the lockdown experiences of FDA users and map the distinctions. Such studies would help capture the drivers of consumption values more commensurate with the enhanced food safety concerns and health consciousness that can be expected due to the highly contagious nature of the COVID-19 virus. Such findings would be of great value to FDA service providers in particular and OFDs in general, as changed health behaviors due to COVID-19 may continue to be a way of life in the foreseeable future. It is also important to note that we have used age and gender as moderators, ignoring the possibility of using them as control variables or even mediators. Future studies can add new dimensions to our findings by considering these two demographic variables as controls or mediators. It would also be interesting to explore the moderating role of variables such as moral obligations in meal preparation, as suggested by Roh and Park (2019), moderating effect of technology anxiety in the context of mobile app use, as examined by Kang and Namkung (2019b) and freemium/premium subscriptions, as discussed by Mäntymäki *et al.* (2019) for online digital content. We also recommend further empirical testing of the proposed O2O TCV model to measure consumption values related to other O2O services in the hospitality sector. Furthermore, future research can expand our model to include the following aspects:

- service dimension, since service is inseparable part of hospitality experience (Kandampully *et al.*, 2018);
- affective evaluations and customer satisfaction, which are important from hospitality perspective (Lee *et al.*, 2019a);

- performance expectancy which is a significant driver of the intentions to use online food delivery systems (OFDS) (Gunden *et al.*, 2020);
- electronic word of mouth (eWOM) intentions, as scholars have noted the growing importance of the effect of viral eWOM on brands (Moro and Rita, 2018); and
- effect of new technologies such as augmented reality and artificial intelligence on FDA use experience, since these technologies are transforming the hospitality and tourism sector (Law *et al.*, 2019).

It would also be interesting to investigate consumption values among non-FDA users. This would improve our understanding of the differences between users and non-users and be immensely useful to FDA service providers. Future studies should also conduct rigorous qualitative studies to enhance our understanding of how and why people use FDAs. Future studies investigating the behavioral intentions of specific demographic groups toward ordering food on FDAs, such as housewives, students, and so on, would also provide valuable insights for FDA service providers. Finally, scholars should use other relevant theories to understand the behavioral intentions of consumers, such as behavioral reasoning theory (Westaby, 2005).

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