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## What leads consumers to spread eWOM for Food Ordering Apps?

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## What leads consumers to spread eWOM for Food Ordering Apps?

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### ABSTRACT

*Restaurants are using innovative ways to engage with consumers using Food Ordering Apps (FOAs). The purpose of this article is to identify the influence of consumers' eSatisfaction, perceived value, trust, and eLoyalty on eWOM for FOAs in India. The study also verifies if eWOM for FOAs varies based on age, gender, family size, order value, and online shopping experience. The research followed a multi-stage approach. In the first stage, an extensive literature review was conducted to identify the various factors that lead to eWOM. In the second stage, a survey was distributed among the FOA users. 375 responses were obtained. In the third stage, a binary multivariate logistic regression was used to evaluate the predictive power of the proposed research model. The results indicated that eLoyalty, trust, and perceived value were statistically significant in predicting consumers' intent to spread eWOM for FOAs. eSatisfaction, age, gender, order value, shopping experience, and family size were insignificant in shaping the customer's intention to spread eWOM for FOAs. The findings of this study can be used to understand the factors that influence users to spread eWOM for FOAs. Managers in food delivery business can use the findings from this study to address the most relevant constructs shaping eWOM as it has an impact on the survival prospects and profitability of the business.*

**Keywords:** eSatisfaction, eLoyalty, eWOM, food ordering apps, food delivery apps

## INTRODUCTION

The rapid penetration of the Internet has significantly influenced e-commerce development worldwide (Wang et al., 2020; Yeo, Goh & Rezaei, 2017; Towers & Xu, 2016) enabling consumers to purchase anything online and get it delivered to their doorstep by a mere click or few clicks. Development in e-commerce means providing an unlimited choice of products and services to the customer ranging from product customization and fast delivery to real-time interactive communication between the service provider and the customer (Yeo et al., 2017). Customers prefer to shop online as it provides convenience and ease to shop at a time and location of one's preference (Jiang et al., 2013) and reduces the effort in making a decision (Bednarz & Ponder, 2010).

The share of online population who shopped online using mobile device in India, in the third quarter of 2020 was 57.3 percent (Statista, 2021a). Retailers are capitalizing on the benefits of the mobile platform to maintain customer relations by creating a unique and personalized experience (Ostdick, 2016). The advancements in technology provide retailers with an alternate channel of service delivery with certain advantages which include increased reach, increased sales, opportunity to attract new customers and markets (Jayaram, 2017). Consumers are using mobile apps to search, share, browse and make purchases. The use of smartphones to understand consumer behaviour has become necessary for managers of different restaurants in India (Kapoor & Vij, 2018). Retailers wish to provide customers with the convenience of ubiquitous shopping, 24 hours a day, using these platforms. The business of delivering restaurant meals to the customer at home is undergoing rapid transformation. The food industry has reached a saturation point (Yeo et al., 2017). The addition of online services can make companies in the restaurant sector more agile and competitive. The development of interactive technologies can engage customers more actively in activities like gathering information, comparing alternatives, purchasing, and providing alternatives (Yand et al., 2017).

The different ways in which consumers can place their food orders online are through the Platform-to-Consumer (P2C) delivery model and the Restaurant-to-Consumer (R2C) delivery model. The Platform-to-Consumer (P2C) delivery market provides customers with meals from partner restaurants.

In this case, the platform (e.g. Zomato, Swiggy) handles the delivery process.

The Restaurant-to-Consumer (R2C) delivery model includes the delivery of meals carried out directly by the restaurants. The order may be placed via platforms or directly through the restaurant's website. The revenue of the online food-delivery segment worldwide amounts to USD 122,739 million in 2020, and it is expected to show an annual growth rate of 7.5%, resulting in a market volume of USD 164,002 million by 2024 (Statista, 2020a).

The digital user's consumption in India has increased over the last few years.

The average mobile digital consumption by Indians was 1 hour 21 minutes in 2020 to 1 hour 28 minutes in 2021 (Statista 2021b). The primary reasons attributed to the explosive growth in this number include cheaper smartphones and data plans, and region-specific mobile-first content. Indian consumers prefer to use online services due to convenience, access to multiple options in one place, discounts, and good deals, (BCG-Google, 2018). Digitization and growth in both the online buyer base and spending habits of consumers have made India's online food industry grow at an exponential rate. There are more than 900 food-delivery start-ups in India (PWC, 2018) trying new innovative ways (e.g. membership clubs, personalized recommendations, heavy discounts, loyalty programs) to drive consumer engagement.

This empirical study is carried out in India as it is one of the top five developing countries (NASDAQ, 2019). Food-tech start-ups are present in more than five hundred cities in India.

Convenience, reliability and selection, peer to network advocacy, rising Internet penetration, favourable consumer disposition, increasing ordering frequency are the driving factors in the Indian food-tech sector (ET, 2020). Food ordering apps (FOAs) have shown a considerable rise in India (Kapoor & Vij, 2018). In 2020, the revenue in the P2C delivery segment in India amounts to USD 4,273 million (Statista, 2000b). It is expected that the revenue will show an annual growth rate of 12.1% by 2024, resulting in a market volume of USD 6,751million. The rapid use of social media has played a pivotal role in changing consumer buying behaviour (Wang, 2017).

Social media plays an important role in forming customer opinion and spreading electronic Word-Of-Mouth (eWOM) (Jaini et al., 2019). eWOM can be defined as “*all informal communications directed at consumers through Internet-based technology (IT) related to the usage or characteristics of particular goods and services, or their sellers*” (Litvin et al., 2008). eWOM includes users’ beliefs, attitudes and preferences which impact purchase decisions (Ladhari & Michaud, 2015). With advancements in technology and social media, the number of reviews provided online have increased dramatically (Mariani et al., 2019). Consumers use their phones on the go to disseminate information about the product or service they use, making mobile eWOM a powerful marketing instrument.

Studies have discussed the transition of eWOM from personal computer-based social networking sites (SNSs) to mobile eWOM (Mariani et al., 2019). Customers today make their decisions based on reviews shared by other consumers (Shen et al., 2013). Scholars have suggested eWOM plays an important role in making purchase decisions (Jaini et al., 2019; Shang et al., 2017; Vahdati & Nejad, 2016). eWOM has a wider reach as compared to traditional WOM; thus, it is important to understand the antecedents of eWOM to FOAs to prevent negative promotions and also to better promote their products (Liang et al., 2013). Despite the rise and considerable interest in using FOAs by the Indian consumers, there is a paucity of research that examines what influences consumers to spread eWOM for them.

Studies by Kapoor & Vij (2018) and Okumus et al., (2018) have examined the aspects of customer’s acceptance of mobile apps for food ordering using theoretical basis like unified theory of acceptance and use of technology (UTAUT) and technology acceptance model (TAM). As prior studies have addressed aspects related to intention to use, the key question addressed by this research relates to the impact of these applications on eWOM about FOAs in terms of consumers’ perceived value, trust, eSAT (eSatisfaction), and eLoyalty. This study makes some useful contributions to the existing body of literature. First, this study considers the influence of eSatisfaction and eLoyalty on eWOM. Second, it provides a Binary Multivariate Logistic Regression (BMLR) model to predict customers’ intention to spread eWOM for FOAs, which is comparatively new in the literature. Third, it presents managers with an understanding of all the aspects of FOAs perspective that may help improve and control all the aspects of the mobile ordering experience.

The rest of the paper is organized as follows. In the next section, literature is reviewed to develop the conceptual framework. Next, the methodology adopted in this study is discussed followed by the results, findings, and discussion. Finally, the conclusions, implications, limitations and future research directions are highlighted.

## LITERATURE REVIEW

Studies have examined the adoption of online food ordering systems in two different ways: one that uses websites (Pigatto et al., 2017; Yeo et al., 2017) and others that use FOAs (Alalwan, 2020; Cho, et al., 2019; Kapoor & Vij, 2018; Okumus et al., 2018; Okumus & Bilgihan, 2014). Ordering using FOAs has become common among customers worldwide, the research addressing the use of mobile FOAs is still at a nascent stage (Okumus & Bilgihan, 2014; Alalwan, 2020). Scholars have expressed an interest to explore the reasons consumers use and spread eWOM for these apps. A qualitative study by Pigatto et al., (2017) in Brazil, revealed that website content, functionality, and usability were the key factors that led users to adopt FOAs. According to Yeo et al., (2017) consumer attitude and behavioural intention towards online food delivery services is influenced by convenience motivation, hedonic motivation, price saving, and time-saving orientation. Alagoz & Hekimoglu (2012) posited that the Turkish consumers' attitude towards the adoption of FOAs was influenced by perceived usefulness and trust. Jordanian customer's satisfaction and continued intention to use FOAs was influenced by features such as online tracking, online rating, online review, performance expectancy, hedonic motivation, and price value (Alalwan, 2020). Cho et al., (2019) identified that perceived value and customer attitude to use FOAs is based on trust, product variety, and design. Kapoor & Vij, (2018) studied factors namely collaborative design, information design, navigational design, and visual design that lead to customer conversion while using mobile FOAs.

Consumers use multiple evaluation methods to assess the utility of a product (Thaler, 1985). They evaluate the overall utility of the FOAs in terms of the attributes such as service, information, quality, service quality, price and the promotional offers they get. When consumers perceive they have more to gain than lose from using the FOAs, they perceive value in the apps (Wang et al., 2018). When consumers perceive value in using FOAs, they tend to share their positive experiences with others thereby spreading a positive eWOM. A study by DeMatos & Rossi (2008) in the service context, indicate that perceived value positively influences eWOM activities. The value a firm offers positively influences individual's eWOM intentions (Gruen et al., 2006).

Trust refers to the willingness to rely on an exchange partner who is competent and adheres to moral principles (Ladhari & Michaud, 2015). In the context of FOAs reliability refers to the fact that the service provider can be relied to keep his promises, competence refers to the skills, knowledge and abilities of the service provider and integrity refers to the goodwill of the service provider (Wang et al., 2014). Trust enables to decrease the uncertainty, anxiety, and susceptibility related to the online transactions, which results in spreading eWOM (Hennig-Thurau et al., 2004).

With the competitive landscape, it is crucial for FOAs to both attract and retain loyal customers (Law et al., 2010). Loyal customers influence the FOAs revenue and are key constituents of favourable eWOM (McMullan & Gilmore, 2008). Consumers are satisfied with a service when they experience an overall positive feeling such that the perceived outcome is greater than expected outcome (Oliver, 1980). Satisfied customers share their positive experience with other customers through eWOM (Chen et al., 2012). Therefore, when consumers have positive usage experiences with FOAs, they show a higher intention to spread eWOM. Thus, it is worth exploring how FOAs can impact customer perception and lead them to spread eWOM. This study examines factors such as perceived value, trust, eLoyalty, eSAT that influence people to spread eWOM for FOAs. The following section describes each of these factors.

### *Perceived Value*

Perceived Value is “a consumer's overall estimation of the utility of a product/service based on perceptions of what is received and what is given” (Zeithaml, 1988, Yang et al., 2020). Some consumers may perceive value when there is a low price. Others may perceive value when there is a balance between quality and price. Thus, different consumers weigh the components of perceived value differently. Perceived value involves an evaluation of all the services a consumer receives when purchasing a product. Perceived value is a comparison of a service's 'get' and 'give' components (Zeithaml, 1988). Several studies have proposed the effect of perceived values on eWOM activities (Kim et al., 2019; Mukerjee, 2018). Perceived value is important in online business as users can easily compare service features and prices (Suhartanto et al., 2020). An individual's perception of the overall value received from the FOAs will have a major bearing on the individual's intention to spread eWOM.

Thus, we posit,

***H1: Perceived Value has a positive and significant effect on eWOM***

### *Trust*

Trust has been studied in several disciplines including Information Systems (IS), marketing, and economics (Kim & Benbasat, 2009). Trust is an important factor that attracts e-commerce buyers. Lack of trust creates psychological barrier (Jan & Zainal, 2020) and impedes the adoption of e-commerce (Chang et al., 2013). Customers with overall high trust demonstrate a high intention to carry out online transactions. In a study by Gopalakrishnan et al., (2017), trust and information exchange in a vendor leads to satisfaction which leads to a long-term relationship with the transacting partners. Business honesty is important for maintaining good long-term relationships (Aujirapongpan & Pattanasing, 2020). After having consumed a product or service, consumers tend to evaluate the actual performance of the product or service and re-assess their trust in it (Hsu et al., 2014). Trust is a belief, sentiment, confidence about a buyer's likely behaviour. The more consumers trust a company's products or services, the more they are likely to recommend the company to their friends and spread eWOM (Wu et al., 2018). Online customers rely more on recommendations made by others, unlike the purchase of other services. Customers need to trust the information provided by the FOAs before they recommend it to others (Loureiro et al., 2018). According to Wu et al., (2018), trust in online retailers positively affects consumers' intention to make recommendations, indicating trust plays an important role in determining consumer's positive WOM. This leads us to hypothesize,

***H2: Trust has a positive and significant effect on eWOM***

### ***eLoyalty***

eLoyalty refers to “*the customer’s favorable attitude toward an electronic business resulting in repeat buying behavior*” (Anderson & Srinivasan, 2003).

It has been conceived as a consumer’s intention to buy online and that consumers will not switch to another website (Flavian et al., 2006). It is the intention to revisit a website or to consider purchasing from it in the future (Cyr et al., 2005). With today’s competitive online business maintaining and improving eLoyalty has become an important consideration for a company’s success (Wu et al., 2018). According to Khan, Zubair & Malik (2019), online service quality plays an important role in eLoyalty and eSAT in e-commerce. It has become fundamental to promote a customer’s eLoyalty in the survival and development of online services (Sanz-Blas et al., 2014). eLoyalty leads to an increase in the transaction intention for the products in the websites (Huang, 2008), leads people to continue to purchase online (Bulut, 2015), and helps spread positive word-of-mouth (Hsu et al., 2013). Thus, the researchers hypothesize,

***H3: eLoyalty has a positive and significant effect on eWOM***

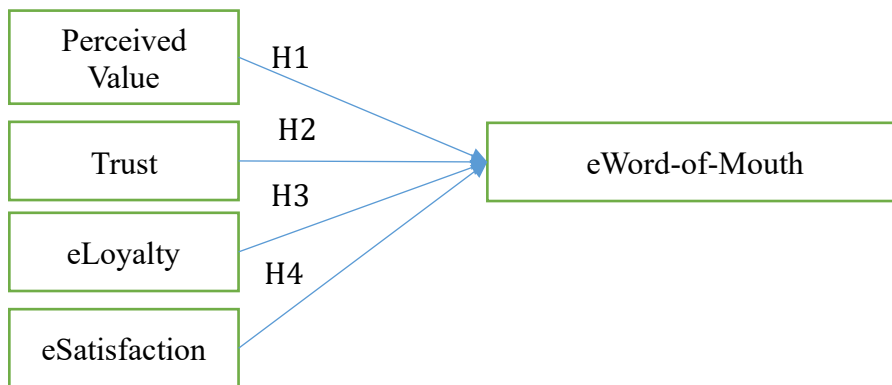
### ***eSatisfaction***

eSatisfaction (eSAT) is defined as “*the gratification of the customer to his or her prior purchasing experience with a given e-commerce firm*” (Anderson & Srinivasan, 2003). When a user finds an app convenient to use, he is more likely to be satisfied with the app. Customer service plays an important role in customer satisfaction (Mannan et al., 2017). Satisfaction tends to create a perception that the vendor is reliable, responsible and keeps the welfare of the consumer in mind (Falahat et al., 2019). Customers who are pleased about their experience with FOAs are more motivated to continue using such apps and be loyal to the use of such apps. A satisfied customer may spread a positive eWOM for the FOA. This leads to the hypothesis,

***H4: eSatisfaction has a positive and significant effect on eWOM***

### ***eWOM***

WOM communication is defined as “*informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods/services and/or their sellers*” (Westbrook, 1987, pp. 261). As most products and services are available online today, consumers seek additional information about them to reduce the complexity involved in making a purchase decision. They tend to turn online to recommendations made by consumers regarding services before making a purchase. Due to the intangibility and experiential nature of services available today, eWOM is considered as a major source of information primarily due to enhanced volume, dispersion, persistence and observability, anonymity and deception, community engagement (Yen & Tang, 2019). Positive eWOM is a valuable vehicle for promoting a firm’s products or services. A few advantages of eWOM include more credible than information shared by the sellers, quick dissemination of information. Various studies across different industries that sell goods online have established a significant link between eWOM and the performance of the company (Manes & Tchetchik, 2018). The relationships among the variables are presented in Figure 1.



**Figure 1. Proposed Research Model**

## METHODOLOGY

This study aims to identify the influence of consumers' perceived value, trust, eSAT, and eLoyalty on eWOM for FOAs. The study is also an attempt to verify if eWOM for FOAs varies with age, gender, family size, order value, and online shopping experience. The research process is comprised of three stages. The first stage consisted of a comprehensive literature review. The objective of this stage was to identify and understand the key variables that lead to eWOM for FOAs. Based on the inputs from literature in the second stage, a survey questionnaire was developed and sent to the respondents located across the country. In the third stage, a BMLR was used to evaluate the predictive performance of the proposed research model (Hair, Black, Babin, & Anderson, 2010).

### *Data collection instrument and scales*

To analyze the hypothesized relationships, an online survey tool was developed and circulated among the respondents. Online survey tool was used because, according to Baruch & Holtom (2008) electronic data collection efforts (e.g. email, phone, web) results in response rates equal to or higher than traditional mail methodology. The survey was pre-tested to verify if the scale items in the survey tool were well understood by the respondents. As suggested by prior literature (Saunders et al., 2009; Ray et al., 2019), the scale items were pre-tested on ten FOA users and three academicians independently. Based on the inputs from the pre-test, minor modifications were made in the scale items to make them more specific and meaningful. The final survey questionnaire comprised two sections. The first section collected the demographic details of the respondents. The second section consisted of the scale items proposed in the model. A 7-point Likert scale was used to collect the participants' responses. According to Finstad (2010), 7-point Likert scales are more suited to electronic distribution of usability inventories. He further stated that 7-point scales are less likely than 5-point Likert scales to elicit interpolations in usability inventories and in survey research interpolations are problematic because they cannot be mitigated within an electronic survey medium and require interpretation with facilitated surveys. The items used in each construct were developed based on existing literature (Refer Table 1). The questionnaire constituted of five survey constructs including three to five items.



**Table 1. Scale items of the constructs**

Construct	Items	Description	Source
Perceived Value (PV)	PV1	I feel I am getting good food products at a reasonable price when I use the food ordering app	Kim et al., (2019); Mukerjee, (2018); Zeithaml, (1988)
	PV2	Using the food ordering app is worth for me to devote my time and efforts	
	PV3	Compared with conventional food purchasing ways, it is wise to use the food ordering app	
Trust (TR)	TR1	I trust the food ordering app	Chang et al., 2013; Wu et al., 2018
	TR2	I felt secure in ordering food through the food ordering app	
	TR3	The information provided by the food ordering app is reliable	
eLoyalty	eLOY1	When I need to make a purchase this food app is my first choice	Anderson & Srinivasan (2003); Wu et al., (2018)
	eLOY2	I believe this is my favourite food app to buy the same kind of product	
	eLOY3	To me, this food ordering app is the best app to place food orders	
eSatisfaction (eSAT)	eSAT1	I am satisfied with my previous food ordering experience	Udo & Fels (2010)
	eSAT2	I am satisfied with the performance of the food ordering app	
	eSAT3	I am pleased with the experience of using food ordering apps	
	eSAT4	I am satisfied with the purchase experience with the food ordering app	
eWord-of-Mouth (eWOM)	eWOM1	I recommend this food ordering app to others	Park, Wang, Yao & Kang (2011)
	eWOM2	I am proud to say to others that I am a customer of this food ordering app	
	eWOM3	I speak good about the food ordering app	
	eWOM4	I strongly recommend people buy from this food ordering app	
	eWOM5	I have spoken favourably of this food ordering app to others	

### Sample

The online survey questionnaire was distributed to 3000 individuals across the country. The survey was addressed to English-speaking FOA customers who had used apps for ordering food at least once in the previous year. A filter question regarding online food ordering habits was included at the beginning of the questionnaire to dismiss individuals who do not order food online. The target FOA user group was reached using various methods, such as sharing the survey links on different online social-media platforms (e.g., Facebook, LinkedIn and WhatsApp) and other online communities. Also, the FOA users were connected through friends' networks, and approaching various organisations (e.g., employees of colleges, universities, IT companies and banks). To improve the response rate reminders were sent to individuals at regular intervals. Further, personal visits and telephonic reminders were also made to improve the response rate. Seventeen cases were eliminated because the responses were incomplete; thus, a final sample of 375 responses from the active FOA users (50.7% were aged  $\leq 30$  years and 49.3% were aged above 30 years) was attained.

The response rate was 12.5 percent. According to Nulty (2008), for a class size of 2000 individuals, the required response rate may vary from 1 percent (under liberal conditions: 10% sampling error and 80% confidence level) to 25 percent (under stringent conditions: 3% sampling error and 95 % confidence level).

After gathering the data, a profile analysis of the respondents was carried out to build a basic idea about the survey respondents. The dataset comprised a good mix of male and female respondents (58 percent male and 42 percent female). 50.7 percent of respondents were below 30 years, 37.6 percent of the respondents were in the age group of 31-40 years. A small proportion of respondents were above 40 years (11.4 percent). The online food ordering business is more popular with the younger generation as compared to the older generation. 51.5 percent of the participants had a family size of four or more persons, 40 participants had a family size of 2-3 persons and a very small proportion of participants (8.5 percent) were single. 60.6 percent participants were new to online food items shopping (< 1 year experience), 22.4 percent of participants had 1-2 years of experience and 9 percent participants had more than 3 years' experience in online food items shopping. This shows a steady increase in the number of FOA users. Most participants (56.5 percent) ordered food in the range of INR 250-500 and 26.9 percent had an order value of more than INR 500. (Refer Table 2). Therefore, the study sample is broadly distributed and, hence, is representative of a wider population.

**Table 2. Respondent Demographics**

Demographics	Category	Frequency	Percentage
<b>Gender</b>	Male	219	58.4
	Female	156	41.6
<b>Age</b>	< = 30	190	50.7
	31-40	141	37.6
	41-50	32	8.5
	> 50	11	2.9
<b>Family Size</b>	One person	32	8.5
	Two persons	48	12.8
	Three persons	102	27.2
	Four or more persons	193	51.5
<b>Online food items shopping experience</b>	< 1	227	60.5
	1-2	84	22.4
	> 3	64	9
<b>Average order value</b>	Less than INR. 250	62	16.5
	INR. 250-500	212	56.5
	INR. 500-750	72	19.2
	More than INR. 750	29	7.7
<b>FOA used by consumers</b>	Swiggy	159	42.4
	Zomato	150	40.0
	Uber Eats	51	13.6
	Others	15	4.0

## DATA ANALYSIS

### *Descriptive analysis*

The different variables in the study were assessed using the Mean (M) value and Average Deviation (AD). The highest mean value was observed in the eSAT (M = 5.68) and the lowest in Trust (M = 5.46). There was not much dispersion of agreement with the highest average deviation value was for eWOM (AD = 1.03) and the lowest average deviation was for eSAT (AD = 0.85).

**Table 3. Mean and Standard Deviation for constructs**

Construct	Mean (M)	Average Deviation (AD)
eSatisfaction (3 items)	5.68	0.85
Perceived Value (3 items)	5.55	0.97
Trust (3 items)	5.46	0.94
eLoyalty (3 items)	5.6	0.98
eWOM (5 items)	5.52	1.03

### *Hypothesis testing*

BMLR was used to test the hypothesized relationships in the model. BMLR has a widespread application in IS adoption studies. Some of the existing IS research areas where BMLR is used are online procurement systems (Teo, Lin and Lai, 2009), adoption of online business (Oliveira and Martins, 2010), online supply chain management systems (Lin, 2014), and mobile reservation system (Wang et al., 2016). The dependent variable (eWOM) in this study was converted to binary form (i.e., Agree = 1 and Disagree = 0) from its original 7 point scale (values  $\leq 4$  were considered as “Disagree (0)” and values  $> 4$  were treated as “Agree (1)”). The two unordered categories (choices) in dependent variables were 1) Agree to eWOM and 2) Disagree to eWOM. As there were just two unordered levels in the dependent variable, a BMLR model was used rather than Multinomial Logistics Regression (MLR) model. The factor loads of the four independent variables (perceived value, Trust, eLoyalty, and eSAT) were used for the BMLR model development and testing. In this study, the sample of 375 was split into two parts, one comprising 257 (70 percent) responses which were used for building the BMLR model, and the second part comprised of 118 (30 percent) responses which were used for testing and validating the final model.

In applied research, the presence of multicollinearity reduces the predictive power of the regression model (Myers, 1990). Thus, it is important to inspect if multicollinearity exists among the independent variables. Independent variables in the BMLR model were factor scores for the four continuous variables eSatisfaction, perceived value, trust, and eLoyalty and the five demographic categorical variables order value, shopping experience, family size, age, and gender. To test the multicollinearity between independent variables two methods were used. In the first method, the Variation Inflation Factor (VIF) was calculated. Both the inner VIF values and the outer VIF values were calculated using SmartPLS 3 software. The inner VIF values (Refer Table 4) ranged from 1.100 to 2.205 which were well below the threshold value of 5 (Ringle et al., 2015).

**Table 4. Inner VIF**

IVs	VIF
Age	1.172
ELOY	1.600
ESAT	1.918
Family Size	1.095
Gender	1.160
Order Value	1.177
PVAL	1.526
Shopping Experience	1.100
Trust	2.205

The outer VIF values (Refer Table 5) ranged from 1 to 3.586 which were below the threshold value of 5 (Ringle et al., 2016).

**Table 5. Outer VIF**

IVs	VIF	IVs	VIF
ELOY1	1.830	FAMILY_size	1
ELOY2	2.087	Gender	1
ELOY3	2.353	ORDERVAL	1
ESAT1	3.140	PVAL1	1.340
ESAT2	1.923	PVAL2	1.592
ESAT3	2.527	PVAL3	1.720
ESAT4	3.024	SHOPPING_EXP	1
EWOM1	2.845	TR1	2.389
EWOM2	3.081	TR2	3.610
EWOM3	3.593	TR3	2.197
EWOM4	3.586	Age	1
EWOM5	2.794		

In the second test, Pearson's correlation analysis was performed. To avoid multicollinearity, Pearson's correlation coefficient should not exceed 0.8 (Field, 2005). The highest correlation coefficient was 0.647 between the variables of trust and eSAT (Refer to Table 6). Thus there is no multicollinearity between the independent variables.

**Table 6. Correlation Matrix**

	Order Value	Shopping Experience	Family Size	Age	Gender	Perceived Value	eLoyalty	eSatisfaction	Trust	eWord-Of-Mouth
Order Value	1									
Shopping Experience	0.049	1								
Family Size	0.211	0.141	1							
Age	0.287	0.184	0.046	1						
Gender	0.168	-0.006	0.141	0.109	1					
Perceived Value	0.077	0.022	-0.088	0.058	-0.18	1				
eLoyalty	-0.022	0.131	-0.063	-0.064	-0.255	0.37	1			
eSatisfaction	0.006	0.137	-0.035	0.069	-0.024	0.473	0.469	1		
Trust	0.06	0.166	-0.072	0.135	-0.097	0.517	0.532	0.647	1	
eWord-of-mouth	0.058	0.098	-0.198	0.089	-0.169	0.445	0.418	0.388	0.508	1

While using BMLR, an important decision is to decide “*the right classification cut-off probability (Pc)*” (Dinesh Kumar, 2017, pp.363). To identify the optimal cut-off value for the model, “*Youden’s Index*” was calculated using the “*Sensitivity*” and “*Specificity*” values corresponding to different cut-off probabilities. Youden Index measures “*the effectiveness of a diagnostic marker and enables the selection of an optimal cut-off point*” (Fluss et al., 2005). The formulae for calculating Sensitivity, Specificity, and Youden’s Index are mentioned below (equations I, II, and III):

- Sensitivity = TP/ (TP+FN) - I
- Specificity = TN/ (TN+FP) - II
- Youden’s Index =Max (Sensitivity + Specificity – 1) -III

where TP stands for True Positive; FP stands for False Positive; TN stands for True Negative and FN False Negative

The maximum value of Youden’s Index was 0.728 (Refer Table 7) which occurred for the cut-off probability value of 0.80. Hence, for the final logistic regression model, the classification cut-off probability was selected as 0.80.

**Table 7. Youden's Index**

Classification cut-off probability (p)	Sensitivity(p)	Specificity(p)	Youden's Index
0.05	1	0.35	0.35
0.1	1	0.4	0.4
0.15	1	0.4	0.4
0.2	1	0.4	0.4
0.25	0.99	0.4	0.39
0.3	0.99	0.45	0.44
0.35	0.98	0.5	0.48
0.4	0.98	0.5	0.48
0.45	0.969	0.65	0.619
0.5	0.969	0.65	0.619
0.55	0.969	0.7	0.669
0.6	0.969	0.75	0.719
0.65	0.939	0.75	0.689
0.7	0.918	0.8	0.718
0.75	0.918	0.8	0.718
0.8 (P <sub>c</sub> )	0.878	0.85	0.728
0.85	0.857	0.85	0.707
0.9	0.786	0.9	0.686
0.95	0.684	1	0.684

Before deploying a BMLR model, various diagnostic tests need to be carried out. Statistical significance of a BMLR model can be checked using the Omnibus test (likelihood ratio test), Wald's test, and Hosmer-Lemeshow test (HL test) for deployment (Dinesh Kumar, 2017, pp. 363). The Omnibus test is used to verify whether the variance explained by the model is more than the unexplained variance. Wald's test is used to test whether an individual independent variable is statistically significant. HL test is a goodness of fit test for the BMLR model. The Omnibus test of model coefficients (Refer Table 8) is statistically significant since the p-value is 0.000 ( $\chi^2=59.514$ ,  $df= 13$ ). This implies that the independent variables are statistically significant.

**Table 8. Omnibus Tests of Model Coefficients**

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	59.514	13	.000
	Block	59.514	13	.000
	Model	59.514	13	.000

Wald’s test is a Chi-square test with a degree of freedom (df) = 1. Wald’s test statistic values and the corresponding p-values are mentioned in Table 9. The p-values for eSAT, order value, shopping experience, family size, age, and gender were greater than 0.05. This indicates that the relationships of eSAT, order value, shopping experience, family size, age, and gender with eWOM are statistically insignificant at the 0.05 threshold value.

**Table 9. Wald’s test**

Variables in the Equation							
		B Coefficient	S.E.	Wald	Df	Sig. (p value)	Exp(B)
Step 1 <sup>a</sup>	eLoyalty	1.18	0.512	5.31	1	0.021	3.256
	eSatisfaction	-0.417	0.603	0.477	1	0.49	0.659
	Trust	1.387	0.567	5.993	1	0.014	4.003
	Perceived Value	1.609	0.567	8.047	1	0.005	4.998
	Order Value	0.26	0.52	0.25	1	0.617	1.297
	Shopping Experience	0.455	0.422	1.162	1	0.281	1.577
	Family Size			3.214	3	0.36	
	Family Size (1)	23.118	11733.5	0	1	0.998	10969369628.590
	Family Size (2)	-0.843	1.491	0.32	1	0.572	0.43
	Family Size (3)	1.901	1.123	2.868	1	0.09	6.695
	Age			0.162	3	0.983	
	Age (1)	1.661	4.138	0.161	1	0.688	5.266
	Age (2)	1.604	4.19	0.147	1	0.702	4.974
	Age (3)	27.946	9141.77	0	1	0.998	1370644829254.276
	Gender (1)	-0.082	0.939	0.008	1	0.93	0.921
Constant	-1.485	4.558	0.106	1	0.745	0.227	

a. Variable(s) entered on step 1: eLoyalty, eSatisfaction, Trust, Perceived Value, Order Value, Shopping Experience, Family Size, Age, Gender.

The p-values for eLoyalty, trust, and perceived value were less than 0.05. This indicates that the relationships of eLoyalty, trust, and perceived value with eWOM are statistically significant (Refer Table 10).

**Table 10. Hypothesis**

Hypothesis	B Coefficient	p-value	Supported/Not-supported
H1: Perceived Value has a positive and significant effect on eWOM	1.609	0.005	Supported**
H2: Trust has a positive and significant effect on eWOM	1.387	0.014	Supported*
H3: eLoyalty has a positive and significant effect on eWOM	1.18	0.021	Supported*
H4: eSatisfaction has a positive and significant effect on eWOM	-0.417	0.49	Not-supported

**Note. \*p < .05; \*\*p < .01; \*\*\*p < .001.**

The HL goodness-of-fit test result (Refer Table 11) was non-significant ( $\chi^2=2.146$ ,  $df=8$ ,  $p=0.976$ ), hence, the conclusion was reached that the model does not differ significantly from the observed data. In the analysis of the eWOM for FOAs, the model fit the data quite well. A good model fit is indicated by an insignificant  $\chi^2$  value, which is represented by the HL goodness-of-fit test (Hosmer Jr. & Lemeshow, 2013).

**Table 11. Hosmer and Lemeshow Test**

Hosmer and Lemeshow Test			
Step	Chi-square	Df	Sig.
1	2.146	8	0.976

Table 12 presents the contingency table of the HL test for both Agree (=1) and Disagree (= 0) for eWOM.



**Table 12. Contingency Table for Hosmer and Lemeshow Test**

Contingency Table for Hosmer and Lemeshow Test						
		eWOM = 0		eWOM = 1		Total
		Observed	Expected	Observed	Expected	
Step 1	1	10	10.802	2	1.198	12
	2	7	5.346	5	6.654	12
	3	2	2.395	10	9.605	12
	4	1	0.928	11	11.072	12
	5	0	0.324	12	11.676	12
	6	0	0.145	12	11.855	12
	7	0	0.05	12	11.95	12
	8	0	0.01	12	11.99	12
	9	0	0	12	12	12
	10	0	0	10	10	10

**Logistic Regression Model Diagnostics**

The higher the value of the Cox and Snell R<sup>2</sup> and Nagelkerke R<sup>2</sup>, the greater will be the model fit. As indicated in Table 13, the values of the Cox and Snell R<sup>2</sup> and Nagelkerke R<sup>2</sup> were 0.411 and 0.688, respectively. The lower the -2 log-likelihood (-2LL) value, the better the goodness-of-fit of a research model (Hair et al., 2010). The -2 Log-Likelihood research model (-2LL<sub>research model</sub>) value was 44.919. The value for the -2 Log-Likelihood null model (-2LL<sub>null model</sub>) was 107.399. The difference between the -2LL<sub>null model</sub> and -2LL<sub>research model</sub> was 62.480 (= 107.399 - 44.919) which indicated sufficient change in the likelihood function.

$$\begin{aligned}
 -2LL_{\text{null model}} &= -2\{N_0 \ln(N_0 / N) + N_1 \ln(N_1 / N)\} && \dots(IV) \\
 &= -2\{20 * \ln(20 / 118) + 98 * \ln(98 / 118)\} \\
 &= 107.399
 \end{aligned}$$

where, N<sub>0</sub> = negative observations; N<sub>1</sub> = positive observations; N = total observations

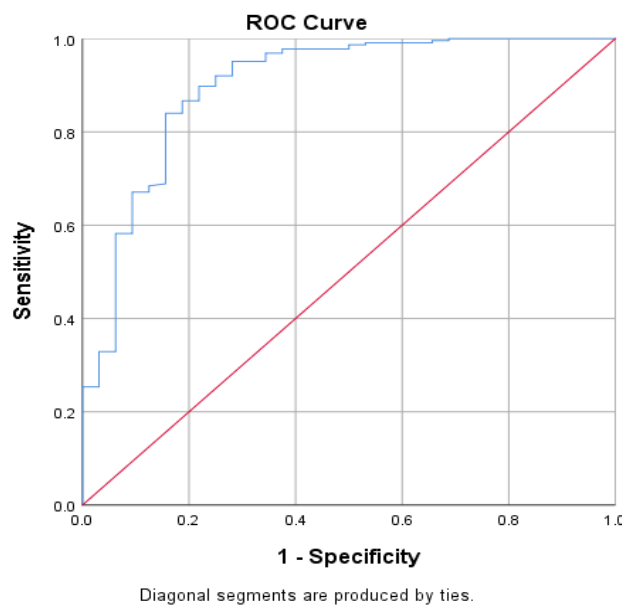
**Table 13. Model Summary**

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	44.919 <sup>a</sup>	0.411	0.688
a. Estimation terminated at iteration number 20 because maximum iterations have been reached. The final solution cannot be found.			

The derived BMLR model for predicting the eWOM for FOAs is given by equation (V):

$$\ln [P (Y=1)/ \{1-P (Y=1)\}] = 20.021+ 2.034 \textit{ Perceived Value} + 1.373 \textit{ eLoyalty} + 1.162 \textit{ Trust} \dots (V)$$

The statistical results (equation V) revealed that perceived value is the most important factor ( $\beta= 2.034$ ,  $p=0.005$ ) followed by eLoyalty ( $\beta= 1.373$ ,  $p=0.021$ ) and trust ( $\beta= 1.162$ ,  $p=0.014$ ) in predicting the eWOM for FOAs. The equation (V) can be used further to predict the probability of customer's eWOM intention for promoting online food services based on the calculated probability of eWOM. Further, the derived model (equation V) was tested with a sample of 118 respondents to examine its strength to predict the customers' intention to spread eWOM for FOAs. A ROC curve was developed between the derived eWOM values using equation (V) and the actual eWOM values. A ROC curve allows "to determine the ability of a model to discriminate between groups, to choose the optimal cut point, and to compare the performance of two or more tests" (Streiner & Cairney, 2007). The ROC curve for the developed model is shown in Figure 2 and the area under the ROC curve is provided in Table 14.



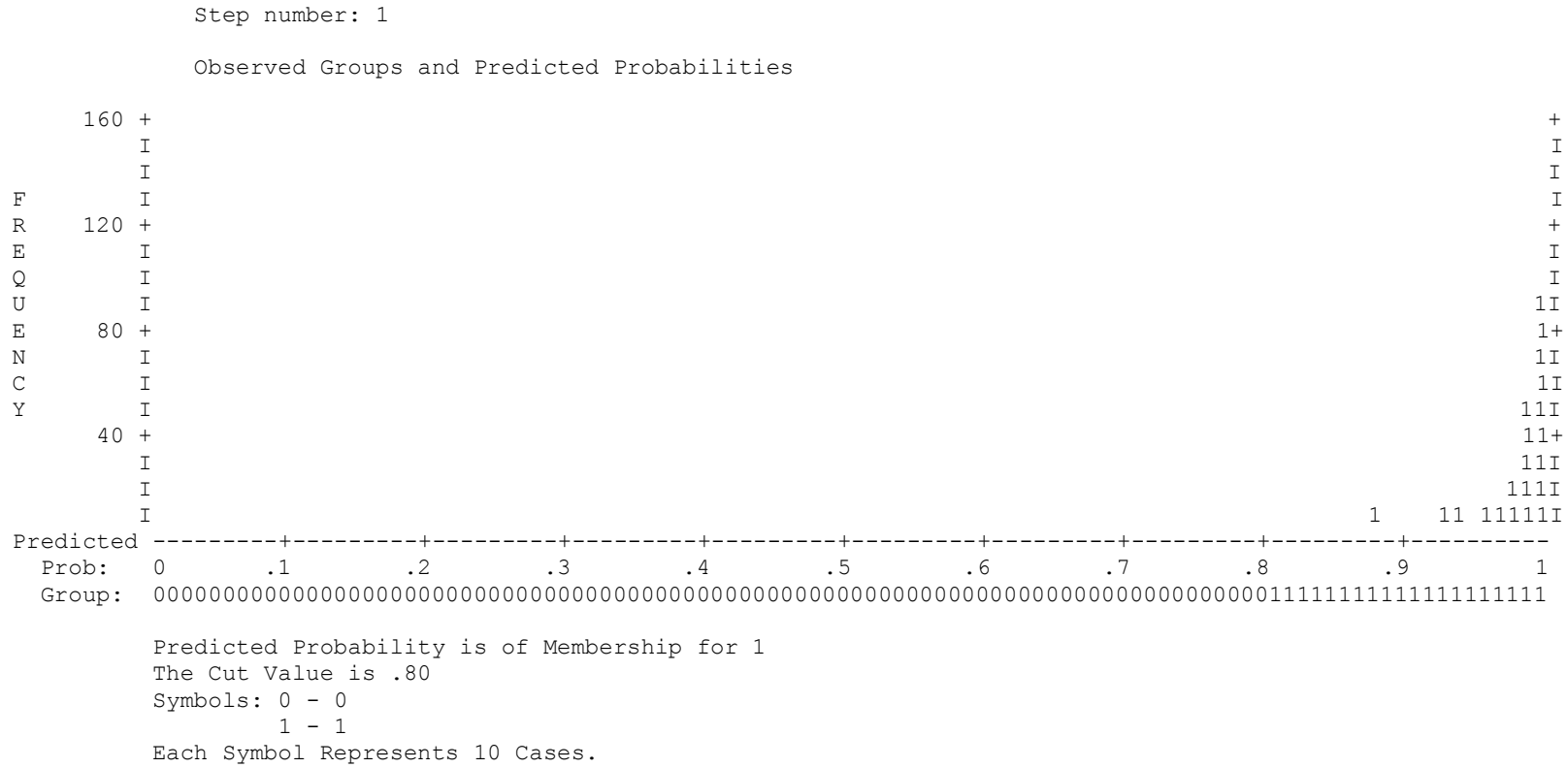
**Figure 2. Proposed Research Model**

The area under the ROC curve is 0.899. This means that the dataset has 89.9 percent concordant pairs. The value indicates the predictable power of the BMLR model.

**Table 14. Area under the ROC Curve**

<b>Area Under the Curve</b>
Test Result Variable(s): eWOM
Area
0.899
The test result variable(s): eWOM has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

The classification plot of the BMLR model is shown in Figure 3. The classification plot shows a clear distinction between the 0s (disagree) and 1s (agree).



**Figure 3. Classification plot of the logistic regression model**

## RESULTS AND DISCUSSION

Given the increased use of e-commerce for various transactions, the purpose of this study was to empirically investigate the relationships of perceived value, trust, eSAT, and eLoyalty with eWOM for FOAs. The results supported the predictive validity of most of the proposed factors. eLoyalty, trust, and perceived value were statistically significant in predicting consumers' intent to spread eWOM for FOAs. The results showed perceived value as the most prominent factor in shaping the customer's intention towards spreading eWOM for FOAs, which is in line with the findings of Hsu et al., (2013) in China. This study identified eLoyalty as the second most influential factor affecting eWOM for FOAs in the Indian context. Thus, the relationship between eLoyalty and positive eWOM for FOAs can be generalized. From the model, trust was observed as the third most prominent factor in shaping customers' intention to spread eWOM for FOAs. Lack of trust in FOAs will severely impact the customer's buying intention, this can further influence his intention to spread eWOM. In line with previous research work carried out by Wang et al., (2019), in this study, the relationship between eSAT and eWOM was insignificant whereas the relationship between perceived value and eWOM was significant. As a result, in the final multivariate prediction model, eSAT was dropped from the equation.

The BMLR test model had five categorical variables order value, shopping experience, family size, age, and gender. However, contrary to the mainstream IS and marketing literature (Zhou et al., 2014) this study finds that the factor of gender is insignificant while explaining the consumer's intention to spread eWOM for FOAs. Information Processing Theory (IPT) states that aged customers are less likely to seek additional information, and rely on heuristic decision-making processes while solving problems or making decisions (Ganesan-Lim et al., 2008). In contrast to IPT, in this study, the role of age was insignificant in explaining the consumer's intention to spread eWOM for FOAs. One plausible reason could be the fact that a higher number of respondents in this survey were in the lower age groups (51 percent in  $\leq$  the 30-age group and 38 percent in the 31-40 age group). A study by Cho et al., (2019) in China showed a significant difference in the consumers' perception of using FOAs between consumers who belonged to single-person families and multi-person families, whereas in India the family size of customers has an insignificant role in shaping customers intention to spread eWOM for FOAs. A cross-cultural study covering multiple developing countries can further help in understanding such deviations in findings.

## CONCLUSION

### *Theoretical and managerial implications*

This study's findings significantly contribute to the literature on the emerging area of FOAs by exploring the influence of the factors of eLoyalty, eSatisfaction, trust, perceived value, order value, shopping experience, family size, age and gender on the spread of eWOM. Also, this research work has studied the intention to spread eWOM by the FOA users in India, a culturally and linguistically diverse country. The factors of eLoyalty, eSatisfaction, trust, perceived value, order value and shopping experience can be used by researchers in different contexts, such as online business, real estate segment, online supply chain management systems and mobile

reservation systems. India is undergoing a massive transformation in the form of digitization initiatives, and because of the digitization drive, the FOA market is also expected to grow.

This study is one amongst the initial few studies to have specifically looked into FOA users in different Indian cities. The research findings of this study will add to the existing body of knowledge in setting up a platform for further research work to develop theoretically driven frameworks to explore the FOA services from strategic implication point of view.

There are several managerial implications of this study on FOAs. At the first place, the current research improves the knowledge and skill-set of FOA service providers as well as business in the food services industry. The research study findings point out to the different reasons for the spread of eWOM by FOA users. Besides, this study provides a deeper understanding of the FOA customers in a culturally diverse country, namely India. Secondly, this study indicates the key factors namely eLoyalty, trust, and perceived value, which the FOA and restaurant managers can focus upon to gain more eWOM marketing. Further, the study findings could be useful for policymakers, regulators, startups and other service providers interested in the food services industry. FOAs are gaining popularity in the developing economies and gradually they have become an instrument for survival for restaurant owners in large cities. The developing countries such as India, the population is sifting out of the countryside to big cities; the changing demographics and increasing willingness to consume ready-made food instead of home-made food have increased the popularity of FOAs by several folds. The study findings could help the local marketers as well as advertisers in building a better customer base. Similarly, foreign companies and multi-national companies (such as Amazon), which are interested in entering into online food services markets in developing countries can gain strategic insights from the results of this study.

### *Limitations and future scope*

Although this study gives us an idea about the factors that influence a customer to spread eWOM for FOAs, the sample of Indian customers prevents the generalizability of the results due to its lack of representativeness. Therefore, further studies should employ representatives across different regions to replicate the confirmed relationships in the model. A key methodological limitation was insufficient information from all strata for the lesser representative FOAs. For example, the information gathered for the FOA tiny owl only captures the male respondents with a family size of four or more and a shopping experience of more than three years. Hence, the information from other stratum was not captured for lesser representative FOAs, which could have added some additional insights to the findings and helped in the generalization of research findings. To overcome such biases in the future, quota sampling can be used to collect responses from all strata of the selected FOAs.

In this study cross-sectional data was used for analyzing the hypothesized relationships. Several studies in the IS literature have argued in favor of a time-lagged model, where the dependent variables will have a time lag of a few months. To spread eWOM the customer first needs to understand the product or service offered by the FOA completely. Future studies can focus on using time-lagged models or longitudinal models to analyze the effects over some time.

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