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USER ACCEPTANCE AND USAGE OF FOOD APP – A MODERATING INFLUENCE OF WORK-FAMILY CONFLICT USING EXTENDED TAM

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Abstract

Purpose/Aim: The paper aims at the technology adoption of a food app. The study is conducted in India using the TAM Model and investigates how work-family conflict moderates the relationship between Behavioral Intention and independent variables like Perceived Value, Perceived Ease of Use and Perceived Usefulness. The study also investigates if there is a significant difference in behavioral intention controlling for socio-demographic factors.

Design/Methodology/Approach: A survey was conducted among 273 respondents across India. A convenient and snowball sampling was used for this purpose and the respondents were working professionals. Confirmatory analysis was conducted to test the measurement model and structural equation modelling was done to test for moderation effects. The analysis was conducted in R Studio.

Findings: The study found that Perceived Value has high significance in the adoption of food tech apps. The moderating effect of work-family conflict is very significant in the case of Value and Perceived Usefulness. However, work-family conflict does not have a moderating effect on Perceived Ease of Use. There is a significant difference in behavioral intention accounting for control variables like age and spouse working.

Research Limitations: This study was conducted in India. Future research can use this model to study the phenomenon of food app adoption in other countries

while adding important constructs like personal innovativeness, network effects, and habit if required. Quota sampling can be done to pick a minimum number of respondents for each socio-demographic indicator for better explanatory power.

Practical Implications: The study provides online aggregator companies, data on how work-family conflict affects the adoption of the app. Companies like Swiggy and Zomato could improve perceived value irrespective of absence of work-family conflict. Restaurants can use this study to understand how they can add further value to make sure their services are attractive to even customers with less work-family conflict.

Originality/Value : The findings allow the factors that can influence the adoption of food apps in India to be understood. Unlike existing studies based on Technology Acceptance Model (TAM), this study includes perceived value and how work-family conflict moderates the relationship between Perceived Usefulness, Perceived Value and Perceived Ease of Use with Behavioral Intention. The research also investigates the significant differences in behavioral intention controlling for factors like amily type, Age, Gender and Marital status. Most studies on adoption of apps are either generalized or more focused on sectors like banking and shopping. By focusing on India, this model can also be applied to other countries which are relatively new to food app adoption.

Keywords: *Food App, Technology Adoption, Work-Family Conflict, Perceived Value*

Introduction

One of the major areas of research in the field of information systems is technology adoption. Carr (1999) has defined technology adoption as the 'stage of selecting a technology for use by an individual or an organization'. With rapid strides being made in technology innovations in every conceivable domain, the issues related to technology adoption have gained increasing prominence in recent times. Using a car can be considered as technology adoption. Using a mobile app, using a new micro-wave oven, usage of a new security system - all these can be considered as technology adoption.

With the onset of high penetration of smartphones as well as high speed connectivity, online food-ordering has made huge disruptions in the food delivery market. It is no longer required to take pains to go to a restaurant hustling through heavy traffic and then wait for the food. People can have their favorite food from their favorite restaurant at the click of a button. Customers can further customize their orders, receive push notifications on the latest offers, use flexible payment mechanisms including cash on delivery,

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earn loyalty points, track the food on a real time basis as well as have access to reviews and feedback mechanisms provided in the app. The major players are GrubHub and DoorDash in the United States, Deliveroo in Europe and Swiggy, Zomato and Uber Eats in India. The homegrown hyperlocal food delivery apps in India, like Zomato and Swiggy, have become unicorns.

The food-tech industry in India was valued at US $ 5 bn. in 2020 and the valuation is likely to increase to US $ 8 bn. in 2022 with a CAGR of 30% (Google BCG Report). The food delivery app market is a kind of duopoly with Zomato and Swiggy ruling the space. They are currently present in around 500 cities in India. The amount of capital infused in 2018 in the food-tech business in India was US $ 480 mil., which was more than triple the inflow of US $135 mil. in 2017 (Bhattacharya, 2018). Swiggy received US $ 100 mil., the highest infusion among the incumbents (Kashyap, 2018). Mergers and acquisitions dominated the industry as consolidation and size were the buzzwords (Meenakshi & Sinha, 2019).

The business model used by the firms is the intermediating platform model. Swiggy and Zomato have a presence in around 500 cities. After three to four years of mounting losses, the recent trend in the industry has been that of consolidation and profitability measures. Recently Zomato acquired Uber Eats for about US $ 350 mil.

The objective of the paper is about whether work-family conflict moderates the relationship between perceived value, perceived Ease of Use, Perceived usefulness and behavioral intention. The paper aims to include the constructs of work-family conflict as well as perceived value on top of the TAM model to study the adoption. Moreover, the study is aimed at conducting a multigroup analysis of behavioral Intention using the control variables like Family Type, Age, Spouse working, marital status and gender.

The paper is structured around 8 sections. Literature Review consists of two subsections: reviews on different theoretical technology models and the literature on technology adoptions. The Research Gap and the Research Question are identified after the literature review. Based on the literature, a conceptual model is developed, variables are assigned, and the hypothesis is developed. The fourth section is about the Methodology which mentions the sampling method, measurement scales and the research instrument. Construct validity and reliability are also measured. The fifth section includes results and findings. The sixth section discusses the results followed by practical applications and limitations.

Literature Review

The Literature review is organized into major technology adoption models, major attributes used in technology adoption models especially in the case of a mobile app and literature corresponding to food adoption using food app.

Technology adoption is one of the major research area in information systems. Carr (1999) has defined technology adoption as the 'stage of selecting a technology for use by an individual or an organization'. Technology adoption can be like using a car, using a phone, operating a mobile app in a phone etc. The below mentioned table provides all major theories related to technology adoption.

Major Theories in Technology Adoption

Theory	Description	Year	Author
TRA	Subjective Norms, Attitude towards behaviour	1975	Fishbein, Ajzen
TAM	Perceived Usefulness, Perceived Ease of use	1989	Davis
SCT	Personal factors, Environmental factors	1986	Bandura
TPB	Subjective Norms, Attitude towards behaviour, Perceived Behavioural Control	1991	Fishbein, Ajzen
UTAUT	Performance expectancy, Relative advantages, Social influence, Facilitating conditions	2008	Venkatesh, Bala
UTAUT2	Price Value, Hedonic motivation and Habit along with UTAUT original constructs	2012	Venkatesh, Bala
DIT	Relative advantages, compatibility, Reliability, Observability, Complexity	1995	Rogers
TAM2	Antecedents of Perceived Usefulness - Individual Differences, Social influence, Facilitating conditions, system Characteristics	2008	Venkatesh, Davis

TAM3	Determinants of Perceived Ease of Use - Computer self-efficacy, Perceptions of external control, computer anxiety, computer playfulness, Perceived Enjoyment, Objective usability	2012	Venkatesh, Davis

Literature Review - App Adoption

Following are the major constructs used in app adoption. Here the app can be a banking app, game app, generic app, shopping app etc. In most of the research, TAM and UTAUT/UTAUT2 models are widely used. The other constructs apart from the base model constructs are added as per the research requirements. For example, Perceived Risk and Regulatory issues are very critical in the context of a mobile banking app whereas interactivity and enjoyment become very critical in the adoption of a gaming app.

Constructs	Definition	Sources
Perceived Trust	Perceived trust is the belief that the party with whom a consumer transacts will not display opportunistic behaviour related to their personal information.	Jeon et al.
Perceived Risk	Perceived risk is an individual's subjective expectation of the possibility of loss or gain from the outcome of an action.	Chang et al. (2015), Pavlou (2003), Harris et al. (2016) and Davis et al. (1989)
Security Risk	Security risk is the perception of security related to payment and information storage and transmission.	Kuisma et al. (2007), Laukkanen and Lauronen (2005) and Chopdar et al. (2018)
Privacy Risk	Privacy risk is the perception of potential loss of control on one's personal information.	Cheung and Lee (2001) and Chopdar et al. (2018)
Facilitating Conditions	Facilitating conditions are consumers' perceptions of the degree of resources and support (organisational and technical infrastructure) available to perform a behaviour.	Venkatesh et al. (2003), Gupta and Dogra (2017), Chopdar et al. (2018), Hew et al. (2015), Jeon et al. (2018), Lai (2013) and Okumus et al. (2018)

Constructs	Definition	Sources
Perceived Enjoyment	Perceived enjoyment (PE) is the degree to which the usage of the app is perceived as enjoyable independent of any expected performance outcomes.	Yoo et al. (2017), Byun et al. (2018), and Hassan et al. (2014)
Perceived Value	Perceived value is the aggregate or composite perception of the extrinsic and intrinsic value or utility of a product or service based on perceptions of what is received and what is given.	Zeithaml (1988)
Perceived Usefulness	Perceived usefulness is the extent of belief that the use of a technology/system will enable them to perform a task or activity.	Davis (1989), Cho et al. (2014), Balabanoff (2014), Byun et al. (2018), Chen et al. (2013), Hassan et al. (2014) and Rese et al. (2016)
Perceived Ease of Use	PEOU is the user's belief regarding the effort required to adopt and use the technology/system and reduce the effort required to perform certain tasks.	Davis (1989), Cho et al. (2014), Balabanoff (2014), Byun et al. (2018), Chen et al. (2013), Hassan et al. (2014) and Rese et al. (2016)
Work-Family Conflict	work-family conflict refers to how work and non-work responsibilities can coexist in harmony. The relationship between work and life is, for example: family friendly; balanced; conflicted; and flexible	(Jang et al., 2011; Murphy and Doherty, 2011), (Demerouti et al., 2014).
Perceived Playfulness	Perceived playfulness is an interactive belief of the entertainment gained from using the product or service and leads to fun and cognitive immersion.	Moon and Kim (2001) and Jin et al. (2017)
Social Influence	Social influence refers to the impact of the beliefs of others on an individual, which makes him or her adopt the new system. Emphasis is on the roles and the importance of people important to him/her such as friends, family, and colleagues.	Venkatesh et al. (2003), Gupta and Dogra (2017), Chopdar et al. (2018), Hew et al. (2015), Jeon et al. (2018), Lai (2013) and Okumus et al. (2018)

Constructs	Definition	Sources
Self-Efficacy	Self-efficacy refers to an individual's judgments of their ability to organize and execute courses of action required to attain designated types of performance.	Banura (1986), Irani, Dwivedi, & Williams, 2009; Alalwan, Dwivedi, Rana, Lal, & Williams, 2015, 2016; Fox & Connolly, 2018; Rana & Dwivedi, 2015; Rana, Dwivedi, & Williams, 2015; Shareef, Kumar, Kumar, & Dwivedi, 2011; Shaw & Sergueeva, 2019). Lim and Noh (2017)
Personal Innovativ-eness	Personal innovativeness is the propensity of an individual to try or experiment with new technologies.	Agarwal and Prasad (1998), Okumus et al. (2018) and Jin et al. (2017)
Habit	Habit is the degree to which an individual performs behaviours reflexively because of learning. It is the outcome of past experiences or behaviours.	Limayem et al. (2007), Venkatesh et al. (2012), Hew et al. (2015), Mutlu and Der (2017)
Hedonic Motivation	Hedonic motivation is the pleasure or enjoyment experienced from adopting a technology.	Venkatesh et al. (2012), Yoo et al. (2017), Hew et al. (2015) and Mutlu and Der (2017)
Price Value	Price-value is the ratio of perceived benefits to monetary cost of the technology.	Venkatesh et al. (2012), Gupta and Dogra (2017) and Chopdar et al. (2018)
Network Effect	Network effect is the belief that the value of a product or service will increase with increase in user network.	Katz and Shapiro (1986) and Y oo et al. (2017)

Literature Review - Food App Adoption

The literature corresponding to food apps are quite scarce. Most of the research has happened after 2017.

Elvandari et al. (2017) conducted study on food app usage intention based on influence of satisfaction, quality of service, technical requirements and service delivery. A qualitative study was conducted by (Pigatto et al., 2017)

on how customers perceive about the website, features and functionality. (Kwong et al., 2017) conducted a qualitative study on revenue increase, broadened customer reach on purchase intention.

The relation between Mobile service qual M-Squal was studied by (Agnus & Yusra, 2018) using regression analysis. (Correa et al., 2018) conducted a study on the adoption of online food delivery based on traffic conditions using data mining techniques. (He et al., 2019) conducted an experimental study on the aofom based model.

(Roh & Park, 2018) conducted a study on the relationship between customer satisfaction, perceived value and loyalty towards app adoption. (Sjahroaeddin, 2018) conducted an empirical study on the impact of efficiency, fulfilment, perceived value, privacy, food quality and user satisfaction on the adoption of online food delivery.

(Ray et al., 2019) conducted a mixed method study on the adoption of apps using uses and gratification theory. The independent variables like listing, search of restaurants, delivery experience, customer experience, ease of use, convenience were listed as the factors which influences the adoption of the food app.

Cho, Bonn and Li (2018). The study was done to find out the differences in the perceived value for a single-person household and multi-person household in food app adoption in China. The antecedents of perceived value were design, convenience, price, variety and trustworthiness.

Based on the three categories of literature review, TAM (1989) model has been used as the basis for the study as most of the technology adoption studies which looks into the behavioural intention uses TAM model The TAM model is based on the theory of reasoned action TRA (Fishbein, Ajzen). It has been found from a meta study that UTAUT2 model provides the highest explanatory power in technology adoption.

However, TAM has been used here as it is parsimonious, verifiable and generalizable. (Lee et al., 2003). Since the model is parsimonious, it has been easy to add the needed constructs to the model rather than having other theoretical model to which adding additional constructs makes it more complex. TAM Model was proposed by Davis for his doctoral proposal in 1989.

TAM Model proposes that the behavioural Intention to use a technology is based on Perceived Usefulness which is how useful the technology is as

well as Perceived Ease of Use which refers to how easy the technology is to use. Davis mentions that both are required since there are quite a lot of people who might not use a useful app if they find it hard to use. The Behavioural intention is mediated by attitude. Davis (1989). However, Venkatesh and Davis (2000) found that the moderation of attitude is quite weak and hence modified the technology acceptance model with no mediation to behavioural intention.

Based on the literature review, there has been no comprehensive qualitative analysis being done on the adoption of food apps. Most of the literature is about the app attributes which customers look for in a app. There has been no study on how socio-demographic factors affect the app adoption. Variables like work-family conflict, perceived enjoyment are not being studied in the case of food app adoption. Based on the literature gap identified, the following research questions are asked.

RQ1: Does perceived value affects behavioral intention to use an app?

RQ2: How does work-family conflict moderate the adoption of a food delivery app?

RQ3: Is there a significant difference in the behavioral intention controlling for factors like Age, Gender, Family Type, Occupation?

Theoretical Background and Hypothesis Testing

TAM originated from the Theory of Reasoned Action to explain computer usage behavior (Fishbein & Ajzen) and was then developed by Davis (1989). In TAM, an individual's behavioral intention to use technology is directly impacted by attitude which is then predicted by two crucial factors: Perceived Ease of Use and Perceived Usefulness (Y. Yang, X. Wang Computers & Education 133 (2019) 116-126). Attitude reflects an individual's favorable or unfavorable assessment towards making a behavior. Perceived Ease of Use refers to "the degree to which a person believes that using a particular system would be free of effort" and Perceived Usefulness measures "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320).

However, due to the weak mediating role of attitude between the two perceived beliefs and behavioral intention, Venkatesh (2000) posits that technology acceptance behavior may be explained better by examining the direct effects of the two perceived beliefs on behavioral intention. The

modified TAM with elimination of attitude is tested valid by many studies (Lee & Lehto, 2013; Teo, 2009a; Yen, Wu, Cheng & Huang, 2010; Yi, Jackson, Park & Probst, 2006).

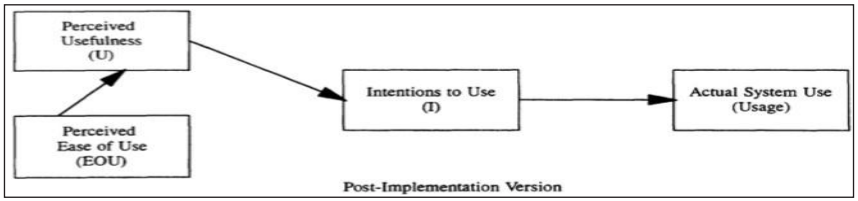
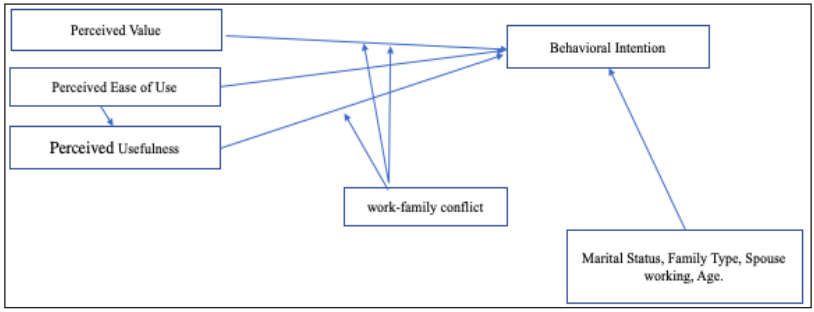


Fig. 1: Technology Acceptance Model (Modified)

The current paper is focused on the adoption of the food tech app. Here the criterion of social norms would have very less weightage as buying food is a personal preference. Consider the case of google pay or phone pay where social influence is highly prevalent. The UTAUT model has one of the best explanatory powers in adoption models.

Here, we would be using the modified acceptance model from Venkatesh (2000). The attitude part construct is not present in the model; the actual usage part will not be used for the model currently studied.

Conceptual Model



In the current proposed model, behavioral intention, perceived usefulness and perceived ease of use have been taken from the TAM Model. Perceived value is added as an independent variable and work-family conflict is taken as a moderator variable.

Perceived Value

Consumers' value perceptions are critical for their purchase decisions (Wang, 2015). PV refers to "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988, p. 14). In the same vein, PV is also conceptualized as "a cognitive trade-off between perceived quality and sacrifice" (Dodd's et al., 1991, p. 16). Therefore, perceived quality and perceived price are the two critical determinants of PV. PV has a positive impact on consumers' willingness to buy (Grewal et al., 1998). Previous empirical studies have also demonstrated the positive influence of perceived value on consumers' WOM intentions (Hartline & Jones, 1996; Oh, 1999; Mayr & Zins, 2012).

Customer perceived value can also be understood within the context of equity theory (Kuo et al., 2009). Equity can be defined as the customer's evaluation of things received which are fair, right, and worthy in relation to perceived costs sacrificed (Bolton & Lemon, 1999). The core idea of this theory in a purchasing decision context is based on the comparison between the customer's output-to-input ratio in terms of benefits versus expenses regarding the purchase and the service provider's output-to-input ratio of costs and benefits in providing the good or service being considered for purchase (Moliner, 2009; Oliver & DeSarbo, 1988; Tam, 2004). Perceived costs include both monetary and non-monetary costs (Bishop, 1984). Non-monetary costs include time cost and customer stress (Zeithaml, 1988). Where there are other stakeholders' interests to be considered by the customer in estimating perceived value, customers are interested in not only their personal output and input, but also in their partners' output and input in transactions of goods or services (Oliver & DeSarbo, 1988). This equity theory applies to both the traditional marketing environment as well as that of the online environment.

On the one hand, perceived value can be conceptualized as a construct configured by two portions: the benefits obtained (e.g., economic, social and relationship) and the sacrifices made (e.g., price, effort, time, convenience and risk) by the customer (Cronin et al. 2000). Perceived value as a multidimensional construct has been gaining ground (Sheth et al., 1991b, Grönroos 1997, Sweeney & Soutar 2001). For example, Grönroos (1997) regarded perceived value in terms of its cognitive and emotional dimensions. Sweeney and Soutar (2001) proposed three dimensions of perceived value: functional, emotional and social (Sheth et al., 1991b).

According to prior studies (Taylor & Todd 1995, Venkatesh & Davis 2000), intention has a significant influence on actual behavior. Curran et al.

(2003) indicated that an important consideration for service providers when introducing technology to the service encounter is whether the technology is perceived as an attractive experience for customers. In addition, from the 'customer choice' standpoint, some researchers in the field of IT have pointed out that perceived value could be a key predictor of behavioral outcomes (Turel et al., 2007, Chi et al., 2008, Cheng et al., 2009). This construct is another important factor that has had a significant influence on adoption intentions for internet related technologies, including mobile commerce, mobile banking, mobile wallets and the like (Pagani, 2004; Amoroso & Magnier-Watanabe, 2012; Slade et al., 2015).

The reason perceived value is taken into consideration is that consumers strongly look for value. Even if the technology is useful and easy to use, customers look for perceived value from the app. For example, if the food from the restaurant is Rs. 100 and through the app it is Rs. 200, customers will not perceive value though the technology is useful as well as easy to use.

H1a: The overall perceived value of a food app has a positive effect on the customers behavioral intention.

Perceived Usefulness

Davis (1989) defined perceived usefulness as the degree to which a person believes that using a particular system will improve his/her job performance. In this study, perceived usefulness of using an app indicates how convenient it is for the customers to use an app. The app provides customers with good functionalities and complete information. The usefulness concept has been used extensively in information systems and technology research (Del Bosque & Crespo, 2011, Zhou, 2011, Yeh & Teng, 2012) and has strong empirical support as an important predictor of SST acceptance (Curran & Meuter, 2005) and mobile service use (Pihlström, 2008). Similarly, Kim et al. (2007) pointed out that the value of mobile-enabled technology is determined by customers' perceptions of its usefulness. Therefore, the following hypothesis was tested:

H2a: Perceived usefulness has a positive effect on behavioral intention.

Perceived Ease of Use

Ease of use has been widely utilized as an element of technicality. Based on the study by Davis (1989), perceived ease of use is defined as the degree to which a potential customer believes that using a food app will be free of physical and mental effort. Prior studies suggest that perceived ease of use

(i.e., technological effort spent) is expected to be more significant in the early stages of an innovative behavior. For example, the acceptance of mobile internet (Kim et al., 2007), mobile banking (Luarn & Lin, 2005), mobile learning (Wang et al., 2009) and mobile hotel reservation (Wang & Wang, 2010). Thus, this study examines the following hypothesis:

H3a: Perceived ease of use has a positive effect on perceived value.

Work-Family Conflict

Work-family conflict refers to how work and non-work responsibilities can coexist in harmony. The relationship between work and life is, for example, family-friendly, balanced, conflicted, and flexible (Jang et al., 2011; Murphy & Doherty, 2011). Individuals have limited time, energy and resources to deal with their multiple responsibilities; at times one role can spill over into the other, which gives rise to conflict. The main aspects of work-life conflict to consider are time for work and non-work activities, satisfaction gained from work and non-work activities, and psychological involvement in work and non-work activities (Demerouti et al., 2014).

Work-family conflict is a form of inter-role conflict whereby the role demands of one domain interfere with meeting the role demands of another domain (e.g., Greenhaus & Beutell, 1985; Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964). For example, Major et al. (2002) found that total hours spent on work positively related to work interference with family, which in turn positively related to reported depression and somatic health complaints (e.g., headaches, trouble breathing). The general argument is that long work hours contribute to work-family conflict by making it difficult for an employee to fulfil the requirements of his or her family role or is drained in the process of fulfilling them (e.g., Edwards & Rothbard, 2000; Greenhaus, Parasuraman, Granro se, Rabinowitz & Beutell, 1989; Major et al., 2002). The paper intends to check if there is a moderating effect of work-family conflict in behavioral intention.

The literature connecting work-family conflict and behavioral intention was sparse. Most of the literature concerned with work-life conflict was set in the context of an organization. Since the literature was quite sparse, the discussion on taking this construct was based on a qualitative study of focus group discussion and observations in the college department and with friends. Based on the discussion, it was decided to use this construct and see how it moderates the relationship of variables in the extended TAM framework. The hypothesis that we are trying to prove is that there will be a moderating effect of work-family conflict on the intention to adopt the app.

H4a: Work-family conflict positively moderates the relationship between perceived value and behavioral intention.

H4b: Work-family conflict positively moderates the relationship between perceived usefulness and behavioral intention.

H4c: Work-family conflict positively moderates the relationship between perceived ease of use and behavioral intention.

Behavioral Intention

Behavioral intention refers to the measure or degree of the intensity of an individual's intention of performing a specific behavior (Fishbein & Ajzen, 1975). This is taken from the theory of planned behavior. Behavioral intention has been largely discussed and reported as the most powerful factor in determining individual behavior towards new technology (Ajzen, 1991; Venkatesh et al., 2012). Baptista and Oliveira, 2015; (Escobar-Rodríguez & Carvajal-Trujillo, 2014; Mafe et al., 2010) have established the relationship between behavioral intentions and actual usage behavior. Intentions are determined by three variables: attitudes, subjective norms and PBC. Attitude here refers to the overall evaluation of the behavior by the person. Subjective norms are beliefs about whether significant others think he/she should engage in the behavior. Perceived behavioral control determines both intention and behavior.

Demographic Variables

Age, Occupation, Family Type and Gender are taken into consideration here and the behavioral intention is compared for every category of demographic variables. The following are the hypothesis corresponding to the demographic variables.

H5a: There is significant difference in behavioral intention among age.

H6a: There is significant difference in behavioral intention between gender.

H7a: There is significant difference in behavioral intention among family type.

H8a: There is significant difference in behavioral intention among spouse working.

H9a: There is significant difference in behavioral intention marital status.

Research Methodology

Data Collection and Sampling

Survey method was used for the data collection. Respondents were sent an online questionnaire. The total number of responses were 273. The socio-demographic details of the respondents are summarized in Table. There was a total of 28 questions out of which 9 questions were descriptors-related questions and the other 19 questions were regarding the constructs - Perceived Usefulness, Perceived Ease of Use, Perceived Value, Work-Family Conflict and Behavior Intention.

Sampling Type

Convenience sampling and snowball sampling was used for the research because of the ease of getting relevant data, and because of certain restrictions related to the lockdown, in order to get a quota of customers from heterogenous backgrounds. Around 30 of the respondents were administered the survey personally and the rest was collected through online surveys. There was a total of 312 responses, and it was pruned further to remove missing data, ending up with total of 273 responses.

Measurement

A total of 19 items was taken for the five constructs. A 5-point Likert Scale was used for measuring the responses. All the five constructs were taken from existing scales. The following table gives the details of the measurement items. Reliability and validity were measured for all the constructs and were found to be satisfactory.

Table 1: Measurement Scales

Construct	Items	Operational Definition	Source
Perceived Usefulness	4	Perceived usefulness is the degree to which a person believes that using a food app is advantageous.	Davis (1989)
Perceived Ease of Use	4	Perceived ease of use is the degree to which a potential customer believes that using a food app will be free of physical and mental effort and is easy to use.	Davis (1989)

Construct	Items	Operational Definition	Source
Perceived Value	3	PV refers to the consumer's overall assessment of the utility of a food app based on perceptions of benefits and costs.	Zeithaml (1988)
Behavioral Intention	3	Behavioral intention refers to the measure or degree of the intensity of an individual's intention of adopting a food app.	Fishbein and Ajzen (1975)
Work-Family Conflict	5	Work-family conflict is a form of inter - conflict whereby the role demands of office interfere with meeting the demands of a role at home.	Netemeyer, Boles, Mcmurrian (1996)

Reliability and Validity

Reliability is the extent to which individual items in a scale correlate with one another. Reliability can be measured by Cronbach's alpha (Cronbach, 1951). Scale reliability was measured for each of the different constructs using Cronbach alpha. As the ideal value for Cronbach alpha is greater than 0.7, all the constructs satisfy the criterion perfectly. The analysis was done in R Studio.

Variable	Loadings	Squared Loadings	AVE	Errors	Reliability
PU =~ PU1	0.829	0.687241	0.7798225	0.313	0.91705914
PU2	0.892	0.795664		0.204	
PU3	0.913	0.833569		0.166	
PU4	0.896	0.802816		0.197	
WLC=~					
WLC1	0.825	0.680625	0.7739854	0.319	0.92989901
WLC2	0.918	0.842724		0.156	
WLC3	0.948	0.898704		0.101	
WLC4	0.905	0.819025		0.182	
WLC5	0.793	0.628849		0.371	
PV =~					

Variable	Loadings	Squared Loadings	AVE	Errors	Reliability
PV1	0.765	0.585225	0.653509	0.415	0.83126899
PV2	0.831	0.690561		0.309	
PV3	0.885	0.783225		0.218	
PV4	0.745	0.555025		0.445	
PEOU=~					
PEOU1	0.922	0.850084	0.812603	0.151	0.91346333
PEOU2	0.941	0.885481		0.114	
PEOU3	0.838	0.702244		0.298	
BI =~					
BI1	0.887	0.786769	0.765455	0.213	0.8825163
BI2	0.846	0.715716		0.283	
BI3	0.891	0.793881		0.206	

From the above solutions, the measurement model is correct as it has satisfied convergent validity as AVE is higher than 0.5 for all the above constructs.

	PU	WLC	PV	PEOU	BI
PU	0.883				
WLC	0.643	0.879			
PV	0.778	0.701	0.808		
PEOU	0.695	0.387	0.673	0.901	
BI	0.832	0.657	0.852	0.68	0.874

If the square root of AVE is greater than inter-construct correlations, then the constructs are said to have discriminant validity. Here we could see that in all the constructs, square root of its AVE is greater than any inter-construct correlations. All the items in the scale were loaded perfectly in the corresponding factors.

Results and Findings

Socio-Demographic Factors

Factors	N	(%)
Marital Status		
Married	154	56%
Single	119	44%
Grand Total	273	
Age Group		
21 – 30	73	27%
21-30	56	21%
31-40	113	41%
41-50	31	11%
Grand Total	273	
Family Type		
Couple with children	68	25%
Couple with no children	31	11%
Extended family	2	1%
Extended family (couple, children and parents)	52	19%
Joint family	23	8%
Single	97	36%
Grand Total	273	
Spouse Working or Not		
No	39	14%
Not Married	116	42%
Yes	118	43%
Grand Total	273	
Gender		
Female	77	28%
Male	196	72%
Grand Total	273	

ANOVA Multigroup Analysis

```
> anova_one_way <- aov(BI~MS, data = uppili)
> summary(anova_one_way)
             Df Sum Sq Mean Sq F value Pr(>F)
MS            2   0.72  0.3588   0.331  0.719
Residuals   270 292.85  1.0846
> anova_one_way <- aov(BI~FAM, data = uppili)
> summary(anova_one_way)
             Df Sum Sq Mean Sq F value Pr(>F)
FAM           5   3.34  0.6686   0.615  0.688
Residuals   267 290.23  1.0870
> anova_one_way <- aov(BI~SW, data = uppili)
> summary(anova_one_way)
             Df Sum Sq Mean Sq F value  Pr(>F)
SW            2  14.43   7.214   6.978 0.00111 **
Residuals   270 279.14   1.034
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> anova_one_way <- aov(BI~Gender, data = uppili)
> anova_one_way <- aov(BI~Gender, data = uppili)
> summary(anova_one_way)
             Df Sum Sq Mean Sq F value Pr(>F)
Gender        1    1.5   1.496   1.388   0.24
Residuals   271  292.1   1.078
> anova_one_way <- aov(BI~Age, data = uppili)
> summary(anova_one_way)
             Df Sum Sq Mean Sq F value   Pr(>F)
Age           4  32.73   8.182   8.407 2.11e-06 ***
Residuals   268 260.84   0.973
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

A one-way Anova was done with different control groups with respect to behavioral intention. It has been found that only age and spouse working was found to have a significant difference in terms of behavior intention to adopt. The age group in the 21-30 range were keener on the adoption and usage of the app when compared to the other age groups. Group 41-50 was found to be using the food app to the minimum. People with their spouse working were more likely to order from food app. This is because of the paucity of time which they might have due to work responsibilities. All the other control variables like gender, family type and marital status were found to be insignificant in terms of behavioral intention to adopt an app.

From the multigroup analysis, the following hypothesis is accepted.

H5a: There is a difference among age groups in terms of behavioral intention in adoption of a food app.

H9a: There is a difference in behavioral intention among spouse working, not working, and not married groups.

Confirmatory Factor Analysis and SEM

The measurement model in R studio was tested by conducting confirmatory factor analysis (CFA). Confirmatory factor analysis (CFA), otherwise referred to as restricted factor analysis [(Hattie & Fraser, 1988), Structural Factor Analysis (McArdle, 1996), or the Measurement Model (Hoyle, 1991)], is typically used in a deductive mode to test hypotheses regarding unmeasured sources of variability responsible for the commonality among a set of scores. The model fit measures were considered to assess the overall goodness of fit of the proposed model. They are the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the AIC and BIC Values, the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR).

SEM (Structural Equation Modelling) was done to check for mediation as well as moderation. The analysis was done in R Studio. It is observed that the values of CFI, GFI and NFI conformed to the widely accepted range of almost 0.9 or more than 0.9. CFI and TLI values are above 0.9 and AIC, BIC Values are low which is ideal. The RMSEA and SRMR Values are 0 which indicates the model is an excellent fit. Hence, the measurement model observed a good fit with the data collected.

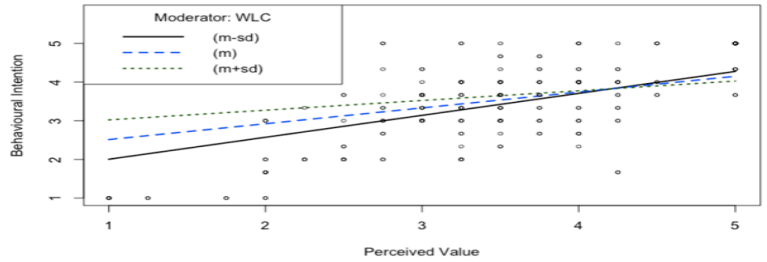
As we can see from the figure above, the variables Perceived Usefulness and Perceived Value are significant. However, Perceived Ease of Use is not significant. This is because most of the population is about 21-30 years of age and are tech savvy and hence that is not a significant reason to adopt an application. However, if we had included many people in the 51-60 and 41-50 range, there could have been some significance in that age group. As per the TAM Model, perceived usefulness is indeed significant. The relationship between perceived usefulness and perceived ease of use was also checked and

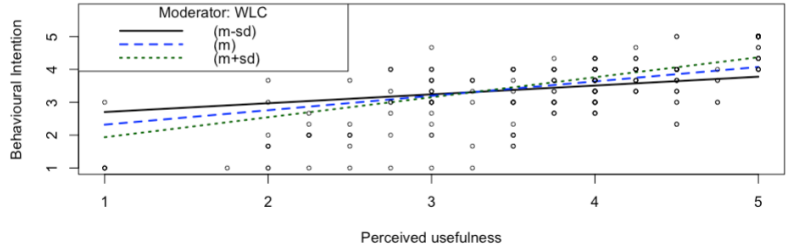
it was all found to be very significant. The P Values for perceived usefulness, perceived value and their corresponding interactions with WLC are significant as P <0.05.

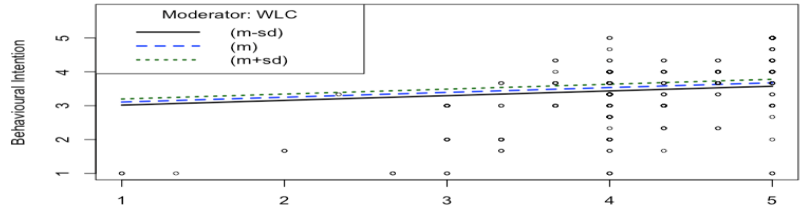
```
Model Test Baseline Model:

  Test statistic                                337.128
  Degrees of freedom                                  6
  P-value                                         0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                     1.000
  Tucker-Lewis Index (TLI)                        1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                -249.436
  Loglikelihood unrestricted model (H1)        -249.436

  Akaike (AIC)                                  512.872
  Bayesian (BIC)                                538.138
  Sample-size adjusted Bayesian (BIC)           515.943

Root Mean Square Error of Approximation:

  RMSEA                                           0.000
  90 Percent confidence interval - lower          0.000
  90 Percent confidence interval - upper          0.000
  P-value RMSEA <= 0.05                              NA

Standardized Root Mean Square Residual:

  SRMR                                            0.000
```

Regressions:	Estimate	Std.Err	z-value	P(>|z|)
PU ~				
PEOU	0.865	0.058	14.804	0.000
BI ~				
PU	0.522	0.049	10.631	0.000
PV	0.352	0.068	5.159	0.000
PEOU	0.151	0.086	1.760	0.078
PUWLC	0.140	0.040	3.526	0.000
PVWLC	-0.153	0.041	-3.770	0.000
PEOUWLC	0.013	0.046	0.293	0.770

Effect of Moderation







As we can see, moderation has a significant influence on the relationship between perceived usefulness and perceived value. People find the app more useful and to have more value when the work-family conflict is high. As we can see from the first two groups, the slopes are different and the lines intersect, thereby confirming moderation. However, there is no moderation influence in the case of perceived ease of use. This is because most of the millennials and Gen X are quite tech savvy and there is hardly any difficulty in the usage of the app. Hence, we can see from the moderation graph for perceived ease of use, the lines are parallel confirming that there is no moderation.

The following hypotheses are accepted from the theoretical model.

H3a: Perceived Ease of Use has a relationship with Perceived Usefulness.

H1b: Perceived Usefulness has a positive effect on Behavioural Intention.

H1a: Perceived Value has a positive effect on Behavioural Intention.

H4b: Work-family conflicts moderate the relationship between Perceived Usefulness and Behavioural Intention.

H4a: Work-family conflicts moderate the relationship between Perceived Value and Behavioural Intention.

The aim of this research was to analyze users' acceptance of food apps and to identify the main factors that have a significant impact on it. The study successfully extended the existing technology adoption frameworks to include two new variables. Results indicated that factors such as perceived value (p-value < 0.05) and perceived usefulness (p-value <0.5) had a positive influence on behavioural intention whereas work-family conflict (p-value- < 0.05) had a positive moderating effect on the relationship of perceived usefulness and perceived value with behavioural intention. This study also looked into socio-demographic indicators and whether there was significance in behavioural intention among the groups. It was found spouse working and age had significant difference among the groups in terms of behavioural intention.

Limitations and Future Research

As time was a crucial factor considering term timetable and corona scare, certain constructs were purposefully not taken. Variables like habit, personal

innovativeness and network effects should have been considered for giving better significance to the model. Sample size could be made minimum 500 and quota sampling could be done so that region-wise app adoption procedure can be taken simultaneously. Facilitating conditions are also one of the reasons for app adoption as per UTAUT model from Venkatesh (2003). Rural towns do not have strong network availability which in turn has a strong effect on app adoption. As most of the samples are either convenient or snowball, there is a good chance of respondent error here. A mixed method research can also be done to triangulate the qualitative as well as quantitative research.

The moderation effects are low due to common method variance. The sample of data had to be increased to at least 1000 respondents with a quota sampling so that the variance across different socio-demographics can be studied. Location as a factor can also be looked into as a control variable and see how this would affect app adoption. Future work can be done using administered questionnaires, take the constructs like perceived critical mass, habits, risk and a cross-cultural study can be planned for the same including Hofstede's cultural constructs. A mixed method study involving observations, qualitative as well as quantitative research along with secondary data logs from the consumer's apps would help in triangulating the model.

Practical Implications

Food app companies can investigate the factors which make people adopt the app. Companies can investigate how work-family conflict influences the usage of the app. As per the results, the respondents with work-family conflict are highly likely to use the app. This can prompt a challenge to the company as to how they can prove to be attractive to respondents with low work-family conflict. As per a focused discussion conducted with the people who have low work-family conflict, they were willing to adopt and continue using the app if there were special promo offers for in-dining as well as customized variety available. Companies can also investigate personalized offerings so that perceived value can be improved.

The study can be used by all the stakeholders like customers, restaurants, food apps. Food app companies like Swiggy and Zomato can customize their menu according to the perceived value of each customer. The personalization can provide a better perceived value to the customer. The perceived value can

be vastly improved by combo meals for monthly offers so that the customer finds very good value for money which in turn can boost sales. Restaurants as well as food app companies can come up with special offers for

families with high work-family conflict so that it can tap the customer segment. Restaurants can come up with "make your own dish" model so that customers will have some enjoyment or hedonistic feel while using the app. Food app companies can come up with better interactivity in their apps.

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